XXII ANNUAL MEETING OF THE EUROPEAN SOCIETY OF SURGERY – ESS
IV CONGRESS OF ARMENIAN ASSOCIATION OF SURGEONS
III EUROPEAN MEETING OF RESIDENTS AND PHD IN SURGERY

Երևան, Հայաստան

Yerevan, Armenia

Program. Որոպաշ կայք
www.ess2018.am
www.AAS.am
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Dear Colleagues, Dear Friends,

Under high patronage of Prime Minister of the Republic of Armenia Nikol Pashinyan the joint surgical meeting takes place in Yerevan, Armenia in 26-28.September.2018. In the joint meeting (www.ess2018.am) are included the XXII Annual Meeting of the European Society of Surgery (ESS, www.essurg.org), the IV Congress of the Armenian Association of Surgeons (AAS, www.AAS.am) and The III European Meeting of Residents and PhD Students in Surgery.

More than 200 surgeons from 29 countries take part in the Meeting. The invited speakers of the Meeting are famous surgeons, teachers of medical universities, scientists.

During your visit to Yerevan you will discover many historical and cultural aspects of our city. This year is special for Yerevan as we celebrate 2800th anniversary of its foundation.

We look forward to having exciting meeting and unforgettable experience.

Prof. Suren A. Stepanyan
President of European Society of Surgery
President of the Organizing Committee of the Meeting

Prof. Mushegh M. Mirijanyan
President of Armenian Association of Surgeons
Dear ESS Members, Dear Friends,

Over twenty years ago, a group of surgeons from Europe gathered together to create the European Society of Surgery. Among the visionaries were professors Sergio Stipa, Tadeusz Popiela, Robin Williamson, Luc Michel and others. We still follow their idea. The European Society of Surgery meetings took place in different countries being influenced by local surgical communities. Some of them were organised as joint meetings with other surgical societies. The XXII Annual Meeting of the ESS is connected with the IVth Congress of the Association of Armenian Surgeons, and this cooperation will enrich our scientific program. For the first time the meeting will be simultaneously translated into three languages. Moreover, this congress will host the 3rd European Meeting of Residents and PhD Students in Surgery, which became a part of the ESS Annual Meetings on a regular basis.

The program of the Joint Meeting will cover a variety of topics which should be interesting for experienced surgeons, young surgeons and residents. Initially, the main goal of our society was to integrate surgeons from eastern and western European countries. Now, our goal is also to integrate surgeons with different levels of experience.

Welcome to Yerevan!

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Հայաստանի Հանրի Հայոց Արգելական կազմակերպության XXI, Հայաստանի Հայոց Արգելական կազմակերպության

Congress of Surgery, Yerevan 2018
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Հարգելի կոլեգաներ,

Հայաստանի հանրապետության վարչապետ Նիկոլ Փաշինյանի բարձր հովան ներքո, 2018թ. սեպտեմբերի 26-28-ը Երևանում, մեր հանրապետության վիրաբույժության պատմության մեջ առաջին անգամ տեղի է ունենում համատեղ կոնգրես (www.ess2018.am), որն ընդգրկում է Վիրաբույժների Եվրոպական Միության (ESS, www.essurg.org) 22-րդ գանալիքի համաժողովը, Վիրաբույժների Հայկական Ասոցիացիայի (AAS, www.AAS.am) 4-րդ հնգամյա կոնգրեսը, Արցախի վիրաբույժների և հայկական գիտնականների գիտական-կրթական գործունեության 3-րդ կոնգրեսը:

Կոնգրեսում մասնակցության ժամանակ կազմվել է 29 պետություններից ավելի քան 200 վիրաբույժ, որոնցից ունի եթերություն Եվրոպայի և Ասիայի գիտնականներ, համալսարանների դասախոսներ, պրակտիկ վիրաբույժներ:


Ներկա կոնգրեսը հանդիսանում է Հայաստանի, Արցախի և Սփյուռքի հայ վիրաբույժների հեղինակության, համախմբվածության արտահայտությունը:

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Վիրաբույժների հայկական ասոցիացիայի 4-րդ հնգամյա վեհաժողովի գիտական կոմիտե

Որոշ. Ամիրյան Սլավիկ Սուրենի, Պրոֆ. Միրիջանյան Մուշեղ Միսակի – նախագահ,
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Organizing Committee of the IV Congress of Armenian Association of Surgeons

Վիրաբույժների հայկական ասոցիացիայի 4-րդ հնգամյա վեհաժողովի կազմակերպչական կոմիտե.

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OUR EXPERIENCE IN LAPAROSCOPIC BARIATRIC SURGERY

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The Department of Endoscopic and Endocrine Surgery of YSMU after M.Heratsi, “Astghik” Medical Centre

Obesity is a serious problem in the Republic of Armenia as worldwide. About 25% of the population have overweight and suffer from obesity that is accompanied with numerous diseases, such as: hypertension, diabetes, cardiovascular diseases, which lead to the rising of mortality rate ultimately. As a result of female obesity the frequency of infertility, miscarriage and fetal mortality rate increase. As a rule, different types of diets, exercises, different medicines are used which however have short-term or very modest results for patients with BMI ≥40 kg/m² or in case of co-morbid diseases ≥ 35kg/m².

On the base of Laparoscopic Surgery Department of “Astghik” Medical Centre the sleeve gastrectomy was performed to the 16 patients with obesity - there were 11 women (69%) and 5 men (31%) with mean age of 38 years. The average rate of bed-days was 6 days. The high level of bed-days rate depends on the necessity to hold patients under the long-term control in the initial period of method introduction. The average duration of operations was 3 hours. The effectiveness of operation depends on the preoperative, postoperative management of patients, on their nutritional education as well as on the psychological helping both in preoperative and postoperative periods. There were 2 (12%) postoperative complications. One patient had an accumulation of fluid in the abdominal cavity which had a blood-serous character up to 2 liters in amount according to the data of examination. The condition was stabilized in consequence of medicinal conservative measures. The other patient had difficulties in transition of meal through the stomach wire in the early postoperative period which was connected to the edema of cutted tissues - the condition was stabilized in consequence of conservative measures. The patients have lost their initial weight by an average of 65%. The obtained results allow to consider the sleeve laparoscopic gastrectomy one of the best methods of obesity treatment.

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LAPAROSCOPIC SLEEVE GASTRECTOMY AS A RELATIVELY SAFE METHOD OF OBESITY TREATMENT: SHORT-TERM ANALYSIS OF 50 PATIENTS

Aram Sedrakyan

Key words: Obesity, Laparoscopic sleeve gastrectomy

Introduction

Obesity is recognized as a global health crisis. Bariatric surgery offers a treatment that can reduce weight, induce remission of obesity-related diseases, and improve the quality of life. Bariatric surgery is becoming a more widespread treatment for obesity. Laparoscopy for bariatric surgery became the surgery of choice for surgeons worldwide, and laparoscopic sleeve gastrectomy (LSG) has been validated as a safe and effective treatment for morbid obesity with lower perioperative and longer-term risk in comparison with traditional surgical methods.

Methods

In 2015-2018, we conducted 50 bariatric operations, of which 38 were LSG, 8 were LGP, and 4 were repeated LSG. 78% of patients were female patients, and 22% male. The average age of patients was 37.6 ± 10.9. The average abdominal circumference was 121.4 ± 17.18cm. The body mass index of patients was.

Results

The average duration of the operation was 90-120 minutes with the application of continuous sero-serous sutures and 45-60 minutes - without application of sero-serous sutures. The patients were discharged on the 3rd day after the operation. EWL after LSG comprised 15-45% during the first year, and 10-15% after LGP.

After repeated LSG, on the third day in the postoperative period, the inconsistency of the metallic suture with sero-serous reinforcement was diagnosed in one of the patients and an intragastric self-expandable stent 30 cm long was inserted. The fistula closed on the 12th day. On the 24th day the patient applied to the clinic with acute pains in the lower abdomen and the stent was migrated to the ileo-cecal segment, which resulted in laparoscopy, an enterotomy with stent removal.

Conclusion

Bariatric surgery is associated with dynamic weight loss. Sero-serous reinforcement of the mechanical seam did not affect the postoperative course in our study. Our results showed that primary LSG is an adequate primary bariatric procedure with sustained weight loss, which is accompanied by a remission of concomitant diseases.

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SINGLE CENTRE EXPERIENCE IN BARIATRIC SURGERY AND BARIATRIC COMPLICATIONS TREATMENT.


Loginov Moscow Clinical Scientific and Practical Center of Moscow Healthcare Department,
Evdokimov Moscow State University of Medicine and Dentistry of Healthcare Ministry of Russia,
Pirogov Russian National Research Medical University (Moscow, Russia)

Key words: bariatric surgery, bariatric surgery complications, sleeve gastrectomy, roux-en-Y gastric bypass.

BACKGROUND AND STUDYAIMS:
We review our single center experience in bariatric surgery.

PATIENTS METHODS:
More than 700 patients underwent a bariatric procedure in Moscow Clinical Scientific and Practical Center between 2010 and 2018. Sleeve gastrectomy (SG) was performed in 54% cases, roux-en-Y gastric bypass (RYGB) was in 35% cases, great curvature plication in 5% cases, adjustable gastric banding was in 3% cases, revisional procedures were in 2%, gastric balloon was in 1% cases. The age of the patients was from 19 years to 68 years old. 85% were women, 15% were men. Mid age = 40.5±9.97 y. Mid weight = 124.7±31.4 kg, Mid BMI = 44.4±10.32 kg/m². 27% patients with T2D, 50% patients with AH, 36% patients with sleep apnea. Patients with severe sleep apnea were treated by the CPAP therapy before surgery.

RESULTS:
All procedures were performed laparoscopically. 90% patients were conducted according to the fast track protocol. Mean postoperation hospital stay was 3±2. Mean BMI after 1 year after surgery was 30.8±6.5, after 3 year 29.6±7.7. Type 2 diabetes remission has reached in 76% of cases. Complications were assessed by Clavien-Dindo scale. Early complications were pulmonary artery embolism, leaks, bleeding, ileus. Late complications were stenosis, ileus, anastomotic ulcer, sleeve dilation, weight regain, severe malnutrition, gold bladder stones, gastro-gastric fistula. Early mortality was in 2 cases.

CONCLUSIONS:
LGBP gives better results in aspect of weight loss and metabolic disorders. Regular assessment and right prophylactic of malnutrition is necessary. Large clinic capabilities provide more options in bariatric surgery and complications treatment. Better to treat complicated patients in especially experienced centre. Patients should undergo a careful selection and preparation before the operation, which allows reducing the number of complications

Contact person: Anastasiya Petrova
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**LAPAROSCOPIC SLEEVE GASTRECTOMY AS A RELATIVELY SAFE METHOD OF OBESITY TREATMENT: SHORT-TERM ANALYSIS OF 50 PATIENTS**

*Aram Sedrakyan*

*SlavMed MC*

**Key words:** Obesity, Laparoscopic sleeve gastrectomy

**Introduction**

Obesity is recognized as a global health crisis. Bariatric surgery offers a treatment that can reduce weight, induce remission of obesity-related diseases, and improve the quality of life. Bariatric surgery is becoming a more widespread treatment for obesity. Laparoscopy for bariatric surgery became the surgery of choice for surgeons worldwide, and laparoscopic sleeve gastrectomy (LSG) has been validated as a safe and effective treatment for morbid obesity with lower perioperative and longer-term risk in comparison with traditional surgical methods.

**Methods**

In 2015-2018, we conducted 50 bariatric operations, of which 38 were LSG, 8 were LGP, and 4 were repeated LSG. 78% of patients were female patients, and 22% male. The average age of patients was 37.6 ± 10.9. The average abdominal circumference was 121.4 ± 17.18cm. The body mass index of patients was.

In both cases, a nasogastral tube was removed on the following day. The postoperative period of control of patients varied from 3 months to 3 years.

**Results**

The average duration of the operation was 90-120 minutes with the application of continuous sero-serous sutures and 45-60 minutes - without application of sero-serous sutures. The patients were discharged on the 3rd day after the operation. EWL after LSG comprised 15-45% during the first year, and 10-15% after LGP.

After repeated LSG, on the third day in the postoperative period, the inconsistency of the metallic suture with sero-serous reinforcement was diagnosed in one of the patients and an intragastric self-expandable stent 30 cm long was inserted. The fistula closed on the 12th day. On the 24th day the patient applied to the clinic with acute pains in the lower abdomen and the stent was migrated to the ileo-cecal segment, which resulted in laparoscopy, an enterotomy with stent removal.

**Conclusion**

Bariatric surgery is associated with dynamic weight loss. Sero-serous reinforcement of the mechanical seam did not affect the postoperative course in our study. Our results showed that primary LSG is an adequate primary bariatric procedure with sustained weight loss, which is accompanied by a remission of concomitant diseases.
OUR EXPERIENCE OF PERFORMING LAPAROSCOPIC SLEEVE GASTRECTOMY IN THE TREATMENT OF OBESE PATIENTS IS THE UNDER OF THE DEPARTMENT OF GENERAL SURGERY

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Key words: Sleeve gastrectomy, Obesity, Bariatric operation

According to different data, about 10% of the world’s population suffers from obesity. Laparoscopic Sleeve Gastrectomy in recent years more and more is gaining popularity, as a bariatric operation, not only in the whole world but also in our country. Despite the fact that it carries a certain risk serious complications, which presents certain difficulties for treatment, step by step is improving preoperative preparation of patients, operation technique, postoperative management, what allow apply this method successfully conditions of adequately equipped surgical departments the general profile, where the team works closely consist of surgery, anaesthetist, psychologist and endocrinologist. We guess our lead-off experience will be interesting in this difficult deal.

Material and methods: We performed from November 2015 to February 2018 14 Laparoscopic Sleeve Gastrectomy. Usually we used standard surgical technique. Correlation men and women 1/13. The patient group consisted of 13 woman (92.8%) (of them 2 patients had diabetes mellitus) and 1 man (7.2%). The patients group average body weight was 148.4kg and body mass index (BMI) 58.14kg/m$^2$. Tab.1

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Males 1(7,2%)</th>
<th>Females 13(92,8%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>44</td>
<td>39,3(18-56)</td>
</tr>
<tr>
<td>BMI</td>
<td>49,2</td>
<td>45,1(35,1-55,5)</td>
</tr>
<tr>
<td>Body weight</td>
<td>148,5</td>
<td>137,4(114-170)</td>
</tr>
</tbody>
</table>

The list of required examination includes basic blood tests, upper gastrointestinal tract (GIT) endoscopy, thyroid hormone levels assessment, chest x-ray, ECG and cardiac echoscopy, consultations cardiology, psychologist and endocrinologist. In the analysis were not included patients, transfers the operation. sleeve gastrectomy. from open access. In determining the indication we used recommendations IFSO. Patients operated on BMI>35kg/m$^2$ with at least one obesity-related comorbidity qualify for bariatric surgery or with a BMI>40kg/m2, Without comorbidities. Surgery was performed under standard general anesthesia with endotracheal intubation. The patient was placed foler position with the surgeon between the legs and an assistant on each side. Operations were performed by one team, used endovideo surgical equipment of Shtorc, with 5 port.2 port-10mm, 2 port-5mm, 1 port-12mm.

We started to mobilize the greater curvature of the stomach from 4cm distance of pylorus. We used Lotus scalpel and sectioning its vessels step by step to the angle of his, where we visualized the left crus of the diaphragm. All adhesions between the walls of the stomach and the surrounding anatomical formations are removed. It should be noted that resection from an antrum begins by stapling device with a 60mm echelon (Ethicon or Covidien) green colour 2 units and other usually 3-4 pieces of blue. Usually the result is only of 5 to 6 triggers. It depends on the thickness of the stomach tissue. For gaster we for the new
stomach formation used about 12mm french calibration gasstral tube. Trigger distance of at least, 1sm outside the angle of his. We always overlay the second manual floor over the stapler line with thread V-loc 2.0.

For all 14 cases we used drainage blake, in the His angle region and output one of the trocar insertion sides. We, too used an air test all cases to suture failure through a gastric tube. The naso-enteric tube was removed after 3-5 days. On the 3-4 day after operation we repeat leak air test. If no leak the drain was removed. Discharged home on the 4-5 day after surgery, they received recommendations diet. We recorded all case video. At 3-month intervals, their body weight loss was monitored and they underwent contrast radiography.

Results: In none of the cases there was a conversion. Weight loss during the 1 years after Sleeve Gastrectomy was 78% and it was less pronounced in patients with increased BMI. In patients with BMI <35kg/ m² at the admission body weight was close to normal by the end of the six months after the surgery. The average concentration of vitamin B12 in observed patient was 409 pmol/L after 2 yaers 316 pmol/L its average preoperative level. 4(28,8%) patients developed postoperative pernicious anemia. from side effects gallston 2(14,4%), reflux esophagitis 2(7,2%). Early postoperative complications we did not observe, in respect of late postoperative complications on the 11-th postoperative day, we observed pain syndrome acute ulcer localized pyloroduodenal part 1 patient(7.2%). Two months after the surgery, 1 patient(7.2%) we noted abscess of right subcostal trocar(5mm) wound.

Conclusion. Sleeve gastrectomy is very at allows to achives significant loss of express body weight and represents perspective, safe operation. Experience of our work evidence once again, what LSG is anatomical-physiological and pathogenetic vindicated, simple, safe and effective to serve and sometimes definitive procedure for morbid obesity.

OUR EXPERIENCE IN OBESITY SURGERY

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Nairi medical center

II Surgical Department of «Nairi» Medical Center started its activity on obesity in 2009. The first surgeries were gastric laparoscopic banding. There were performed 27 gastric laparoscopic banding - 20 women and 7 men. We have performed simultant surgery to 9 people: to 7 people – cholecystectomy, to 2 - radical surgery of umbilical hernia. During one case due to the expressed adhesions of abdominal cavity it was necessary to switch to the laparotomy. Another patient, 4 years after the surgery had displacement of banding – ptosis to the stomach body; due to this case the correction of the banding’s position was performed. Other patient, approximately 5 years after the surgery had the disturbance of hermeticity of banding system. Under the local anesthesia a replacement of the regulative port by the new one was performed. We had 6 cases of banding removal – due to displacement and inflammatory and scar changes. From 2013 we started to perform sleeve-gastrectomy. 50 surgeries have been performed - 25 women and 25 men. : Four of them also had laparoscopic cholecystectomy, one person had radical surgery of umbilical hernia. To 2 patients there was performed simultaneous removal of banding and sleeve-gastrectomy. One patient had insufficiency of machine stitches; as a result of adequate draining of intraabdominal drainage the fistula closed within 2 weeks. As an early post-surgical complication there was one case of internal hemorrhage of machine.
stitches. There was performed re-laparoscopy, stanching the bleeding. After sleeve-gastrectomy the machine stitches have been absorbed by permanent serum-muscular stitches. The total body index of operated patients fluctuated from 31-69 kg/m². During post-surgical period there has been registered excess weight reduction for 30-82%. Hence, taking into account the international literature and personal experience, we believe that laparoscopic sleeve-gastrectomy is an effective method of an alimentary obesity treatment.
RECONSTRUCTIVE BREAST SURGERY AND SENTINEL LYMPH NODE BIOPSY

Artur Avetisyan

National Center of Oncology, Armenia

Key words: breast cancer, sentinel node biopsy, nipple-sparing mastectomy

Introduction. Currently Armenia lacks doctors who use sentinel lymph node biopsy and reconstructive breast surgery as routine methods. As a result, most of breast cancer patients undergo mastectomy and full auxiliary decreasing the patients’ ability to work and quality of life in general.

Clinical case-report. Patient: 40yo premenopausal female, multicentric invasive ductal carcinoma, cT1cN0cM0. Physical examination: a tumor of about 20mm, no skin/nipple changes, no palpable axillary, no supraclavicular lymph nodes. Mammogram/ultrasound: an 18mm suspicious left irregular lesion in the middle of the outer quadrants with associated spread microcalcifications, far away from the nipple. The distance of process is about 3.0cm to the nipple. Physical/radiological examinations: no evidence of abnormalities in the right breast, no palpable or radiologically suspicious axillary lymphadenopathy bilaterally. Tru-cut/core biopsy: infiltrative ductal carcinoma, Nottingham histologic Grade II. Immunohistochemistry (IHC): ER8+(5+3), PR8+(5+3), HER2neu(-), Ki67=9.1%, Luminal type A. CT chest, abdomen: other organ systems are within norm. Investigations: complete blood analyses within norm. Surgery: left nipple-sparing mastectomy (NSM), sentinel lymph node biopsy with blue dye plus radio-tracer method Technetium$^{99m}$. Final left specimen report: an invasive ductal carcinoma of the breast with multicentric Ca in situ, pT1; pN0 (3/0(sn)); G2, R0, V0, L0. The patient was satisfied with the cosmetic outcome. The surgical approach is found to be feasible.

Conclusion. Subject to indications, NSM and the sentinel lymph node biopsy are oncologically safe. Breast reconstruction has good outcomes and high satisfaction rates by patients.

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EXCISION OF BENIGN BREAST LUMPS: LESSONS LEARNT

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Keywords: benign breast lump

Background
In absence of any universally accepted guidelines for management of benign breast lumps (BBL), management is guided by the preferences of the surgeon and patient. The aim of this study was to analyze our experience of excision of BBL and to develop a model to guide the management of such lumps.

Methods
Retrospective analysis of all patients who underwent excision of BBL at our institute between Jan.2015-Nov.2017 was done. Patients who underwent core biopsy during evaluation were excluded. We categorized the histological diagnoses in two groups, Group I- fibroadenoma/fibrocystic disease; Group II- lesions at risk of recurrence (carcinoma, phylloides, granulomatous mastitis, microglandular hyperplasia).

Results
135 lumps were excised in 95 female patients whose mean age was 25.9± 10.8 years. 94 lumps were BIRADS category II while 41 were BIRADS category III. FNAC ruled out malignancy in all (fibroadenoma-75, fibrocystic disease-41, benign epithelial cells-19). Median clinical tumor size was (3.4±3.2 cm)(range:1-20cm) and median pathological tumor size was 3.5±3.01 (1-19 cm). Histology showed the lumps to be fibroadenoma in 103(76.3%), fibrocystic disease in 13(9.6%), phyllodes in 7(5.2%), carcinoma in 4(3.0%), granulomatous inflammation in 3(2.2%), microglandular hyperplasia in 4(3.0%) and ductal hyperplasia in 1(0.7%). We found a insignificant trend towards higher incidence of malignancy in lumps more than 5 cm (p=0.078). Incidence of Group II histological diagnosis was significantly high in lumps more than 3 cm.

Conclusion
Benign lumps more than 3 cm need to be excised, but after thorough evaluation, with a high degree of suspicion for a non fibroadenoma/ fibrocystic disease pathology. Excision with a clear margin in such cases may help.

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THE SIMPLICITY AND IMPORTANCE OF PEDICLED PERFORATOR FLAP RECONSTRUCTION AFTER BREAST CONSERVING SURGERY: A WIDER RANGE OF INDICATIONS IN IMMEDIATE PARTIAL BREAST RECONSTRUCTION.

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Keywords: Pedicled Perforator flaps

Background: Breast-conserving surgery (BCS) combined with radiotherapy is a today optimal treatment for early stage breast cancer. The wider range of use of pedicled perforator flaps (PPF) has gained popularity for its effectiveness in the reconstruction of partial breast defects, lower complication rates, cost and simplicity in Egyptian women with medium sized and large breasts. Herein, we present our experience with the use of different PPF (thoracodorsal, lateral thoracic and lateral intercostal artery flaps).

Methods: This study included 25 patients at our hospital from April 2013 to February 2017. With T1, T2 tumors who underwent BCS. With median age of 49 years. They underwent immediate breast reconstruction using the described PPF. Operative time was from 140-190 minutes. Data collected from patient medical records and esthetic look, patient satisfaction surveys, which reviewed and evaluated one year postoperatively.

Results: Different PPF based reconstructions performed in all patients, four patients developed complications that required additional intervention and needed a longer wound follow up (17 days on average) with a slight delay in adjuvant treatment. Overall, esthetic look and patient satisfaction reported to be excellent in 16 patients (64%) and good in 5 patients (20%). with a better outcomes regarding movement and motor functions of their arm and shoulder.

Conclusions: Pedicled perforator flaps can be safely applied in a wider range with lower cost, lower complications and lower morbidity for all patients even with large breasts, these flaps requires a thorough knowledge of the anatomy of the various perforator flaps and expertise in perforator flap surgery with no extra cost and limited resources settings in developing countries.

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COMPARISON OF TWO MINIMALLY INVASIVE BIOLOGY METHODS - BLES AND VAB.

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Keywords: breast cancer

Introduction: Due to the prevalence of ultrasound examination used as a prevention of breast cancer mainly among young women, more and more breast changes are subjected to histopathological verification. Until now, the gold standard in such cases was an open breast surgical biopsy, which numerous defects, forced clinicians to look for new techniques, such as VAB and BLES. The aim of the study is to compare the above-mentioned methods and their assessment in the context of diagnostic and therapeutic possibilities.

Materials and methods: The study involved 173 patients, that underwent VAB or BLES in 2009-2016. Approximately 3 months after the biopsy, the patients completed questionnaire, in which they assessed the procedure for discomfort associated with the procedure, discomfort after the procedure and the cosmetic effect of the procedure. The cosmetic effect of the biopsy was also assessed by the surgeon.

Results: BLES and VAB did not differ in terms of pain, duration and discomfort of procedure, breast bruising after the procedure, breast tenderness about 24 hours after the procedure or pain lasting over 3 months after the biopsy. Both types of biopsies did not differ also in case of the cosmetic effect assessed by the patient and by the surgeon. In 31 cases of BLES biopsies the margins of the lesion were assessed, in 17 cases the lesion was radically removed.

Conclusions: There were no significant differences between VAB and BLES in the course of the procedure, complications and cosmetic effect. Due to the possibility of evaluating the margins in case of BLES, it is a good alternative to a surgical cut-out biopsy. However, due to the frequent thermal damage to margins, there is no advantage to VAB in case of lesions with a high clinical suspicion of malignancy.

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A STORY OF A FLAP OR THE USE OF LATISSIMUS DORSI FLAP IN SURGICAL ONCOLOGY

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The latissimus dorsi myocutaneous flap (LDMF) is a versatile tool in reconstructive surgery. It is widely applicable flap option for coverage of defects involving any combination of soft tissue, muscle,
and bone. It is well known as the workhorse flap of the upper extremity and trunk, including the breast, thoracic, and abdominal wall. It has additional applications in head and neck reconstruction, esophageal repair, and reanimation of facial palsy.

We started to use LDMF in 2 patients with melanoma to cover the defects after wide excisions of giant skin tumours of scapular region.

The main application of LDMF in our centre is autologous breast reconstruction. For immediate reconstruction we use different modifications of the flap (folding, extended LDMF etc). It is also very useful in cases of fungating breast tumours. We use LDMF to resurface the defects after mastectomy for huge neglected and bleeding breast tumours.

The main complications of LDMF are seroma and dehiscence of donor-site, conspicuous scar on the back, loss of some back musculature functions.

Recently to reduce donor-site morbidity of LDMF we use muscle-sparing techniques and replace LDMF with thoracodorsal artery perforator (TDAP) flap. A similar skin paddle to the classical LDMF is raised on perforators from the thoracodorsal vessels. The advantages of TDAP flap are objective functional benefits of latissimus dorsi muscle preservation, reduced incidence of seroma formation, shorter postoperative recovery, less contour deformity and less pain at the donor site.

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RESISTANCE TO TAMOXIFEN IN RELATION TO MENOPAUSAL STATUS, HER-2 STATUS, STATUS OF STEROID RECEPTOR AND LYMPH NODES METASTASES STATUS-OUR CLINICAL STUDY

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Key words: Breast cancer, Tamoxifen, Resistance

Background: The study used data from medical and counselling of patients who were diagnosed with hormone-dependent breast cancer. Aim: The objective of the paper is to identify within a group of patients diagnosed with hormone sensitive breast cancer and those who have received adjuvant tamoxifen, and then to isolate the patients with whom the therapeutic effect of tamoxifen stopped.

Methods: The study analyzed 359 patients in the period from 2005 to 2017, at the Public Health Institution Hospital, Sveti Vračevi” in Bijeljina. Resistance to tamoxifen was developed by 140 patients (39%) and 219 patients (61%) did not develop resistance to it.

Results: More common emergence of resistance is in the premenopausal group of patients (p<0.001). Statistically significant difference in frequency of resistance to tamoxifen was observed in the group of patients with ER-/PrR+ status of steroid receptors (p<0.001). In relation to HER-2 status of diagnosed cancer, a statistically significant difference in frequency of resistance emergence during tamoxifen therapy
in patients with HER2-positive status (p<0.001) was observed. We found that there is a statistically significant difference between patients with metastatic in lymph nodes compared to patients who had no metastases in lymph nodes (X²=38.321; p<0.001).

**Conclusions:** The analysis of menopausal status of patients, status of ER/PgR receptors status, HER-2 status of diagnosed cancer and status of lymph nodes trying to sort out the parameters on the basis of which a group of patients who can be expected to develop resistance to tamoxifen could be differentiated.

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MINIMALLY INVASIVE SURGICAL TREATMENTS FOR COLON CANCER

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Pathology of colon is widely spread among oncological diseases, being the second most common cause of death worldwide. Surgical interventions are performed in conventional open way and laparoscopically. Laparoscopy has a number of advantages: postoperative pain reduction, reduced duration of hospital stay, absence of wound inflammation and eventration.

Since 2013, the following surgeries are performed in our department in cases of colon cancer: laparoscopic resection with anastomosis and transanal Hartmann’s reversal.

For right colon cancers, 23 surgeries were performed both for giant and small-sized cancers. Through laparoscopy mobilization of the right colon with angulus ileocecalis was carried out, and resection and anastomosis were performed extracorporally: stapled side-to-side ileo-transverse anastomosis was made. Postoperative complications have not been observed. The patients were discharged from the clinic on the fifth day of the operation.

In case of cancer of the left part of colon – descending, sigmoid, upper third of rectum, laparoscopic resection with stapled colorectal anastomosis was done, or Hartmann’s surgery. In cancer of medial and lower part of the rectum resection with coloanal anastomosis with a circular stapler was done. After these interventions there was 1 case of anastomotic breakdown which developed on the 4th day after surgery, re-laparotomy was done, Hartmann’s operation. The patient was discharged on 15th day, and rehabilitation surgery was done after 6 months. Since this case, in rectal cancers, after resection we form suspended ileostoma, which is removed after few weeks. Usually the patients were discharged on the 5th day of surgery.

Tumors of anal region, located app 4-5 cm from anal edge, are usually treated through abdominoperineal extirpation of the rectum with formation of permanent colostomy. We performed transanal mesorectumectomy with formation of colon anastomosis. All our patients received neoadjuvant chemotherapy and radiotherapy. In postoperative period there was one case, despite R_0 histological picture, when patient had local relapse with growth into vagina. The patient was operated again, posterior exenteration with formation of colostomy was performed. Another patient, who had radiotherapy before the surgery, also had transanal mesorectumectomy with formation of coloanal anastomosis. In postoperative period a peristomal abscess developed, treatment of which resulted in stenosis of anastomosis. A balloon dilation was tried, but without success. After 3 months the patient was again operated, resection of the mentioned site was done, with formation of coloanal anastomosis. The patient is currently living a productive life, has low level sphincter deficiency, which is not limiting the activities of the patient.

Minimally invasive approach in colon cancers allows causing minimal surgical trauma to the patient,
THE MODERN APPROACHES OF THE HEMORRHOIDS TREATMENT

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MC Proctoklinik, MC Surb Grigor Lusavorich, Chair of Coloproctology, YSMU

Key words: hemorrhoids, prolapse of hemorrhoidal nodes, cavernous tissue hyperplasia

Introduction. The wide incidence of hemorrhoids, the epidemic character of it in industrialized countries, the incidence of working age people, prolonged hospitalization, leading to the significant loss of working days, makes it as one of the unresolved general medical and social-economic problems. The influence of unfavorable factors (constipation, pregnancy, physical activity, etc.) leads to disrupted blood circulation in the cavernous structures, increases the number and diameter of arteriovenous anastomoses, narrows the diverting veins, which leads to cavernous tissue hyperplasia and the development of the disease.

Methods. From 2015-2017, 633 patients was diagnosed with hemorrhoids (stage II-IV). 211 of them, (33.3%) underwent hemorrhoidectomy by Milligan-Morgan by modification of our clinic. 81 women, 130 men were operated. The age of patients was from 19 to 78 years. The disease duration ranged from 1 to 25 years. All patients were treated conservatively for a long time previously. 112 (17.7%) patients were treated on an outpatient order with the use of minimally invasive technologies: 72 Vacuum ligations of hemorrhoids, 22 coagulation of nodes with “Ultroid” device, 18 removal of node (thrombectomy) with “Surgitron” device were performed. 68 men 44 women were in this group. The age of patients vary from 19 to 70 years. The disease duration ranged from 1 to 5 years.

Results. In the postoperative period, complications were observed in 9 (4%) patients (bleeding, significant prolonged pain syndrome, anal canal scar deformation). After minimally invasive treatment complications were noted in 3 (3%) patients (bleeding, pain syndrome). There were no complications associated with the latex ring leakage.

Long-term results were observed within 6-12 months after treatment. Relapse of the disease was diagnosed in 4 (2%) patients, after surgical treatment with stage III-IV. Prolapse of hemorrhoidal nodes was not in 2 (2%) cases in patients with stage II, and 5 (4%) patients with stage III after minimally invasive treatment. The prolapse was stopped by repeated ligation in 4 patients, in 3 cases hemorrhoidectomy was performed.

Conclusion. Thus, the differentiated approach to hemorrhoids treatment allows to achieve good clinical results and to minimize the incapacity of patients. It should be noted that preventive phlebotrope therapy with Detralex twice a year is recommended in all cases, which reduces the frequency and the number of complications and relapses.
Key words: hemorrhoids, anal fissure, minimally invasive treatment,

Introduction. The reception of proctologic patients requires strict observance of moral, ethical and aesthetic standards, unlike any other profession. The minimally invasive treatment methods get more importance in the recent difficult economic situation and the high price of the inpatient treatment. Many patients simply refuse to be hospitalized, despite their complaints and sufferings, based on their financial and economic status.

Materials and methods. 1268 patients were admitted in “Proctoklinik” MC in the period of 2015-2017. The hemorrhoids was diagnosed in 499 patients (stage II-IV), acute and chronic anal fissure was diagnosed in 269 patients. There were 365 women, 403 men. The age of the patients was from 19 to 75 years. The duration of the disease ranged from 1 to 25 years. All patients were treated conservatively for a long time. 287 (37.3%) patients were treated on an outpatient basis with the use of minimally invasive technologies. Vacuum ligations of hemorrhoids were in 72 (9.4%) patients. Coagulation of the nodes with the “Ultroid” device were 22 (2.9%) and removal of the node with local anesthesia (thrombectomy) with Surgitron- (2.34%) in 18 patients. Anal fissure transrectal laser therapy with an anal sphincter blockade under local anaesthesia with the “Matrix” and “Surgitron” devices were in 175 (22, 8) patients. The number of laser therapy sessions is 10. The laser radiation spectrum was infrared, pulsed at frequency 80 MHz. 142 female and 145 male patients were involved in this group. The ages of patients were from 19 to 70 years. The duration of the disease ranged from 1 to 5 years.

Results. After minimally invasive treatment complications were noted in 7 (2.43%) patients (bleeding, pain syndrome, anal sphincter spasm). There were no complications associated with the leaking of the latex ring.

Long-term results were observed within 6-12 months after the treatment. After the minimally invasive treatment, prolapse of hemorrhoidal nodes were noted in patients 2 (2%) with stage II and in 5 (4%) patients with stage III. In 4 patients the prolapse was stopped by repeated ligation, in 3 patients hemorrhoidectomy was performed. Relapse of the anal fissure was diagnosed in 5 (2.85%) patients after fissure excision and posterior dosed sphincterotomy under the spinal anesthesia.

The conclusion. It should be noted that the successful minimally invasive treatment is possible on an outpatient basis if it is organized clearly. For this, modern equipment of the proctologic room, the presence of a qualified narrow specialist, and the proper selection of patients are necessary. The use of minimally invasive technologies allows exclude or significantly reduce postoperative pain syndrome, stress and discomfort, which help this group of patients in their social and common adaptation.
DISTAL RECTAL CANCER - ANAL SPHINCTER RECONSTRUCTION AFTER ABDOMINOPERINEAL RESECTION

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Introduction. The problems of diagnostics and treatment of distal rectal cancer have gained increasing urgency at the recent times. It is because of some factors, among which there are two factors having leading importance. Essential increase of rectal cancer morbidity in Armenia is a constituent element. The second, not less important, factor is a successful development of surgery and anesthesiology, which allows to widely performing difficult operations on rectum. It makes necessity for further improvement of operative techniques and introduction of modern oncological principles in the treatment of patients with rectal cancer.

The goal of investigation. Improving of functional results and quality of life by surgical treatment of distal part of rectal cancer.

Materials and methods. For the last 16 years were operated 1014 patients with colorectal cancer, from them at 410 (40,4 %) cancer localized in rectum, from which at 155 (37,8 %) in distal part of rectum. There were 82(52,9%) men and 73 (47,1%) women.

Since 1999 twenty two patients were operated with graciloplastics for creation of closing system after abdominoperineal resection operated for rectal cancer with pulling sigmoid colon into perinea. Adenocarcinoma of ampular part of rectum was diagnosed in all patients (pT2-3N0M0G1-2). Tumor was mobile, had no invasion to neighbor organs and mesorectal tissue. Distance metastases were not found. The mean age was 47.5 years. There were 13 men and 9 women.

Since 2009 yr. developed and put into practice reconstructive plastic surgery to preserve the continuity of the intestinal tract. When abdominoperineal extirpation of the rectum performed reconstruction of the new closing apparatus (neosphincter) and rectum (neorectum) from the patient’s own tissues (distal colon and the remaining portions of levator), with the formation of S-shaped reservoir with levatoroplastics. By this method 18 patients were operated. There were 9 men and 9 women.

Results. All operations were successfully ended. The median operative time was 210-240 min. The median estimated blood loss was 250 ml. There were no preoperative complications, no patients required blood transfusions. Postoperative period was taking its smooth course. There were no postoperative complications. Would healed by primary stretch. The sutures were released on the 7-8th day from femoral would and on the 10-11th day from laparotomic wound and perinea. Surplus of pulled sigmoid colon was cut off on the 14-15th under local anesthesia. The patients were discharged from hospital on the 15-16 day after operation. The patients have been examined in 1, 3, 6 months after leaving the hospital and are in control during 16 years.

Discussion. The extension of the indications to sphincter-saving operations has enabled to lower an amount of operations with rectal cancer resulted by creation of constant colostomy. However, the progressive tendency at some patients (25-30%) still will require surgery with deleting all closing system of rectum. In our point of view, the method of creation of the controlled closing system (neosphincter) by the flap from m. gracilis after abdominoperineal resection of rectum, and also the creation of reservoir by sigmoid colon with levatoroplastics designed in Coloproctology Research Center under the leadership of Prof. A.M.Aghavelyan is a very prospective, important and progressive way for developing this problem.
PERINEUM PLASTICS FOR DEFORMATION AFTER PARTURITION

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Gas and feces incontinence - polyetiological state. In surgical practice, the vast majority of patients with fecal incontinence are women; it is caused by obstetric trauma. Many of them have a history of prolonged childbirth or damage when the resolution is through the natural ways. According to the literature such obstetric trauma occurs in 0.5-2% of childbirth, through natural routes.

Objective: to evaluate the results of surgical correction of anal sphincter insufficiency caused by postpartum trauma.

Patients and methods: Despite the immediate recovery of the integrity of the clearly damaged perineum by the obstetrician-gynecologist, functional disorders of the anal sphincter occur.

Despite the immediate restoration of the integrity of the obstetrician-gynecologist Obviously damaged perineum there are functional disorders of the anal sphincter.

According to our data, many women (up to 85% of cases) after this intervention formed a persistent violation of the mechanism of the sphincter. Subsequently, this violation is confirmed by endosonography of the anal canal.

The majority of patients revealed the symptoms of the incontinence of the anal sphincter. We present an analysis of surgical treatment of anal sphincter insufficiency over the past 15 years. Patients with II and III degree of insufficiency, i.e. non-retaining gases, liquid and solid fecal masses, underwent surgery. In total, 287 patients were treated. The age of the patients ranged from 19 to 73 years. 147 patients (51.2% of cases) had been postpartum traumas. In 89 of them, which is 31% of cases, postpartum insufficiency was combined with perineal deformity, and in 51 (17.8%) – with rectocele.

In order to avoid an involuntary act of defecation in 90.5% of cases, patients caused constipation. Bowel emptying was subsequently carried out with laxatives or cleansing enemas, which for many years contributes to the appearance of rectocele.

Results: Severe damages to the perineum, such as grade III ruptures, usually lead to incontinence (137 patients).

We performed sphincteroplasty in 47, which is 34.3% of cases, sphincter - 51(37.2 per cent) and sphincteroplasty in combination with the elimination / liquidation / of rectocele in 39 patients (28.5% of observations). Complications during the postoperative period were in 5 patients (3.6% of cases). All of them were associated with suppuration of postoperative wounds.

Two of them had relapse of anal insufficiency, which is 1.4% of cases. The rest had good functional results, confirmed by endosonography and sphincterometry.

It should be noted that in the early period after the childbirth trauma, the surgical corrections were limited with sphincteroplasty.

Patients aged or in the later stages of the operation sphincteroplasty with the elimination of the rectocele was performed.

Conclusion:

Increasing awareness of patients and doctors about the successful treatment of fecal incontinence
will lead to an increase in appeals to a specialized institution for surgical correction of postpartum anal sphincter insufficiency;

The prolonged presence of anal sphincter insufficiency contributes to the violation of the act of defecation, which in turn leads to the appearance of rectocele, since the patients themselves cause constipation.

**TACTICS OF SURGICAL TREATMENT OF LOCALLY ADVANCED CANCER OF RECTUM**

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Despite the great success achieved by modern medicine in the diagnosis and treatment of malignant tumors of the colon, in most cases, the tumor process is recognized only in the late stages of the disease. Locally spread rectal cancer - is the spread of tumor and inflammatory processes beyond the tumor focus though the intestinal wall, on retroperitoneal tissue, abdominal wall and surrounding organs with the possible formation of inflammatory infiltrates, abscesses and phlegmon with all forms of acute and chronic course.

Connecting the perifocal inflammatory process creates certain changes in the clinical current, significantly complicates the possibility of research methods of surgical treatments, increases postoperative complications and mortalities, worsens the prognosis of patients with colon cancer.

**Materials and methods:** Over the past 15 years 1125 patients were hospitalized in the clinics with rectal cancer. Out of which, locally advanced rectal cancer cases are 136, representing 12.0% . The spread of tumor and inflammatory processes to the surrounding organs and tissues of the pelvic cavity are accompanied by the severity of pain in 97.4% of cases, dysfunction of the pelvic organs in 88.9% of cases and body temperature increase up to 39°C in 72.0% of cases. 92 patients underwent radical operation, which is 67.6% of all cases.

44 patients were derived unloading colostomy with drainaging of ulcers and infiltrates.

After complex radiotherapy and chemotherapy, 85 patients were performed radical operations, which is 62.5% of all cases.

Radical surgical interventions included resection or extirpation of the rectum with removal of the uterus with appendages in 13 patients (14.1% of all cases), with removal of the bladder in 3 cases (3.3% of all cases), evisceration of the pelvic organs in 2 cases (2.2% of all cases).

**Conclusion:**

Locally spread rectal cancer is accompanied by perifocal inflammation in the form of infiltration and abscesses of the intestinal wall and surrounding organs and tissues.

A comprehensive approach to the treatment of locally spread rectal cancer with radiation and chemotherapy allows performing radical surgery in 67.6% of cases.

The formation of unloading colostomy with the use of wide range of actions antibacterial therapy contributes to the implementation of radical operations.
SURGICAL TREATMENT OF CHRONIC CONSTIPATION CAUSED BY DOLICHOSIGMA

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The solution of the problem of prevention and treatment of chronic constipation is currently one of the most important and topical issues of Coloproctology.

Purpose of researche:
To develop optimal surgical tactics for the treatment of patients with chronic constipations is bowel emptying, which is carried out with the help of cleansing enemas and laxatives.

Materials and methods: Fifteen-year experience of surgical treatment of 289 patients with chronic non-tumor colostasis was analyzed. From which, women were 167 (57.8%), men – 122 (42.2%), the average age of patients – 45.9 year.

The indication for surgical treatment was considered to be a resistant form of chronic constipation, which was established on the basis of complaints, anamnesis and examination data in dynamics; colonoscopy excluded the presence of tumor and ulcerative colitis process: established the difficulties in the examination due to additional loops, their mobility, acute kinks (loops) and high location of the colon knees. Due to the above mentioned in 9.7% of cases (28 patients) total examination of the colon was not carried out. The right parts were not examined. Irrigoradiography identify of the location, extension and expansion of different parts of the colon.

In 10.7% of cases (31 patients) were an expansion of the left colon. Passage of barium suspension throughout the gastrointestinal tract was slowed down in 29.4% of cases (85 patients).

Results: The scope of surgical interventions was established according to the examination and revision of the abdomen / abdominal cavity/.

In 69 patients (23.8%) sigmoid colon resection was performed, in 162 (56.2% of cases) left – sided hemicolectomy was performed and in 58 patients (20% of cases) subtotal colectomy was performed. The formation of primary interintestinal anastomose was performed in 167 patients (57.8% of cases). All patients were discharged home under the supervision of a coloproctologist. Inconsistency of anastomosis was observed in 6 patients (2.0% of cases). Anastomosis is disconnected in three cases.

Functionally 238 patients (82.3% of cases) give positive results, that is, they had a daily regular defecation 11 patients (14.2% of cases) act of independent defecation was every 2-3 days.

In connection with the continuing constipation in 10 cases (3.5% of cases), colon resection was performed in future.

Conclusion:
Patients with chronic resistant form of constipation due to dolichosigma or dolichocolon must be operated in the stage of subcompensation.

Adequate volume of surgical intervention in 82.3% cases leads to good results patients before the stage of decompensation.

Morphological characteristics of all layers of the wall of the removed parts of the colon will help to establish an adequate choice of the boundaries of colon resection.
COLONIC OBSTRUCTION IN PATIENTS WITH COLORECTAL CANCER  
(PROBLEMS AND DECISIONS)

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Introduction.
Recently noticeable increasing rate of morbidity with colonic cancer has been registered. In spite of successes in diagnosis of this disease from 30 to 70% patients with advanced cancer process and presence of different complications enter a hospital. One of the rate complications of colorectal cancer is colonic and rectal obstruction.

Material and methods.
From 1999 to 2016 yy., 2758 patients with colonic cancer on different sites were operated. Disease course in 847 patients (30,7%) is complicated with colonic obstruction. There were 472 men and 375 women. On the whole the aged persons are prevailed. The patients divided into two groups: the first group is included 302 patients (35,6%) with acute colonic obstruction; 545 patients (64,4%) with partial colonic obstruction composed the second group. Practically all the patients with acute colonic obstruction were hospitalised in a heavy or middle-heavy states. The left colonic tumour in 571 patients (67,4%) and the right colonic tumour in 222 patients (26,2%) accordingly and transversal colon in 54 (6,4%) were more often the cases of obstruction.

Results and discussion.
Radically urgent resection of cancer was performed on 218 patients (72,2%) of those 160 with left colonic tumours. The operation being concluded by Hartmann resection in 85, resection of sigmoid colon in 45, abdomino-perineal resection of rectum in 22, subtotal coloectomy in 8. For the right colonic tumour in 58 patients the right hemycolectomy with covering ileo-transversoanastomosys was performed. From 218 operated 18 patients died. It was 8,2%.

84 patients (27,8%) were operated palliative of those 58 in connection with a heavy common state in covered the proximal colostomy as one of mufty-staged treatment with subsequent out of radical operation. Among those colostomy performed in 16 cases, ileostomy in 6, ileo-transversoanastomosis in 4. In this group 14 patients died. The rate of mortality was 16,6%.

Patients with partial intestinal obstruction were operated on the 2-3 days after hospitalisation. In this group the attempt of recovering the intestinal passage with conservative measurement led only to the temporary effects. Valuation of the general state of patients and indiced clinico-laboratory research is accompanied by maximal correction of metabolitic disturbance before operation as well as during carrying out of surgical tretament. From all 545 patients with partial intestinal obstruction 475 (87,2%) were operated radical and 70 (12,8%) palliative. In 352 cases made resection with covering of primarily anastomosis (236) and pull through on upper site of bowel in anal canal (116). The remaining 101 patients were resected by Hartmann procedure, 12 - abdomino-perianal resection of the rectum with colostomy, and 10 - abdomino-perineal extirpation of rectum. In this group during the postoperative period died 27 patients. The mortality rate – 5,6%.

In 70 patients took place advanced process in connection with transversostomy was covered in 47, sigmostomy in 18, ileo-transversoanastomosis in 5. Within next postoperative days 8 patients died in this
group (11.4%).

From 847 operated patients 125 (14.7%) had complications in the next few postoperative days, among them 66 (7.7%) with lethal outcome. The analysis of postoperative complication in remaining 59 patients has shown that more frequent it arises in operated patients with acute colonic obstruction. 18 patients were secondly operated because of postoperative complications.

STRATEGIES IN TREATMENT OF RECURRENT ANAL FISTULA

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Introduction. It has been a long time that rectal fistula treatment remains the most difficult problem of colonoproctology. Despite improvements in surgical technique the percentage of relapse and anal insufficiency remains high, which, according to various authors are 2 - 11.7% and 14%, respectively. Research objective: Improvement of surgical treatment results and quality of life in patients with recurrent anal fistula.

Material and Methods: During the period from 2000 to 2016 for about 135 patients with anal fistula underwent surgical treatment, of whom 47 (34.8%) had disease relapse. There were 39 (82.9%) males, 8 (17.1%) females. Age rate was from 27 to 63 years. The disease duration ranged from 8 months to 9 years. All patients previously had undergone surgery from 1 to 5 times.

Results and discussion: Extra-sphincter fistula was diagnosed in 6 (12.76%), trans-sphincter in 19 (40.4%) and intra-sphincter in 22 (46.8%) patients. All 47 patients had undergone surgery. The selection of the treatment was done taking into account the disease duration, location and height of the inner hole, relation of the fistulous passage to the anal sphincter, the severity of cicatricial changes, anal sphincter. In case of intra-sphincter fistula, the fistulectomy was performed into the anal canal lumen with suturing the wound edges to the bottom. In extension of the fistulous passage of more than 2 cm the fistulectomy was performed into the anal canal lumen so that the wound was made cylindrical. In 10 cases perianal skin was sutured tightly and in 12 cases the wound remained open and was cured by secondary healing. Suppuration of sutured wound was observed in one case. In trans-sphincter fistula the same treatment was used only with additional suturing of the sphincter’s dissected fibers with catgut sutures, in 10 cases with suturing and in 9 cases without. In patients with extra-sphincter fistula the selection of the surgery method depended on the level of fistula’s severity. In the I level of severity (rectilinear fistulous passage, absence of purulent cavities, small sized inner hole and without severe cicatricial changes) fistulectomy was performed into the anal canal lumen with double-row suturing of the sphincter with catgut sutures and suturing of distal part of the perianal skin (4 patients). In case of extra-sphincter fistula of the II-III level of severity (wide and branched fistula passage with purulent cavity, wide and cicatricially changed inner hole), in 2 patients fistulectomy was performed with simultaneously tightening ligature. The limited dissection of the sphincter on the back wall of the anal canal didn’t exceed 0.7-0.8 cm, and on the front wall was no more than 0.4-0.5 cm. In combination of anal sphincter insufficiency with severe anal fistula fistulectomy was performed with simultaneous sphincter- or sphincter elevation plastics. In the
close or distant post-surgery period no complications were noted, however the preservation or sustained improvement of obturative function was observed.

Thus, we have shown that the selection of the individual surgical treatment of recurrent anal fistula taking into account the shape and extent of the fistula, the fistulous relation to the anal sphincter, the severity of cicatricial changes, as well as the presence and severity of muscle disease of obturative apparatus of the rectum allow to reduce the incidence of post-surgery complications and preserve or restore the obturative function of the anal sphincter.

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REDUCED MORTALITY AFTER INTRODUCTION OF MULTI-MODAL 3 COMPONENT NEC PROPHYLAXIS SCHEME FOR TREATMENT OF NECROTIZING ENTEROCOLITIS (NEC) IN NEWBORNS.

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Introduction: Neonatal necrotizing enterocolitis (NEC) is still the most frequent lethal disease arising from the gastrointestinal tract in preterm newborns. Necrotizing enterocolitis- multifactorial nonspecific inflammatory condition - is characterized by variable damage to the intestinal tract, ranging from mucosal injury to full-thickness necrosis and perforation.

During 5 (2011-2016) years in neonates’ intensive care unit of “Muratsan” clinical complex of YSMU there were 3028 newborns with 213 cases of NEC (7%). 77 (36.2%) – patients died.
12 newborns (5.6 %) – were operated – with 83.3% of mortality.
22 newborns (10.3%) – were drainaged – with 90.9% of mortality.
187 newborns (87.8%) – were treated conservative – with 29.4% of mortality.

Methods: The retrospective study was performed to assess the effectiveness of multi-modal 3-component NEC prophylaxis scheme used among patients with NEC during 01.12.2016–30.11.2017 (period B) compare the results to the time period 01.12.2015–30.11.2016 (period A) without NEC prophylaxis. 71 newborns with NEC were enrolled in the investigation. According to hospital records 45 out of them were exposed to multi-modal 3-component NEC prophylaxis scheme and 26 were not. The descriptive study was performed to evaluate the dynamics of NEC mortality and NEC stages over 2016-2017 among newborns admitted to «Muratsan” Yerevan state medical university hospital aft. M. Heratsi.

Results: Overall 1429 medical records registered during periods A and B were investigated. NEC rate was increasing from 2011 to 2017. Significant difference (p<0.0002) was found between the multi-modal NEC prophylaxis exposure and the number of NEC perforation cases (12 cases in period A out of 70 and 0
cases in period B out of 45) and significant decrease in the number of surgical interventions among NEC prophylaxis exposed newborns (p<0.001). Significant association was found related to number of death cases (p<0.0008) between the NEC exposed and non-exposed patients during period B.

Conclusion: An introduction of multi-modal 3-component NEC prophylaxis scheme among newborns with NEC is associated with significant decrease in the number of NEC cases at stages 3A, 3B and related deaths. The research is continuing to identify further positive effects of multi-modal 3-component NEC prophylaxis to estimate the possible influence of NEC prophylaxis on conditions of admitted newborns with different health problems.

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VACUUM-ASSISTED ABDOMINAL CLOSURE - 7-YEAR EXPERIENCE IN THE TREATMENT OF EMERGENT COMPLICATED COLORECTAL DISEASES

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Key words: vacuum-assisted abdominal closure

Background. Vacuum-assisted abdominal closure (VAAC) has been developed as an advanced way of temporary abdominal closure in patients with abdominal sepsis.

Purpose. To evaluate clinical effectiveness of VAAC in the treatment of complicated colorectal diseases.

Materials and Methods. During the period from January 2011 to December 2017, 99 consecutive patients with complicated intraabdominal infections were treated in our institution using “KCI ABThera” VAAC systems. Multiple variables were analysed.

Results. In total 45 patients (45.5%) had complicated colorectal disease without significant gender differences (24 males, median of 62.5 years IQR 45-70 vs. 21 female, median of 75 years IQR 59-81). Median preoperative ASA score for group was 3 (range 2-4), APACHE II 14 points (IQR 11-17), MPI 28 points (IQR 22-33) and SOFA score 5 (IQR 3-8). Preoperative CRP, PCT and lactate levels were 292.5 mg/L (IQR 230.7-367.5), 8.68 ng/mL (IQR 1.93-39.53) and 1.6 mmol/L (IQR 1.2-2.33) respectively. Diverticulitis with perforation was indication for VAAC in 14 patients, anastomotic dehiscence in 13 patients, colon cancer with perforation in 6 patients, necrosis of large bowel due to mesenteric ischaemia in 5 patients. A median of 2 VAAC changes (IQR 1-3) were necessary in the median of 8 day (IQR 6-12, range 1-37) period. Median ICU stay and hospital stay was 13 (IQR 8-17) and 24 (IQR 19-29) days respectively. The complication rate was 15.6% including two cases of entero-atmospheric fistula, one case
of bleeding from the wound and one of frozen abdomen. Mortality rate was 17.8%.

**Conclusions.** VAAC is a safe and reliable method for the management of abdominal sepsis caused by complicated colorectal diseases associated with low complication rate and considerably improved survival.

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### ENDORECTAL ULTRASOUND IN 2D AND 3D MODE FOR CRYPTOGENIC ANAL FISTULAE DETECTION: A COMPARATIVE STUDY

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**Key words:** fistula-in-ano

**Aim.** To compare performance of 2D and 3D endorectal ultrasound (ERUS) in the diagnosis of complete and incomplete cryptogenic anal fistula. **Materials and methods.** 149 patients (102 male, 47 female, mean age– 46.3±14.75y) with anal fistulae were examined from December 2017 to May 2018. 70 had incomplete fistulae, 79 had external openings. All patients had surgery. Previously 88 patients had surgery for acute paraproctitis, 28 had spontaneous drainage. 2D and 3D ERUS was carried out in each patient preoperatively. Intraoperative findings served as a reference standard. χ² and χ² test with Yates correction were used for significance testing. **Results.** Proportion of false results in locating internal openings in incomplete fistulae was 8.9%(7) for 2D mode, 2.5%(2) for 3D mode (p=0.087); in complete fistulae - no false results. False results in detection of intersphincteric and submucosal extensions in incomplete fistulae took place in 4 cases (5.1%) for 2D mode and in 3 (3.8%) for 3D mode (p=0.7); in complete fistulae – 8 (11.4%) for 2D and 3 (4.2%) for 3D mode(p=0.209). Supra- and infralevator extensions in incomplete fistulae were missed in 13 cases (16.5%) for 2D and in 3 (3.8%) for 3D (p=0.009). Error rates for complete fistulae: 2D - 19 (27.1%), 3D – 4 (5.7%) (p=0.002). Relation of incomplete fistulae to external sphincter parts was falsely determined in 7 cases (8.9%) for 2D mode and 2 (2.5%) for 3D (p=0,087); for complete fistulae - 17 (24.3%) in 2D, 8 (11.4%) - in 3D (p=0,078). **Conclusion.** 3D ERUS is superior to 2D in detection of supra- and infralevator extensions and relation of a fistula to external sphincter parts. Both modalities are equally accurate in locating an internal opening, intersphincteric and submucosal extensions, 3D ERUS being more demonstrative.

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MULTIPLE STAGE SURGICAL MANAGEMENT USING VACUUM-ASSISTED ABDOMINAL CLOSURE IN THE CASE OF COMPLICATED DIVERTICULITIS OF THE SIGMOID COLON (HINCHEY IV).

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Keywords: vacuum-assisted abdominal closure

Introduction: We report an unusual case of the complicated diverticulitis of the sigmoid colon Hinchey IV in a 66-year old male. Patient was admitted to the Emergency Department complaining about lower abdominal pain for five days. Abdominal tenderness on the left side without peritoneal signs. Laboratory values - WBC 7.72 x 10⁹/L, CRP 42.3 mg/L. Patient was physically active and for the last month have been consuming approximately 500g nuts daily. CT scan revealed diverticulitis of sigmoid colon including signs of microperforation. Conservative treatment was initiated for 3 days when patient had sudden severe lower abdominal pain on the left side with febrile t 0 reaching 38.6°C and peritonitis. Laboratory values included WBC 14.30 x 10⁹/L CRP 466.29 mg/dL. Due to signs of diffuse peritonitis classified as Hinchey type IV complication emergent surgical intervention was done.

1st surgery Laparotomy Intraoperative- large infiltration of the mesocolon and mesorectum, immobile sigmoid colon proximal part of the rectum. Resection of sigmoid colon modo Hartmann was performed and intervention was finished using Vacuum-assisted abdominal closure 2nd surgery Intraoperative- dynamic ileus including firm adhesive process between small bowel and multiple purulent collection were the finding 3rd surgery Programmed re-laparatomy Intraoperative- Dinamic ileuss. Small bowel are fixed in one conglomerate, intraabdominal fibrin deposits 4th surgery Resolution of the dynamic ileus, complete reabsorbtion of the fibrin, marked reduction of tissue oedema and improved mobility of the small bowel. Complete abdominal closure was performed.

Conclusion VAAC- is a safe and effective method in the management of complicated sigmoid colon diverticulitis including purulent peritonitis corresponding to Hinchey type IV

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PERIOPERATIVE ENTERAL NUTRITION SUPPORT AND ITS PROGNOSTIC VALUE IN SURGICAL TREATMENT OF COLON CANCER WITH IMPLEMENTATION OF AN ERAS PATHWAY

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Background. Colorectal cancer remains one of the leading causes of cancer incidence and mortality among adults worldwide, including Ukraine. Curative surgery continues to maintain a “golden standard” of treatment, giving an opportunity to obtain satisfactory overall and disease-free survival. However, not only a sequence, but also an optimal administration timing of adjuvant treatment matters in an attempt to achieve optimal short- and long-term treatment outcomes of CRC. It was recently mentioned that postoperative complications grade II and above occur in 10-30% of cases and are associated with delayed recovery, diminishing life quality and worse long-term prognosis. In an attempt to overcome the consequences of surgical trauma, resulting in pain, fluid and metabolic shifts, resulting in reduction of postoperative morbidity rate, an ERAS (Enhanced Recovery After Surgery) concept had been introduced. Although all of the main key ERAS components are evidence based, only those regarding perioperative nutritional optimization always had the strongest grade of both evidence and recommendation in all versions of multiple ERAS protocols. Despite that it still remains unclear what could be the general impact and if there is a quantitative value for each particular component of perioperative nutritional support within an ERAS protocol.

Aim of study. To evaluate the prognostic value of perioperative correction of nutritional status within the ERAS protocol pathway in patients undergoing surgical treatment of colon cancer, depending on the grade of initial nutritional risk.

Materials and methods. In the study period from 2008 to 2014 at the National cancer institute a prospective observational study had been conducted. The predictive value of perioperative nutritional support, depending on the initial nutritional status within an ERAS program in surgical treatment of colon cancer was assessed. For planning the study sample amount and calculation of difference significance between values a reliable between-group differences were set to > 95.5% (p <0.05) with a study power of ≥80% (β≤0,2).

Results. An overall of 130 patients were included in the main group and 200 – in the control group. In the ERAS arm satisfactory nutritional status was observed in 81 (62.3%) patients, moderate nutritional insufficiency was present in 33 (25.4%) patients, severe nutritional insufficiency – in 16 (12.3%). Mean postoperative recovery period was 5.5±0.8, 6.15±2.4 and 6.2±2.2 days for patients with INR ≥97.5%, 97.5 – 83.5% and ≤ 83.5% respectively (р=0,492). However, a significantly higher number of patients without baseline nutritional insufficiency had successfully proceeded to early enteral nutrition - 60 (74%). Main reasons for the delay of early enteral nutrition were clinical consequences of postoperative ileus, postoperative nausea and vomiting, which resulted in decrease of tolerance for enteral supplements. Among patients with severe nutritional insufficiency 4 (25%) managed to begin enteral nutrition in ≥24 hours after surgery. Despite that, terms of functional recovery of the gut (time to first bowel movement, stool or flatus) regarding the initial grade of nutritional insufficiency differed insignificantly. Rate of postoperative
complications grade III – IV was significantly higher in a subgroup of patients with severe nutritional insufficiency. One case of postoperative mortality (1.2%) was observed in a subgroup of patients without nutritional insufficiency. Grade of ERAS protocol compliance had an uprising trend in patients with higher values of INR, but despite that significant intergroup differences were not observed: among patients without nutritional insufficiency – 73.2±9.7%, with moderate nutritional insufficiency – 68.2±9.4%, with severe nutritional insufficiency – 66.2±13.6% (p=0.097).

A multivariate analysis to identify the main factors of ERAS protocol affecting postoperative recovery period was provided. Absence of preoperative fasting (OR 4.036, 95% CI 0.78 – 4.119) and perioperative hemotransfusions (OR 2.462, 95% CI 0.05 – 5.965), implementation of early enteral nutrition (OR 1.541, 95% CI 0.201 – 11.812) and reduction of postoperative opioid use (OR 3.727, 95% CI 0.024 – 58.456) possessed the most significant impact on reduction of postoperative recovery period. Mechanical bowel preparation (OR 6.035, 95% CI 0.694 – 52.523), delayed abdominal and pelvic drain removal (OR 1.027, 95% CI 0.09 – 12.365), intraoperative hypothermia (OR 1.631, 95% CI 0.044 – 6.036), delayed patient mobilization (OR 6.478, 95% CI 0.801 – 52.369), presence of postoperative ileus, together with postoperative nausea and vomiting (OR 1.426, 95% CI 0.01 – 3.142), presence of an initial nutritional insufficiency with a threshold of INR < 81.6% (OR 1.954, 95% CI 0.064 – 17.364) were the most significant factors, influencing delayed postoperative recovery. No independent prognostic factors regarding neither delay, neither reduction of an overall recovery period were identified. Regarding nutritional status parameters, initial severe nutritional insufficiency with a value of INR ≤ 81.6% (OR 6.419, 95% CI 0.345 – 11.508, p<0.01), body mass deficiency ≥ 7.5 kg (OR 0.986, 95% CI 0.807 – 1.204, p=0.02) and preoperative hypoalbuminemia were identified as independent prognostic risk factors of class II – IV Clavien – Dindo postoperative complications development, whereas in contrast enteral nutrition initiation ≥ 12 postoperative hours and BMI value ≥ 30 kg/m² were recognized only as significant, but not independent risk factors.

Conclusions. Implementation of an ERAS pathway demonstrates significant influence not only on accelerated postoperative recovery, but also on improvement of long-term treatment outcomes when adjuvant treatment is required. Perioperative nutritional status and support appeared to be significant prognostic factors for both short- and long-term treatment outcomes.

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TRANSAHAL TOTAL MESORECTAL EXCISION FOR LOW RECTAL CANCER: A CASE-MATCHED STUDY COMPARING TATME VERSUS STANDARD LAPAROSCOPIC TME.

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Key words: Transanal TME; Laparoscopic TME; Rectal Cancer; low rectal cancer; minimally invasive surgery

Background:
Transanal Total Mesorectal Excision (TaTME) is emerging as a novel alternative to the laparoscopic approach. The aim of this study was to compare clinical and pathological results from these two techniques in patients undergoing rectal resections due to low rectal cancer.

Materials and Methods:
Thirty-three patients undergoing TaTME were matched with 33 patients operated on using laparoscopic TME. Composite primary endpoint (complete TME, negative circumferential resection margin (CRM), and distal resection margin (DRM)) was used to assess pathological quality specimens. Secondary outcomes included operative and postoperative parameters (operative time, total blood loss, postoperative morbidity, length of stay, 30-day mortality).

Results:
Composite primary endpoint was achieved by 85% of subjects in the TaTME group and 82% of subjects in the LaTME group (p = 0.66). Mean CRM was 1.4 ± 1.39 mm vs 0.9 ± 0.72 mm (p = 0.22). Distal DRM was 1.53 cm ± 1.02 and 1.9 cm ± 1.1 (p = 0.25). In the TaTME and LaTME groups, respectively, complete mesorectal excision was achieved in 85% and 82% of subjects, while excision was nearly complete for the remaining 15% and 18% of subjects (p = 0.66).

Conclusions:
TaTME appears to be a non-inferior alternative to laparoscopic surgery. TaTME allows for quality retrieval of surgical specimens with comparable clinical outcomes to LaTME.

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QUALITY OF LIFE AFTER EXTENSIVE PELVIC SURGERY

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Keywords: rectal cancer

Introduction: Multiorgan resections in small pelvis are standard procedures in oncosurgery, some indications have no alternative. In advanced pelvic cancer, pelvic exenteration with en bloc resection of the involved organs and structures, including portions of the bony pelvis, is indicated. The 5-year survival rate is fairly good around 50%, but little is known about the long-term quality of life.

Methods: There were 78 total pelvic exenterations mostly for primary or relapsed rectal cancer between 2000 to 2017 at Surgical Department, Thomayer Hospital, First Faculty of Medicine, Charles University Prague performed. In this retrospective cohort study, the quality of life was assessed using the EORTC QLQ-C30 (version 3.0) and the EORTC QLQ-CR29 questionnaires. Completed questionnaires were scored according to the developers’ instructions.

Results: There were 34 patients after TPE surviving longer than one year after the surgery in the time of survey. The five year survival of all patients was 52%, median survival 5.8 years, median of follow-up 15 months. Most of our patients reported good level of general quality of life. Some patients reported worse body image, and of course worsening in their sex life. Detailed data will be presented.

Conclusion: Long-term quality of life in survivors of pelvic exenteration for rectal cancer is comparable with reported results following primary rectal cancer resection. Despite extensive surgery, quality of life improved few weeks after procedure. Of course, this type of surgery is associated with high level of morbidity but it is the only curative option available.

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SURGICAL TREATMENT OF A SEVERE FORM OF ULCERATIVE COLITIS.

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One of the most important and topical problems of modern coloproctology is the issue of timely diagnostics and choosing a method of ulcerative colitis (UC) treatment.

At present there is no common opinion concerning the period of conservative therapy with a severe form of UC. In various consensus an instruction for treatment during 3-7 days is given, but we don’t have any indication of a conclusive base for established periods. Moreover, there is a discord in prescribing a starting prednisolone dose and its duration. There are neither reliable predictors of surgical treatment of UC, nor distinct criteria of an endoscopic picture. The algorithm of actions with an acute severe attack of UC is not given.

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In this connection it is necessary to develop an order of actions for this kind of patients, with an indication of predictors having a conclusive base and being used easily in hospital departments of general surgical type. Besides it is necessary to single out endoscopic objective criteria to determine a severe form of UC.

Moreover, the amount of surgical treatment with a severe form of UC is defined by the manifestation of damage in rectum. In the presence of deep ulcerous defects in rectum one should consider the question of proctocolectomy. Under minimal or moderate activity - it is possible to perform colectomy at the first stage with a subsequent reconstructive surgery.

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INITIAL EXPERIENCE WITH THE FIRST 50 CASES ROBOTIC ASSISTED RECTAL SURGERY – IT IS SOMEWHAT HARDER THAN IT SEEMS AT FIRST GLANCE

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Key words: robotic surgery

The aim of the presentation is to show our initial experiences with first 53 cases of robotic assisted rectal surgery. Material and methods: Fifty-three patients with rectal or sigmoid cancer underwent robotic assisted procedures in the year 2017/2018 with the use of da Vinci Xi Robotic Syst. (Intuitive Surgical Inc., Sunnyvale, CA). Results: In total we performed 47 low anterior resections, 2 sigmoidectomy and 4 abdominoperineal resection. There were 34 males and 19 females. The mean age was 66 (range, 39-81), mean BMI was 28, 2 (min 19, 3, max 39, 1, median 28, 1). The 41 patients underwent preoperative neoadjuvant chemoradiotherapy, 12 patients was indicated for primary resection of rectum. The mean operative time was 224 ± 47 min for a low anterior resection, 195 ± 43 min for sigmoidectomy and 265 ± 42 min for abdominoperineal resection. There were 3 anastomotic leaks, 2 postoperative hemoperitoneum with necessity of postoperative abdominal revision. The rare complication was one case of strangulated inguinal hernia week after robotic surgery. The mean lymph node yield was 21.9 (median 22, min 4, max 51). The resection margin was negative in 46 cases, there was R1 resection in 4 cases and R2 resection in 3 cases. Conclusion: According to our first experience the robotic surgery brings many advantages in pelvic dissections. Robotic rectal surgery is feasible and safe. One of the major barriers to overcome is the steep learning curve. In order to facilitate safe acquisition of robotic total mesorectal excision skills, surgeons should begin with female patients, sigmoidectomy and less advanced rectal cancer. With growing experience can the robotic surgery brings substantial advantages over traditional laparoscopy, which make the whole procedure more user-friendly.

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THE UEMS EUROPEAN TRAINING REQUIREMENTS (ETRS)

Arthur Godfrey Felice

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Background:
ETRs provide specialty-based recommendations involving the expected competencies that a specialist trainee, a specialist and specialist training institutions are expected to possess through formalised training and organisation. They underline the need for common language-bridging and criteria for medical training and work through wide participation in standard setting. There are technical and political hurdles which pose problems but these can be overcome. This is the scope of this presentation

Methods:
Whilst the possible solutions for the technical problems are indicated and discussed, the political hurdles require the corresponding political will as well as the realisation that our ultimate goals are to complement and support EU and National legislation and directives, provide robust training guidelines, help to avert possible negative effects of free movement of professionals, assure consistency of approach across and within the various specialties, maintain standards and ultimately assure patient safety. This calls for standardisation of eligibility criteria for robust pan-European assessments and their correct application, as well as adherence to and control of the European Qualifications Framework (EQF) – A qualifications equivalence indicator.

Results:
The European Training Requirements (ETRs) are designed by the respective Specialty Boards within the various Sections and Divisions of the UEMS. The process involved in their submission and eventual ratification are outlined.

Conclusions:
It is hoped that the implementation of ETRs will go a long way to assure patient safety, quality improvement and maximising patient health.

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IMPROVEMENT OF THE BASIC INDICATORS OF THE PROVISION OF
SURGICAL CARE BY APPLYING THE STANDARDS OF THE WORLD
HEALTH ORGANIZATION AND THE INTRA-AMBIGUOUS POSITION.

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Introduction: More than 234 billion operative procedures have performed annually in the world (1 per 25 people) which accompanied with morbidity and mortality. WHO with Harvard school of Social health care and more than 200 national and international medical societies develop Guide for Safety Surgery accumulated standards for operations which could be apply in all medical facilities.

Aim of the study: To observe the influence of medical standards develop in NMRC n. a. A. V. Vishnevsky on the basis of WHO recommendations in surgical patients.

Material and Methods: Results of the treatment were analyzed in 2015(before introductions of standards) and 2017 (after). The number of admitted pts. Were 5111 in 2015 and 8045 (37%more)

Results: Hospital and postoperative mortality in comparison with period before standardization of logistic of perioperative period (pts. selection, investigation, perioperative management including principles of fast track reduced from 1, 1% to 0,5% and from 1,3% to 0,6% , duration of hospital staying from 13,3 to 9,7 days.

Conclusion: Introduction of medical standards and their further upgrading are very important for improving of the quality of surgical care.

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PATHOHISTOLOGIC AND MORPHOMETRIC ASSESSMENT OF THE INTESTINAL SUTURES RELIABILITY

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One of the most urgent problems in surgical gastroenterology remains the problem of the intestinal sutures reliability.

The urgency of the intestinal sutures failure problem is determined by the severity of this complication, as well as its significance for the outcome of the majority of operations performed on the organs of the gastrointestinal tract.

In the given research the data of an experimental study of the influence of surgical techniques (the type of stitch and the nature of the suture material) on pathohistological processes occurring in the suture zone and their morphometric evaluation are represented.
The study was performed in 72 anastomoses, formed on 36 mongrel rabbits with a mass of 2500 ± 500 g. Operative intervention was performed under the strict aseptic conditions under general (in/pleural) anesthesia by administration of sodium thiopental at a rate of 20 mg/kg. The abdominal cavity was dissected by a midline incision. The loops of the small intestine were intersected and the end-to-end anastomoses were formed in the case of putting in the one-layer suture, and the side-to-side anastomoses were formed in case of putting in the two-layer sutures. In each experiment 2 anastomoses were formed - one on the jejunum, the other on the ileum.

**Three types of stitches were applied:**

Traditional two-layer sutures. The combination of threads of catgut - silk, VICRYL – silk was used.

One-layer serous-muscular-submucous closure of Pirogov. Thread of the VICRYL was used.

The unidirectional one-layer nodular precision stitch of the intestinal anastomosis (racial versions N354 and N355 issued by YSMU as of June 4, 2001). The threads PDS II, VICRYL were used.

To study and collect the material, the abdominal cavity was dissected by the additional incision. Animals were removed from the experiment by administering lethal doses of thiopental sodium. The morphological and morphometric studies of the intestinal wall were carried out in the area of anastomoses.

With the help of experimental studies it was established that the course of reparative processes in the zone of the intestinal sutures depends on the surgical intestinal technique.

Our research has shown that the unidirectional one-layer nodular precision suture of intestinal anastomosis with the use of PDS II thread creates the most favorable conditions for intensive regeneration processes in the intestinal suture zone.

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**IMPORTANCE OF THE DISCIPLINE OF OPERATIVE SURGERY AND TOPOGRAPHIC ANATOMY IN MOTIVATION TO MEDICINE AND SURGERY IN PARTICULAR**

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Formation of educational motivation is one of the main issues of modern higher education. Namely the motivation is the main tool that gives the opportunity to increase the level of interest of students in the learning process, which increases their personal cognitive, scientific and creative potential.

In medical institutions the first elements of motivation for medicine are settled in the departments of operative surgery and topographic anatomy (clinical anatomy). The classes on operative surgery and topographic anatomy are always interesting and saturated with practical skills. The basic operative interventions performance on the experimental material itself already stimulates educational motivation. Developing of common manual and instrumental techniques by students in the experiment is the most justified pedagogical method in solving the problems of students’ transition from theoretical disciplines to clinical ones.
An importance of such discipline as operative surgery and topographic anatomy for a doctor of any specification and for a surgeon in particular, cannot be overestimated. This is a two-unite applied discipline, which provides anatomical justification for clinical facts and operational activities.

The Department of Operative Surgery and Topographic Anatomy is one of the main disciplines, whose goal is to develop clinical thinking in future specialists on the base of an organic combination of theoretical knowledge and the needs of the clinic.

The department for the first time shows the relationship between the anatomical structure or complex of anatomical structures and the symptom or syndromes of diseases associated with a change in this structure and the mutual influence of these structures on each other. The implementation of stereotactic, navigational, robotic methods of the surgical interventions manufacturing in practice only reinforces the need for a good morphological training for a modern surgeon.

Without deep and qualitative knowledge of surgical anatomy of all human organs and systems, as well as mastering practical skills, it is impossible to become not only a surgical doctor, but also to achieve success in any medical specialty.

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FLS, LAPSIM® AND HIGH FIDELITY SIMULATION PLATFORMS IN RESIDENTS’ TRAINING FOR LAPAROSCOPIC SURGERY

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As opportunities for learning through work with “real” patients have decreased, interest in laboratories with formal curricula, specifically designed to teach surgical skills, has increased dramatically. Laparoscopic surgery requires however long learning curve. In order to facilitate the learning process, we have incorporated simulation based training into surgical residency programmes. In addition to FLS (Fundamentals of Laparoscopic Surgery) curriculum, we organized sessions using high-performing virtual reality (VR) simulator with 3D technology (LAPSIM® - Surgical Science, Goteborg, Sweden) and an advanced high fidelity simulator with 3D printed anatomical model (Applied - USA) that allows the execution of cholecystectomy, appendectomy, right and left colon resection. 24 surgical residents (4 each year, PGY1 to PGY5) were evaluated. Data were analyzed to assess the relationship of performance with level of residency training and of the interaction between level of training and repetition on overall performance. It seems that novice laparoscopic surgeons’ surgical performances improved significantly from VR combined with FLS training. Lapsim and FLS both facilitate hand-eye coordination, ambidexterity and depth perception. FLS provides haptic feedback (absent from most VR systems). On the other hand virtual reality trainer offers the possibility to perform complete surgical procedures. After this initial experience residents perform entire operations using advanced high fidelity simulator. A significant improvement in laparoscopic performance in residents was found after simulation training although it is
not clear which is the better simulation method. A gradual multimodal approach with growing complexity probably represents the best method, considering the cost and the management.

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THE METHOD OF SURGICAL TREATMENT OF MALLORY-WEISS SYNDROME

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Key words: Mallory-Weiss syndrome, GI bleeding, Selective Procsimal Vagotomy

Bleedings from longitudinal ruptures of the esophageal-gastric junction first were described in 1879 by Quinke, then, it is studied scientifically by Americans K. Mallory and S. Weiss in 1929. According to the literature data, from 4.5 to 35% of entire upper GIT bleeding caused by Mallory-Weiss syndrome and before the introduction of endoscopy into the clinical practice, it was diagnosed only during surgery or the autopsy. The pathogenesis is related to a sudden increase of intragastric pressure due to the discordance of the cardiac and pyloric sphincter closing function in vomiting, more often due to alcohol abuse, overeating, toxicosis in pregnancy, labour, weight lifting, etc. The syndrome development can be facilitated by hiatal hernia, reflux-esophagitis, portal hypertension, peptic ulcer and duodenal ulcer. The classification of the Mallory-Weiss syndrome is based on the damage depth of the esophagus and stomach. 1-st degree is characterized by rupture of the mucous membrane only. 2-nd degree is damage of mucous and submucosal layers. 3-rd degree is rupture of all the layers of the stomach or esophagus walls. Almost in half of the cases, the tear passes from the stomach to the esophagus. In the 1-st degree even self-healing is possible, when at 2-nd degrees more massive bleeding occurs. Cracks of the 3-rd degrees lead to the development of peritonitis and mediastinitis.

Methods: Conservative treatment methods, including endoscopy with irrigation with caprofer or other haemostatics, are effective in 85-90% of cases with 1-2 degrees. In ineffective conservative treatment, recurrent profuse bleedings or 3-rd degree ruptures life threatening surgical intervention may required, the decision of which is often delayed and the result of which largely depends on the chosen technique. According to literature, in most of the cases Beye operation is performed: gastrotomy and cracks suturing with bleeding vessels. In multiple cracks, the operation is combined with ligation of the left gastric artery, with trunkal or selective proximal vagotomy, with or without gastric drainage procedure if combined with peptic ulcer. Despite the seeming simplicity of the described procedure, postoperative mortality remains high, up to 20%. By our opinion, is not only related to the initial patient condition and surgery delay, but also to the imperfection of the described technique and with the frequent suture lickage.

Materials and results: Over the past 14 years, operated 37 patients were operated with the Mallory-Weiss syndrome. The procedure consists of controlled devascularization of the proximal parts of the stomach and abdominal esophagus combined with Selective Procsimal Vagotomy with metered
compression of the intra-wall vessels inside the Nissen fundoplication collar. There were no recurrent bleeding and lethal outcomes. In the long-term period, the reduction of gastric secretion due to SPV promotes the healing of often combined ulcers and mucosal ruptures, Nissen’s fundoplication is the most reasonable antireflux surgery when combined with hiatal hernia.

**Conclusion:** The technique eliminates the most frequent cause of death—lick of sutures

**CLINICAL CASE IN THE URGENT SURGERY OF ABDOMEN.**


“Erebouni” MC, “National bureau of expertises” NAS RA

**Key words:** aberrant pancreas, resection of pancreas, strangulated hernia, peritonitis.

**Aim.**

The aim of this work is to describe a clinical case with “Acute bowel obstruction. Aberrant pancreas complicated with necrosis. Strangulated ventral hernia. Diffuse serosal-enzymatic peritonitis.” diagnosis.

**Introduction.**

Aberrant pancreas is a very rare pathology. In the region of mesentery of small intestine are situated near 4% of aberrant pancreases. They are discovered accidentally or during surgical manipulations, and they need special tactics of treatment.

**Case.**

Patient N., 63 years old man, with anamnesis of ventral hernia, 2 weeks before hospitalization has abdominal pain, nausea, vomiting. Patient’s condition was slowly worsened, hernias sizes were enlarged, abdominal pains were increasing. The patient was delivered to “Erebouni” MC. The patient was operated urgently after instrumental investigations. After laparotomy muddy liquid was revealed in abdominal cavity. On the mesentery of small intestine was revealed aberrant pancreas, which spreads from ileocecal angel to caecum, and has sizes 10.0 x 5.0 sm. Gland was necrotized in the region of caecum. From retroperitoneal space dark, muddy liquid was outflowing.

Resection of necrotized part of aberrant pancreas, sanitation and drainage of abdominal cavity and retroperitoneal space and hernioplasty tube were performed. The patient’s hospitalization was lasted 25 days.

**Conclusion.**

The tactics of urgent surgical manipulation of patients with aberrant pancreas must be different depending on localization and complication. It is necessary perform sanitation and drainage of retroperitoneal space. In postoperative period patients need antibiotics and inhibition of secretion of pancreas under control of α-amylases.

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THE TACTICS OF SURGICAL TREATMENT IN CASES OF ABDOMINAL GUNSHOT INJURIES


Separate medical detachment of Martakert

Key words: abdominal gunshot injuries, fragmentary, bullet

Introduction
As a result of research works in last 4 years abdominal gunshot injuries are 20% from total quantity, 70% of these patients were hospitalized in severe and critical conditions, with continuing internal bleeding, mostly the contact with such patients is impossible, full and detailed inspection is impossible, which can lead to diagnostic mistakes. The major problem in such injuries is urgent, exact diagnosis and the choice of rational surgical treatment.

Materials and methods
98 medical records (2015-2018, separate medical detachment of Martakert) with gunshot injury of abdomen were studied. The natures of injury (combined-separated, penetrated-non-penetrated, bullet-fragmentation) and internal organs injuries, US and X-ray results, surgical treatments were studied.

Results
80% of injuries were fragmentary and 20% bullets. Urgent examinations were made in 70 patients. 18 patients were not examined. In 20 cases was done US. In 98 cases X-ray was done, 30 of which – during surgery.

Conclusion
Fragmentary injuries are prevailing (80 % fragmentary, 20% bullet). The volume of urgent examinations should be limited to US and X-ray (in 2 projections) of abdomen. Mentioned methods must be used in case of stabile hemodynamic criterion of patient. In all other cases, when patient’s condition is critical and exact clinical picture of penetrating injury is existing, it is possible to bypass mentioned examinations.

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**FEATURES OF DIAGNOSIS AND TREATMENT IN PATIENTS WITH ACUTE THROMBOSIS OF MESENTERIC VESSELS (TMV)**

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**Actuality:** According to data of World Health Organization, diseases of cardiovascular system take first place among common diseases. TMV is component part of that, by which deals emergency surgery. Till now it is very relevant problem because the diagnosis is difficult and it has high mortality rate.

**Aim:** Our goal is to examine patients with TMV, find diagnostic and treatment features for raising productivity.

**Material and Methods:** In “EREBOUNI” medical center since 2000 to 2017 we have examined 88 patients, among them 32 females, 56 males, whose average age was 55-65 years. All our patients have concomitant diseases among which the first place was diseases of cardiovascular system, particularly atrial fibrillation, endocarditis, coronary artery disease, hypertensive disease, diabetes mellitus, atherosclerosis, etc. CT scan has indispensable role in diagnostics. But it has limited application because of nephrotoxic and hepatotoxic effect of contrast solution, severe condition of patients such as hypercreatininemia, multiple organ filure syndrome. We made 50-point diagnostic algorithm based on clinical symptoms considering anamnesis, strictly mismatch between complaints and abdominal sings, blood in stool, increase of intra-abdominal pressure, troponin test, leukocytosis, high level of creatinine and urea, reduction of PTT (Partial Thromboplastin Time) and PT, flow disruption of mesenteric vessels by doppler, segmental pneumatosis of intestine by x-ray. In algorithm we give 5 points to each unit, and if the total result is more than 25 (50%), preliminary diagnosis is TMV. In two patients the diagnosis was confirmed by laparoscopic method. Usge of laparoscopy in TMV is strictly limited, because there can be complications associated
with raising of intra-abdominal pressure. In 14 patients we have diagnosed by exploratory laparotomy.

**Results:** 64 patients were operated, among them one patient had acute thromboembolism of upper mesenteric artery which was operated by endovascular embolectomy. In 2 patients with same diagnosis we performed thrombectomy by open surgery. One of them underwent relaparotomy, distal resection of small intestine in third day because of segmental necrosis.

During the operations we have revealed following stages of TMV: in 4 patients — ischemia of bowel, in 12 patients-bowel necrosis and in 48 patients-bowel necrosis with severe peritonitis. 13 patients have had total bowel necrosis. It is obviously that most common thrombotic lesion is localized in the distal part of superior mesenteric artery.

During the operations we checked viability signs of intestine using not only the classic visual method, such as color of intestine, peristalsis and pulsation of mesenteric vessels, but also we used electrostimulating pulsoximetric method developed by us, which give us opportunity to measure affected bowel viability signs objectively and to avoid from unjustified bowel resection, break of anastomotic sutures and to prevent the progress of the short bowel syndrome. We applied bowel electrostimulation also in stage of ischemia for improving blood circulation. From all of the operated patients 11 have died. The reasons are: 5- total thrombosis, 2- thromboembolism of pulmonary artery, 2-acute myocardial infarction and 1-anastomotic leakage due to progressive thrombosis.

**Conclusion:** Thus, it was possible to diagnose TMV timely with developed algorithm and to evaluate objectively viability signs of affected intestine with offered electrostimulating pulsoximetric method and to use electrostimulation for recovering of affected bowel microcirculation. Mentioned innovations gave us opportunity to reduce complications considerable.

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**INTESTINAL ANASTOMOSIS DURING PERITONITIS**

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**Actuality:** In emergency surgery sometimes it’s necessary to do extensive resection of the intestine during peritonitis. According to the current standards in mentioned cases the operation finishes with applying entero- or colostomy considering reconstructive operation in future. In postoperative period often arise different types of digestive disorders, typical signs of short bowel syndrome and the patient’s life quality is reducing. That’s why applying the intestinal anastomosis during peritonitis is relevant task.

**Aim:** Our goal is to develop special indications for applying intestinal anastomosis during peritonitis.

**Material and Methods:** since 2005 to 2017 in Erebouni medical center we examined 93 operated patients due to peritonitis who have undergone bowel resection. We divided patients into two groups: in first group they were 54 patients and all have had the primary intestinal anastomosis set up. By the way, 28-anastomosis between loops of small intestine, 19- anastomosis between loops of small and large
intestine, 7- anastomosis between loops of large intestine. In the first group during applying anastomosis considered existence of concomitant diseases, level of the intoxication, laboratory data such as level of creatinine, urea, albumin, intra-intestinal pressure, average intestinal weight, electro-stimulating pulsioximetric deviation of intestinal loops, intraoperative acid-alkaline balance. During operation was fully drained the intestinal content with naso-intestinal and rectal tubes. After operation epidural catheter was applied. In postoperative period provided standart detoxicational, antibacterial and infusion therapy.

**Results:** In three patients insufficiency of anastomosis (anastomotic leak) was observed. In 2 of them during re-laparotomy had formed stoma. 2 patients have died because of the progressing peritonitis, insufficiency of intestinal sutures, the other one has died because of thrombosis of the mesenteric vessels.

In second group were included 39 patients. In 14 of them have applied enterostoma, in patients-25 colostoma. Patients included in this group, had concomitant diseases, admitted to the hospital at the last stage of peritonitis and all had multiple organ failure. They passed postoperative period at the department of intensive care. They stood at the hospital longer. After discharging a survey was conducted. All of them mentioned social insolvency feeling. Among patients 15 of them addressed to doctor due to digestive disorders and abnormal functioning of formed stoma. In period from 3-rd month to 2-nd year 31 patients underwent reconstructive operation which lasted 4-5 hours. 3 patients have died, one by cause of insufficiency of anastomotic sutures, 2 by cause of thromboembolism of pulmonary artery.

**Conclusion:** Thus analysis of all 93 patients data examined and operated in Erebouni MC on showed that it’s allowed to increase indications to apply primary anastomosis during peritonitis considering the high quality of current intensive care, an obvious efficiency of antibacterial and detoxicational treatment as well as comparative results of different patient groups, the quality of life, risk of the reconstructive operation, postoperative complications. After this there is a necessary to revise outdated views on this issue such as not allowing primary anastomosis to be used during peritonitis.

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**ANALYSIS OF RELAPAROTOMIES IN POLYTRAUMA PATIENTS**

Department of Surgery № 3 of YSMU, Erebouni MC

**The aim** of the study is to analysis the predictive factors, course and possible outcomes of relaparotomies in polytrauma patients.

**Actuality:** Polytrauma grows at a considerable pace throughout the world, characterized by high levels of complications, mortality and disability. Characteristic features include simultaneous injuries of several anatomical regions, presence of mutual severity syndrome, deep metabolic disorders in all organism systems.

**Material and Methods:** 404 patients with polytrauma were admitted Erebuoni Medical Center
and were examined from 2003 to 2016. The “Damage Control” principle has not been applied for them. 53 patients have undergone relaparotomy. Accordingly, they were divided into two groups: 53 patients with relaparotomy (basic group) and 351 without relaparotomy (control group). The age of the patients was decided. The first operation, all sorts of complications have been studied. The severity of all patients was assessed with ISS scale at the time of admission. The severity of the condition in traumatic disease was assessed with APACHE II scale. The severity of peritonitis was assessed with PIA II scale. The causes of relaparotomies were: peritonitis-20.8%, abscess-9.4%, intraabdominal bleeding-13.2%, intraabdominal compartment syndrome-23.6%, evisceration-5.6%, mesenteric thrombosis-5.7%, stress ulcer bleeding-5.7%, anastomotic insufficiency-3.8%, acute intestinal obstruction-13.2%. The statistical analysis was done through the SPSS 22 program.

The results: The analysis of the study showed approximately similar age ratio in both groups: 38.8 ±16.6 vs 36.7 ± 13.8. The comparison of ISS in both groups was 33.4 ± 10.5 vs 32.3 ± 11.4. APACHE II in the basic group was higher: 20.2 ± 6.5 vs 16.4 ± 5.9. In the basic group the first operation was predominantly related to gastrointestinal tract injury (repair or anastomosis) – 37.9% vs 24.5%. The frequency of traumatic peritonitis was high in the basic group: 32.5% vs 28.3%, and their severity, according to the PIA II scale, -0.21 ± 1.4 vs -0.075 ± 0.98. In the basic group, multiple injuries in the abdominal cavity were prevalent – 24.5% vs 17.2%, which in 2.03% of cases resulted in unnoticed injuries. In the basic group diaphragmatic injuries (9.4% vs 4.8%) and retroperitoneal extended hematomas also was higher (30.1% vs 13.7%). The mortality ratio in basic and control groups was 34.3% vs 19.9%.

Conclusion: Multiple injuries in the abdominal cavity, intestinal repair or anastomosis, extensive and severe peritonitis, diaphragmatic injury, and extensive retroperitoneal hematomas increase the possibility of relaparotomy and postoperative mortality.

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THE STRUCTURE OF OPERATIONS AND COMPLICATIONS IN THE SURGICAL CLINIC

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The aim of our work is to discuss the structure of postoperative complications of planned and urgent surgical treatment of patients admitted the department of general and thoracic surgery during 2013-1017s.

Study Material: The study material are patients admitted the general and thoracic surgery clinic of Erebouni Medical Center per 2013-1017s who were treated both operatively and conservatively. In the research the conscripts were not included 1-2 days of controlled patients, patients undergoing plastic-aesthetic, minor thoracic surgery, endoscopic papillosphincterotomy. The study is retrospective and descriptive.

Research Results and Discussion: In 2013-1017s 12233 patients were admitted to the general and
the thoracic surgical department of Erebuni Medical Center, of whom 8779 were in general surgery and 3454 - thoracic. 287 patients were operated in planned indications with pulmonary pathology, and 912 patients were undergone of drainage of pleural cavity, 2255 patients were treated and controlled conservatively. Out of 8779 admitted general surgical patients 6163 (70.2%) were operated. The structure of surgical pathologies was as follows: cholecystitis - 16,9%, biliary hypertension - 4,88%, accompanying pancreatitis - 1,8%, hernioplastics – 17,4%, appendectomy - 12,4%, minor proctologic surgeries - 2,9%, bowel obstruction - 7, 66%, stomach surgeries – 5,8%, pulmonary lesions – 4,65%, other surgeries – 25,6%. 2518 (40,8%) patients were operated in urgent indications. The overall mortality was 2.45% (151), among urgent surgeries were the most prevalent- 149 cases (5,9%, vs 0,16% planned).

Total mortality was assessed in three age groups - up to 50 years-18 patients (11,9%), 51-70 years-55 patients (36,4%), 71 and elder-78 patients (51,66%). Death was also discussed in the structure of specific surgical pathology. So; perforated ulcer -11,9%, bleeding ulcer – 15,5%, adhesive bowel obstruction without intestinal resection – 5,3% with intestinal resection – 19,6%, oncological obstruction – 20,2%, mesenterial thrombosis – 62,7%, appendicitis – 0,26%, strangulated hernias – 20,7%, planned hernectomy – 0,12%, cholecystectomy – 0,86%, cholecystectomy with drainage of bile ducts – 5,3%, pancreatitis – 16,2%, other pathologies (peritonitis, transported patients from other clinics, flegmons, abscesses, palliative surgeries, etc.) - 26 patients. The most common cause of death in the structure of death is the continuing intoxication associated with the major illness and connected multiple organ failure - 123 (81,5%) patients, among 95 cases during the first 5-7 days. Of the cases, 13 (8,6%) have been contracted with broken stitches. In other cases, the causes were varied - thromboembolism, infarction, thrombosis, infections and other complications.

There is no any features revealed in postoperative complications discussion; wound complications were 0,36%, pulmonary and thromboembolic complications - 1,23%, evisceration - 0,1%, ongoing peritonitis - 0,68%, other cardiovascular complications - 3,44%; Repeated surgeries were performed 125 (2%) in 79 patients.

Conclusions:
1. Complications and mortality certainly are rising sharply in urgent pathologies.
2. The major part of the causes of deaths is related to the impossibility of main illness compensation, with the condition of contracted severity, late admission, age of patients, accompanying cardiovascular and other pathologies.
3. It is important to focus on those pathologies which are frequent leads to death-bowel obstructions.
THE REMOVAL OF GIANT GASTROINTESTINAL STROMAL TUMOR, COMPLICATED BY GASTROINTESTINAL BLEEDING AND HIGH LEVEL BOWEL OBSTRUCTION (CLINICAL CASE)

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Gastrointestinal stromal tumor (GIST)-is one of the most wide-spread mesenchimal tumors of gastrointestinal tract-1-3%.

GIST are distributing 10-20 cases for 1000000 population, which is 5000 new cases in 1 year. That’s why GIST is one of the most spread sarcomas between 70 different malignant tumors, which are developing from connective tissues.

The clinical symptoms of GIST are dysphagia, gastrointestinal bleeding, metastatic disorders, specially in liver. Bowel obstruction is very rare and connected with endofit growth of tumour. In time of diagnosis teh size of tumor can be very big.

The final diagnostic method is biopsy, which is performing endoscopically transcutaneously under ultrasound ant CT guidance, as well as during surgery.

Our clinical case presentation. Patient, O.A.G., born in 1961, hospitalized to 2-nd surgical department of “Erebouni” MC 08.01.2018 with such complaints as increase of abdominal volume, nausea, periodical vomiting, loss of appetite, presence of blood in stool. Patient passed laparotomy due to appendicular peritonitis.

All necessary laboratory and instrumental investigations were done, including sonography, X-Ray, CT-angiography. The big multinodular round-shaped tumor-60-70 cm in diameter, which is growing 10-15 cm below Treitz ligament with extravasation of secret to gastrointestinal tract and partial bowel obstruction is noticed. Free fluid in abdominal cavity.

09.01.2018 urgent surgical procedure by team, consist of Aleksanyan A.B., Grigoryan G.S. anestesiologist Hovhannisyan A.M., under the guidance of M.D., Ph.D. Vardanyan has been performed. Total laparotomy, adhesiolisis, tumor removal with jejunal resection and end-to-end anastomosis formation, abdominal drainage was performed. We use ultrasonic Liga-sure device. Postop period passed uneventfully. Patient discharged on day 8. No adjuvant chemotherapy prescribed. 6 month later CT-angiography has to be done.

ANALYSIS OF ORGANIZATIONAL ISSUES DURING THE TREATMENT OF MULTIPLE INJURIES

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The aim is to improve the issues of treatment of multiple injuries, based on the peculiarities of the healthcare system of the Republic of Armenia.

Actuality. The recent decades are characterized by a significant increase in injuries, which are very
dangerous and often have a deadly outcome. Despite the fact that in recent years, the victims recovery and treatment have been dramatically improved, but many issues of the organization of the diagnostic process as well as the essential treatment remain still incomplete and unclear. It is important to take into account the fact that the options for their resolution are vary, greatly depending on the availability of the material and professional potential of the healthcare facilities of that country and the availability of modern diagnostic equipment.

**Material and Methods.** We have analyzed the data of 450 patients with multiple injuries who were admitted, examined and treated in Erebouni Medical Center. We have determined the frequency of meeting the dominant anatomical region of injury.

**The results.** From the point of view of care the patients with multiple injuries, the determination of dominant anatomical region of injury is very important. The results revealed that the dominant anatomical regions of injury were observed with the following frequency: head / neck - 30%, abdomen - 28%, chest - 27%. Moreover, the above mentioned situation is maintained in all areas of the Republic of Armenia.

**Conclusion.** It is important that the departments of intensive care units of Yerevan and all areas of Republic of Armenia should focus their attention on the issues of medical care for the patients with multiple injuries who’s dominant anatomical regions of injury such as the head / neck, chest and abdomen. The organization and treatment of patients with multiple injuries for the whole territory of the Republic of Armenia can be regarded as components of Integrity, but not separated from each other.

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THE OUTCOMES OF THE TREATMENT OF LIVER AND SPLEEN INJURIES DUE TO POLYTRAUMA

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Modernity. According to the statistics, liver and spleen are the most frequently affected abdominal organs due to polytrauma. High rates of complications and mortality are closely related with multiple simultaneous anatomic regions’ injuries and the absence of the universal consensus of treatment approaches and strategies.

**Materials and Methods:** A total 531 patients who had been admitted to the Erebouni MC from 2002 to 2016 were included in the study. The patients were divided into two groups, 160 patients who had undergone surgery due to hepatic and splenic injuries (main group) and 371 patients with no liver and spleen injuries (control group).

The severity of all patients was assessed by the ISS and APACHE II scales. Also, the complications and the causes of death were meticulously analyzed. In the main group, 31 patients (19.4%) had combined intraabdominal injuries. 88 patients (23.7%) in the control group undergone laparotomy (including diagnostic laparoscopy).
Results and analysis. The analysis of the study revealed an age-equivalent correlation between the groups: 37.9 ± 16.1, 39.4 ± 17.0. The ISS indicators were 27.8 ± 11.3 vs 36.7 ± 18.1, and the APACHE II indicators were 11.6 ± 6.2 vs 16.2 ± 6.6. The high scores of ISS and APACHE II in the control group were due to more frequent incidences of head (59.2%) and chest (68.6%) injuries, while in the main group the above mentioned scores were 34.3% and 52.5% respectively. About 30% of the patients in the main group experienced hemorrhagic shock, while the in the control group only 4.8% patients developed hemorrhagic shock. A total 71 (44.4%) patients developed complications, particularly, 37 (52.1%) of them had abdominal complications: abdominal sepsis and postoperative intestinal paresis developed per nine (24.3%) patients, five (13.5%) patients experienced wound fester and bleeding from gastrointestinal tract each, peritonitis was observed in three patients (8.1%). 43.4% cases (161 patients) complications were recorded in the control group; however, the proportion of abdominal complications comprised only 15.5% (25 patients), which included abdominal sepsis-12 patients (48%), intestinal obstruction - 4 patients (16%), peritonitis and postoperative intestinal paresis- 3 patients (12%). The mortality rate in the main and control groups were 21.2% vs. 15.9%. Furthermore, 5 patients of the main group (14.7%) deceased from DIC syndrome.

Conclusion: Liver and spleen injuries due to polytrauma increase the likelihood of abdominal complications owing to the bleeding from the gastrointestinal tract, postoperative intestinal paresis, wound fester and the development of DIC syndrome.

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INFECTED OVARIAN TERATOMA WITH SIGMOID COLON PERFORATION

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Introduction
Teratomas are germ cell tumors commonly composed of multiple cell types derived from one or more of the 3 germ layers. Teratomas range from benign, well-differentiated (mature) cystic lesions to those that are solid and malignant (immature). Additionally, teratomas may be monodermal and highly specialized. Mature cystic teratoma may be complicated by torsion, rupture, and malignant change, but is rarely complicated by infection.

Case report:
A 77-year-old woman with no significant past medical history was presented to the emergency room with abdominal pain, nausea, vomiting, fatigue, dry mouth, distention of the abdomen, no bowel movement. Her temperature upon admission to the emergency department was 38.8°C, with a heart rate of 108, blood pressure of 140/80, respiratory rate of 24. On physical examination, her abdomen was diffusely tender, there was rebound tenderness.
Computed tomography (CT) scan of abdomen demonstrated infiltration in the right iliac region, cavity with destruction 3.2-3.5cm. In the center of destruction was a right ovarian cyst with calcification and free air. Free liquid in the abdominal cavity. Preliminary diagnosis was acute abdomen, diffuse peritonitis. The patient was brought to the operating room.

Under general anesthesia was performed medial laparotomy. During the operation was defined approximately 800ml free liquid (pus). In the right iliac region was a conglomerate which consisted of right infected ovarian cyst with destruction, sigmoid colon. We found out that between ovarian cyst and sigmoid colon there was a fistula, because of ovarian cyst destruction. We removed the right ovary with cyst, we stitched the perforation of sigmoid colon and created protective sigmostomy. The postoperative period was unremarkable, the wound was healed with primary intention, abdominal drainage tubes were removed during a 10 day period. The patient was discharged on the 15th postoperative day. She was advised to visit surgical clinic in 3 months for sigmostomy repair.

Pathohistological examination- Dermoid cyst( teratoma) with 2 tooth and infiltration.

Conclusion:
Our review of the literature as described suggests that infection of a mature teratoma is a relatively uncommon event. Besides that concomitant sigmoid colon perforation has not been described in available literature. We suggest women to visit gynecologists regularly, which will help to diagnose and treat teratomas earlier. In the case of complication urgent surgery is the only method of treatment.

OUR EXPERIENCE OF SURGICAL TREATMENT OF CRANIOCEREBRAL BATTLE INJURIES

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Key words: skull injury, emergency surgical technique, military hospital, local armed conflicts. Aim: The aim is to improve the issues of treatment of craniocerebral battle injuries.

Introduction: In the period of active war, more than 80% of the injuries are the splinter injuries of the skull, while in the period of violations of the ceasefire regime are dominated the bullet injuries. The wounded are delivered to the regional military hospital, as a rule, in extremely severe condition, without signs of consciousness, with extremely low hemodynamic indicators.

Methods and materials: The medical service of the NKR Defense Army has data of more than 200 battle craniocerebral injuries. Decisions about surgery are taken by the surgeon who owns the emergency surgical technique based on datas of objective examination, clinical investigation, X-ray and laboratory data. The volume of surgical care is consist of right choice of access sometimes with upgrading, depending on the wound channel; removal of bone fragments from the wound with the formation of bone defect; removal of crushed areas of the brain with meticulous stop of bleeding and thorough haemostasis by the method of coagulation. Often had to meet with lesions of venous sinuses, which were sutured. After the appearance of a clear pulsation of the brain, the operation was completed. The dura mater was as far as possible sutured, in some cases, plastic was performed with the wide fascia of the thigh. Later, after a
The number of complications and repeated interventions in our conditions, this method was abandoned.

**Results:** Early and aggressive surgical treatment of the wounded with open battle craniocerebral injury increases survival. Significant influence on the outcome has the level of the initial state of consciousness, the pupils condition, the parameters of hemodynamics and the conductivity of the upper respiratory tract.

**Conclusions:** Outcomes of splinter craniocerebral injuries in the context of local armed conflicts depend on the severity and nature of injuries, the determination of indications and the timely conduct of surgical treatment.

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**MODERN EMPHASIS ON THE TREATMENT OF GASTROINTESTINAL BLEEDING**

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**Key words:** Gastrointestinal bleeding, hemostasis, antisecretory drugs, controloc

Gastrointestinal bleeding is one of the most frequent causes of emergency hospitalization in surgical hospitals. Recurrent bleeding is possible from gastric and duodenal ulcers approximately in 12-33% of cases. The therapeutic aim is simple and logical for gastrointestinal tract bleedings: the patient’s condition stabilization, hemostasis and treatment to prevent subsequent episodes of gastrointestinal bleeding. The optimal conditions are achieved at > ph 4.0 for the vascular-platelet and hemocoagulation components of hemostasis. As antisecretory drugs, proton pump inhibitors are used. The aim was to study the clinical efficacy of the controloc / pantoprazole/ Takeda.

**MATERIALS AND METHODS:** 71 patients were observed: 24 patients with peptic ulcer disease and 47 patients with duodenal ulcer. There were 23 female and 48 male patients. The age of the patients varied from 24 to 68 years. The duration of ulcer anamnesis was from 2 to 15 years. The patients were divided into groups according to the Forrest classification, endoscopic signs, ulcerative defect and bleeding intensity. The largest patients group was with signs of inactive bleeding (FII) - 76.8%. Patients with active bleeding (FI) met in 14.5% of cases and without signs of bleeding (FIII) - in 8.7%.

The treatment was 80 mg controloc i/v, for three days, followed by 40 mg i/v infusion for 3-5 days. After, 40 mg per day was given orally, depending on condition.

**Results.** The obtained results showed positive dynamics of the main clinical manifestations was noted in all patients during treatment with controloc. Pains decreased or disappeared by the end of the 3rd day. The therapy effectiveness was assessed by the hemostasis reliability. It was possible to stop bleeding in all patients in the background of complex therapy. Reliable hemostasis were achieved in patients with active bleeding (FI) with general and local haemostatic measures. Hemorrhages were not observed during therapy in the group of patients admitted without signs of bleeding (FIII). Conservative therapy was aimed to stabilize hemodynamics, hemostasis and basic vital signs.

**Conclusion.**

1. Controloc is able to reduce pain and dyspeptic syndrome quickly and effectively in acute
gastrointestinal bleeding of ulcerous etiology.

2. Early intravenous use of conroloc helps to stop bleeding
3. The use of conroloc promotes early epithelization of the ulcer and decreases relapses, which was confirmed by repeated endoscopic studies. The controloc may be recommended for use as a complex treatment of peptic ulcer disease.

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**CLINICAL CASE IN THE URGENT SURGERY OF ABDOMEN.**

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**Key words:** rupture of duodenum, rupture of pancreas, ileostomy, naso-duodenal tube.

**Aim.**

The aim of this work is to describe a clinical case with “Blunt trauma of abdomen. Ruptures of duodenum and pancreas. Rupture of large intestine with necrosis of colon. Peritonitis.” diagnosis.

**Case.**

Patient N., 34 years old, 8 hours before hospitalization has fallen from height. He was taken to regional hospital, where was injected anesthetics and infusion therapy. Patient’s condition was worsened, appeared clinical picture of acute abdomen not stable hemodynamic data. The patient was delivered to “Erebouni” MC. CT revealed hemoperitoneum and pneumoperitoneum. The patient was operated urgently. Fecal-purulent liquid with hemorrhagic component was revealed in abdominal cavity. Later retroperitoneal hematoma was revealed. In the region of Treitz’s ligament there was rupture of mesenterium of jejunum with necrosis of 15 cm of jejunum and rupture of duodenum – near ¾ of circumference. Back and high from Treitz’s ligament there was rupture of pancreas. Right part of large intestine also was torn from mesenterium was necrotized. Resection of jejunum, mobilization of duodenum, duodeno-jejuno anastomosis, suturing of pancreas, right side hemicolecctomy with ileostomy, sanitation and drainage of abdominal cavity and putting of naso-duodenal tube were performed. The patient’s hospitalization was lasted 15 days. 4 months later reconstructive surgery was performed – liquidation of ileostomy.

**Conclusion.**

In the cases of combined traumas of duodenum and pancreas in early postoperative period it is necessary to insure low intraabdominal pressure, unloading of gastrointestinal tract. In this case mentioned were reached by ileostomy and naso-duodenal tube with aspiration from its lumen.

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PECULIARITIES OF MEDICAL CARE IN CHEST GUNSHOT INJURIES DURING LOCAL ARMED CONFLICTS.

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Introduction. In local armed conflicts, there is increased tendency of chest gunshot traumas, which treatment tactical enhancement is still actual, with regard to the use of newer technology and increased frequency of thoracoabdominal injuries.

Material and Methods: retrospective analysis was performed of wounded and hospitalized patients with gunshot wounds during period 2014-2018.

Result 1. Large number of thoracoabdominal traumas are not compatible with the frequency of cases registered in the peace and cases of large-scale military operations.

2. In active wartime and the active use of other weapons, gunshot- wounds are increased sharply, which has relatively lighter flow.

3. There is low level of mortality due to fast evacuation of the injured patients and organization of specialized medical care in military hospital.

Conclusion: Chest gunshot injuries are major problem in zones of armed conflict and have relatively high mortality levels, depending on the damaged organ and the used weapon. There is increase tendency, with a significant mortality in pre-hospital period. In penetrating injuries the chances of good outcome is associated with rapid evacuation and surgical intervention.

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SURGEON-PERFORMED ULTRASOUND ON MANAGEMENT OF PATIENTS WITH ACUTE ABDOMINAL PAIN

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Keywords: surgeon-performed ultrasonography

Patients with acute abdominal pain account for up to 10% of emergency department visits. The routine management of this patients includes taking medical history and clinical examination, followed by laboratory test and radiological investigations. Abdominal ultrasound is one of the most frequently performed investigations in surgical practice. The use of bedside ultrasound performed by the surgeon is increasing and has been described as the stethoscope of the new millennium.

A study was performed to evaluate the benefits of surgeon-performed ultrasound for the routine
management of the acute abdomen.

3919 patients with acute abdominal pain underwent US in emergency department performed by trained surgeons after taking history and physical examination. Surgical decision-making was based on the complete clinical evaluation. Final diagnosis was confirmed by operative findings, histologic examination or safe discharge without readmission in a month after initial visit.

Surgeon-performed ultrasonography was useful in diagnosis and decision making in 734 patients with acute appendicitis, 632 with acute cholecystitis, 39 with peptic ulcer perforation, 213 with acute pancreatitis and 237 patients with bowel obstruction. In 138 cases other acute abdominal pathology was diagnosed. In 1687 patients SPUS helped to correctly exclude acute abdominal emergency. Ultrasonography was false-positive in 37 cases and false-negative in 202 patients with acute abdominal pain.

Surgeon-performed ultrasonography is a valuable, safe and readily available adjunct to clinical impression in patients with acute abdominal pain that improves surgeon decision making about treatment strategy.

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EMERGENCY SURGERY RESPONSE TO DISASTERS IN DEVELOPING COUNTRIES: A SYSTEMATIC REVIEW

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Key words: Surgery, Disaster Response, Developing country, systematic review

Introduction
The United Nations (UN) estimates disasters have accounted for the loss of 1.3 million lives between 1995 and 2017. The humanitarian response to major disasters is often fragmented, resulting in insufficient resources and services reaching the victims. At present there is no integrated disaster response system in widespread use which can further improve outcomes.

Methods
A systematic online search of Embase, Medline, and Pubmed was conducted with Boolean operators and/or and utilising search terms: emergency surgery, disaster, catastrophe, low-resource/developing country. 164 articles were identified and screened with 56 meeting inclusion criteria.

Results
56 relevant studies related to: epidemiology of disaster surgery response (n=10); access challenges to emergency surgery (n=4); anaesthetic techniques in surgical emergencies (n=3); management of Road Traffic Accidents (n=2); retrospective accounts of surgical disaster management (n=17); paediatric emergency surgery (n=2); reviews of humanitarian surgical relief (n=6); training for surgical disaster
response (n=4); improved technology and communication to aid coordination and disaster response implementation (n=7).

**Conclusion**

Challenges to provision of emergency surgery disaster response are summarised and potential mitigating strategies proposed. Technical advances in mobile imaging, surgery, telemedicine and robotics bring feasibility, standardisation and economic viability to the morally imperative required improvement in surgical disaster-response in developing countries. In conjunction with the WHO Essential Trauma Care Program and Emergency Medical Team Registry these innovations may provide a template for affordable and safe systems of disaster preparedness, and training of medical professionals.

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**PATHOGENETIC MECHANISMS OF BLEEDING GASTRO-DUODENAL ULCER RELAPSE**

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**Key words:** bleeding ulcer

The profound special study of the substrate source of bleeding during active ongoing bleeding as well as some intimate mechanisms for the development of bleeding relapse to perform in clinic is simply impossible.

Our aim was to form acute and chronic medication and stressful bleeding ulcers in experimental animals with further investigation of the morphological substrate of the source of bleeding and the state of the functional systems of the rat’s organism. The formation of a medicated bleeding ulcer leads to significant pathophysiological changes in the organism of the experimental animal: a significant increase in the mean of ulcerative grade from 3.0±0.4 points to 3.3±0.4 points and the ulcerous index from 2.7% to 2.97%. There is a acute increase in the activity of the i-NOS periulcerous area in the identified cases - and is respectively 50% and 70% of the studied animals with pronounced activity of the enzyme in the mucous membrane around the source of bleeding. In animals with the formation of chronic bleeding ulcers the growth of i-NOS activity was detected not only in the periulcerous region, but also in the smooth muscle of vessels of the submucosal layer, which was not observed in the formation of acute bleeding ulcer. The correlation between the activity of i-NOS periulcerosis and the level of stable NO blood serum from 11.7±2.5 nmol / ml in the formation of acute stressful bleeding ulcers to 56.8±5.4 nmol / ml in the formation of chronic stressful bleeding ulcer.

The results of the study armed us with knowledge about the intimate mechanisms of bleeding depending on the nature and genesis of ulcers, which makes it possible to improve the treatment and prevention of bleeding relapse in patients.

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SURGERY AND REHABILITATION FOR BLEEDING ULCER TREATMENT

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Key words: bleeding duodenal ulcer

Objective of the study. To assess the effectiveness extraterritization of the bleeding duodenal ulcer as a method of organ-preserving surgical intervention in the complex bleeding duodenum ulcer treatment with the aim of reducing the traumatism of the operation, shortening the time of operation, reducing the rate of bleeding recurrence.

Material and method. The analysis of results of surgical treatment of treatment of 39 patients with a duodenal bleeding ulcer is carried out. We have detected the highest level of NO-synthasis in the periulcerosis area. These changes lead to an increase in blood supply in this area and high risk of recurrent bleeding.

Results. With active bleeding from duodenal ulcers and ineffectiveness of the methods of local endoscopic haemostasis, we produce an upper-median laparotomy, longitudinal duodenotomy with the transition of the incision to the pyloric region. When carrying out extraterriorisation, we perform a double incision and needle removal on both sides of the ulcerative defect with the formation of a muscular-mucous roller. When this stage is performed, the vessels of the perulcerous zone are mechanically compressed. The operation is completed by pyloroplasty according to Heineke-Mikulicz. The use of this method allows to reduce the number of recurrent bleeding to 2 (5.1%) cases with post–operative complications – from 27.4 to 7.7%, post–operative lethality from 7.5 to 4.1%.

Discussion & conclusion. The proposed method of extraterritization of bleeding duodenal ulcer of the facilitates the improvement of treatment results. This category of patients successfully underwent rehabilitation course in a remote post-preoperative period including physical and psychological methods as well.

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TRAUMATIC SPLENECTOMY: A SYSTEMATIC REVIEW OF ADHERENCE TO CURRENT PROPHYLAXIS GUIDELINES FOR OVERWHELMING POST-SPLENECTOMY INFECTIONS

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Key words: Splenectomy

Blunt or penetrating trauma accounts for 40% of patients requiring an emergency splenectomy, whilst haematological diseases (35%) and iatrogenic injury (24%) account for the rest. Asplenic patients are considered to be at risk of Overwhelming Post-Splenectomy Infection (OPSI) from encapsulated organisms
such as *Streptococcus pneumoniae* and *Haemophilus influenzae* type B; with the first case occurring in 1952. Incidence of OPSI in patients < 16 years old is estimated at 4.4% with an associated 2.2% mortality; whilst incidence in adults is only 0.9% with a 0.8% mortality.

The debate of whether the associated lifelong risk of OPSI following splenectomy is a more theoretical than a genuine phenomenon remains on-going. Some surgeons lean towards more conservation management of splenic trauma (i.e. splenic preservation instead of splenectomy) to avoid the possible lifelong risk of OPSI. However others consider the increased transfusion risks associated with splenic preservation to outweigh the overstated risks of OPSI; especially in adult patients without any other co-morbidities. Furthermore current evidence found that the correct administration of vaccinations (PPV, MenC, and Hib) and prophylactic antibiotics in high risk patients was low.

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**TRAUMA SURGERY: THE CHANGING ROLE OF PREHOSPITAL INTERVENTIONS AND SURGICAL DAMAGE CONTROL**

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**Key words:** Prehospital

There are 20,000 major traumas in England annually, and 5400 mortalities. The first hour for trauma patients following their injury remains vital for survival, with 80% of patients dying during this period. A vast majority of this ‘golden’ hour is spent within the prehospital setting, hence the significance of any interventions that occur during this period. There has been a paradigm shift in recent years from the traditional European approach to prehospital trauma care of ‘Stay and Play; towards ‘Scoop and Play’.

‘Scoop and Play’ still places emphasise on providing vital damage control interventions such as tourniquet application, securing of airway, permissive hypotension and blood components/tranexamic acid administration; however not at the expense of patient expedition to trauma centres. There is now significant evidence that prompt patient expedition and delivery of *definitive surgical interventions* is the key variable influencing patient morbidity and mortality. This new found approach to trauma surgery is increasingly resulting in improved patient survival following injuries that were otherwise considered nonsurvivable.

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ENDOSCOPIC METHODS OF TREATMENT OF UPPER GI BLEEDING

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Key words: upper GI bleeding

Acute upper gastrointestinal bleeding still remains one of the major and serious problem in emergency surgery, with still high mortality rate. The incidents of upper gastrointestinal bleeding have significantly increased. Discussions, concerning the algorithm of management of upper gastrointestinal bleeding, are still proceeded. Conservative treatment takes an advantage at some surgical clinics and a questions concerning to the surgical interventions is considered only for recurrent or continued bleeding. Diagnostic and therapeutic endoscopy is one of the most important part of management of acute upper GI bleeding, which has made major strides to reduce the high mortality of acute gastrointestinal bleeding.

The results of treatment of 84 patients admitted to the department of surgery of The First University Clinic of TSMU with non-variceal bleeding in 2017 were studied. All patients underwent endoscopy. Thermocoagulation, infiltration or application methods were used for haemostasis. The effectiveness of different methods of hemostasis have been compared.

According to our data, in cases of not intensive bleeding all methods have been shown to be equivalent and can be used interchangeably depending on individual preference of endoscopist. For stopping arterial bleeding the most reliable method is thermocoagulation, whereas in case of venous bleeding good results can be achieved by using infiltration or application methods.

The method of application is also preferable in cases where thermocoagulation is difficult or unavailable, due to the area of bleeding.

The trials to compare the different methods of endoscopic therapy should continue.

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ACUTE SMALL BOWEL OBSTRUCTION WITH PHYTOBEZOAR

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Introduction:

Phytobezoar is a rare cause of acute small bowel obstruction. The most common site of obstruction is terminal ileum. The signs and symptoms are not very different from those caused by other etiologies of small bowel obstruction. Most commonly patients have either problems with mastication or have eaten food containing large amount of greens, seeds or nuts. We present our experience of treating patients with laparoscopic surgery. One of the cases is presented below.
Case report:
A 60-year-old male patient was admitted to the surgical clinic complaining of abdominal pain, nausea, multiple vomiting, fatigue. The patient had dental prosthesis and had eaten a meal made of grape leaves. The patient had the above noted complaints for 1 day. The patient had no any operation done before. On physical examination, the abdomen was moderately distended, there was muscular defense and tenderness in the umbilical region, rebound tenderness was present, on percussion- high tympanic sound. The patient was admitted to the surgical clinic and investigated. X-ray of the abdomen was done which revealed 3-4 distended loops of small bowel in the upper part of the abdomen. Ultrasound of the abdomen was unremarkable. The patient was started on conservative treatment, nasogastric tube aspiration. Afterwards, the patient was given barium meal per os and abdominal X-ray was done 2, 10, and 16 hours later. During this time the patient was seen several times and the physical examination was the same, despite the deterioration of the abdominal X-ray. The last X-ray revealed multiple distended, dilated loops of small bowel. Since the conservative treatment was ineffective, we decided to proceed with urgent surgery in order to finally confirm the diagnosis and treat the patient. Laparoscopy was done which demonstrated dilated loops of small bowel starting from the ligament of Treitz until 60-70cm proximally to ileocecal junction. A solid, mobile mass was found with long shape (~ 6cm), which had obstructed completely the lumen of ileum. After the obstruction the bowel lumen was squeezed. It was diagnosed acute small bowel obstruction with phytobezoar. The mass was splintered and moved to the colon with laparoscopic atraumatic forceps. The postoperative period was unremarkable. On the 3rd postoperative day the patient had bowel movement.

Conclusion:
Patients with acute small bowel obstruction should be planned for laparoscopic surgery. In case of obstruction of the small bowel with phytobezoar laparoscopic surgery is minimally invasive efficient method.

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THE ROLE OF ENDOGENOUS TOXEMIA IN TRAUMATIC DISEASE
PATHOGENESIS

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Trauma disease has become very relevant in our country because of the well-known military conditions that occurred in the late 20th and early 21st century as well as by increase of injuries caused by traffic accidents. The incidence rate of multiple trauma has been increasing year by year. It should be noted that the proportion of severe combined trauma increases among an increasing total number of traumatic injuries. Due to the progress in medicine, improved critical care and multidisciplinary approach, patients with severe combined trauma who could not survive 20-30 years ago, now remain alive, at least for 1-2 months. First of all, the problem of shock and surgical infection should be discussed between the priority issues of the trauma. Basically, these two pathologies determine early or late death of the injured patient.
The goal of our research was to study the major markers of endogenous toxemia. To assess the severity of endogenous intoxication, indirect biochemical indicators of intoxication - serum albumin and total protein, urea, creatinine, potassium content, as well as ALT, AST, CK, leukocyte intoxication index, ECG marker were studied.

The results of our study show that the pathogenesis of trauma disease leads to a syndrome of endogenous toxemia and secondary immunodeficiency. Intoxication occurs during the first hours of the injury, before other classic causes of intoxication (peritonitis, tissue suppuration, etc.). This manifests itself in the initial stages of shock and correlates with the severity of the shock. Intoxication is caused by several factors. First of all, it is hypoperfusion with cellular hypoxia and dismetabolic disorders, and after recovery from shock - reperfusion caused by endotoxemia.

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THE ROLE OF CORRECT TRANSFUSION THERAPY IN URGENT SURGERY
(CASE REPORT)

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The benefit and risk of blood transfusion should be assessed carefully because blood components can cause dangerous complications, especially in massive transfusions, which can often lead to lethal outcome. Correct transfusion therapy is one of the most successful treatments in cases of severe condition with anemia.

We present a case from our practice. A 63 years old man was admitted to hospital by ambulance service in a critical condition with severe back and abdominal pain, which started 14 hours before. He was unconscious, with unstable haemodynamic data: P-157, /A - 70/0 mm Hg. Art., R-30. One month before common ileac artery aneurism was diagnosed by patient and surgical treatment was planned.

The rupture of common ileac artery aneurism into the retroperitoneal space as well as sigmoid colon perforation with local fecal peritonitis was found during surgery. Haematoma of retroperitoneal space included more than 3,5 liter of blood and blood clots. Left side aorta-ileac artery shunt and Hartmann's procedure were performed. Transfusion of red blood cells and fresh frozen plazma was started during surgery, which was continued in the ICU. In the postoperative period the patient had an episode of upper GI bleeding, which caused additional blood loss. Fortunately endoscopical haemostasis was successfull. Minimal level of hemoglobin during his stay in the hospital was 4,2 g/l, haematocrit-12%.

Total volume of transfused red blood cells – was 11,150 litre and fresh frozen plazma 10,5 litre - totally 21,650 litre. Transfusions were performed by using dialysis device. Despite the massiveness of blood transfusion, we managed to avoid posthemorrhagic complications.

Patient was discharged from the hospital in a good condition. (HGB – 110 g/dl), HTC – 32%).

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ENDOSCOPIC METHODS OF TREATMENT OF UPPER GI BLEEDING

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Acute upper gastrointestinal bleeding still remains one of the major and serious problem in emergency surgery, with still high mortality rate. The incidents of upper gastrointestinal bleeding have significantly increased. Discussions, concerning the algorithm of management of upper gastrointestinal bleeding, are still proceeded. Conservative treatment takes an advantage at some surgical clinics and a questions concerning to the surgical interventions is considered only for recurrent or continued bleeding. Diagnostic and therapeutic endoscopy is one of the most important part of management of acute upper GI bleeding, which has made major strides to reduce the high mortality of acute gastrointestinal bleeding.

The results of treatment of 84 patients admitted to the department of surgery of The First University Clinic of TSMU with non-variceal bleeding in 2017 were studied. All patients underwent endoscopy. Thermocoagulation, infiltration or application methods were used for haemostasis. The effectiveness of different methods of hemostasis have been compared.

According to our data, in cases of not intensive bleeding all methods have been shown to be equivalent and can be used interchangeably depending on individual preference of endoscopist. For stopping arterial bleeding the most reliable method is thermocoagulation, whereas in case of venous bleeding good results can be achieved by using infiltration or application methods.

The method of application is also preferable in cases where thermocoagulation is difficult or unavailable, due to the area of bleeding.

The trials to compare the different methods of endoscopic therapy should continue.

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SMALL-BOWEL DIVERTICULOSIS PRESENTING AS INTESTINAL OBSTRUCTION: REPORT OF A CASE AND REVIEW OF THE LITERATURE

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Key words: Emergency, rare case.

Introduction:
Jejunal diverticulosis is rare and often asymptomatic, but may present as an acute abdomen. Bowel obstruction, perforation, and peritonitis may be the first clinical manifestation of this disease, posing a diagnostic challenge.
Case report:

We describe a case of a 61 year old patient with no past surgical history who presented with one day history of diffuse abdominal pain, abdominal distension and vomiting. A Computed Tomography (CT) scan showed intestinal obstruction with no obvious underlying pathology.

The patient underwent an emergency exploratory laparotomy, which revealed a significant distension of the jejunum with several large diverticula measuring between 2 and 4 centimetres. These were associated with multiple adhesion bands but no evidence of ischemia in the proximal jejunum. Resection of the adhesions was performed. The patient was discharged after 3 days and had uneventful 3-month follow up.

Discussion:

This case report illustrates the unusual presentation of jejunal diverticulosis. The clinical findings are often non-specific, which may result in late diagnosis with potential complications. The pathophysiology is unclear, however the current hypothesis is the high intraluminal pressure and intestinal dyskinesia. In our case, small-bowel diverticulosis presented as intestinal obstruction due to adhesions.

Surgery carries the risks of perforating the diverticula and exacerbating the intestinal adhesions. Therefore a wait and see approach coupled with a proper interpretation of abdominal CT scan should be considered. Surgical intervention should be reserved for definitive treatment of patients presenting with intractable abdominal pain or for those with bleeding, perforation or mechanical obstruction.

Conclusion:

Surgeons should have a low threshold for suspecting jejunal diverticulosis when the patient has no obvious cause for obstruction on imaging in order to form a timely diagnosis and appropriate management.

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PECULIARITIES OF INTRA-ABDOMINAL PRESSURE IN EPIDURALLY ANESTHETIZED PATIENTS WITH SIRS AND CHOLECYSTOPANCREATITIS

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BACKGROUND: Epidural anesthesia (EA) is still being investigated as a non-surgical method of abdominal decompression, with the help of which selective abdominal myorelaxation is conducted. The aim of this work is to investigate the role of EA on the dynamic peculiarities of intra-abdominal pressure (IAP) and abdominal perfusion pressure (APP) values in patients with cholecystopancreatitis.

METHODS: SIRS in patients has been estimated by R. Bone et.al (1992), which was confirmed by the resolution of the International Sepsis Definitions Conference in 2001. In order to estimate the intra-abdominal hypertension (IAH) degree the classification, worked out by M.Cheatham in 2006 and adopted by the World Society of the Abdominal Compartment Syndrome (WSACS) in 2007 was implemented.
63 patients with cholecystopancreatitis who underwent treatment in “Astghik” MC (previously Nataly Pharm Malatia MC) from 2014 to 2016 have been included in the investigation. These patients were divided into 2 groups according to the type of anesthetics they had received during the treatment course. The patients of the first group received EA (n=33) as a means of anesthesia, for the second group patients was implemented nonsteroidal anti-inflammatory drugs (NSAID) (n=30).

**RESULTS:** In the first group of patients after receiving EA IAP values have decreased faster in dynamics and after 7 days of hospitalization was registered 13.2±1.4mmHg value of IAP, whereas in the second group patients the IAP values decreases more slowly in dynamic and compared with the first group even after 21 days of hospitalization was registered a higher value of IAP (12.1±2.3mmHg.). Besides, in the first group patients SIRS symptoms were maintained during 4-6 days after hospitalization and in the second group patients-during 6-15 days. APP in the first group patients has gradually improved during the 1-10 days after hospitalization ranging from 86.1-89.4mmHg., and in the second group patients-82.6-85.1mmHg. On the 21st day after hospitalization APP was 93.7±3.4mmHg. in the first group patients and in the second group patients-86.2±5.2mmHg.

**CONCLUSIONS:** In patients with SIRS and cholecystopancreatitis epidural anesthesia promotes faster improvement of IAP and APP values, which, in its turn, results in the elimination of the secondary spasm of the anterior abdomen wall, SIRS symptoms regression. It also can increase elasticity of the anterior abdomen wall. Hence, it can be used as a non-surgical method of abdominal decompression in patients with cholecystopancreatitis.

**REFERENCES**
ROBOTIC ASSISTED TRANSAXILLARY THYROIDECTOMY (RATT) THROUGH SINGLE ACCESS: EUROPEAN EXPERIENCE ON 350 CASES

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Background. Robotic Assisted Transaxillary Thyroidectomy (RATT) has become widely accepted in Eastern countries where it was developed, but many concerns about safety and effectiveness have been arisen in US, where is rarely performed. Up to now, in Europe it is performed in few centers and only small series of patients have been reported. We describe our experience on 350 patients undergoing RATT, with the aim of evaluate feasibility, safety and effectiveness in a European country.

Methods. A retrospective analysis of the charts of 350 patients undergoing RATT at the Department of Surgery of Pisa was performed. Thyroid volume, nodule diameter, preoperative and postoperative diagnosis, operating time, complications, postoperative stay length, conversion rate and post-operative pain were collected. Postoperative neck ultrasound and postoperative TSH, AbTg and thyroglobulin were evaluated in order to compare completeness at thyroid bed level after total thyroidectomy RATT vs open standard cervicotomy (CT). RATT was always performed through a single transaxillary access using three robotic arms, Da Vinci Intuitive System was used.

Results. From February 2012 to July August 2018, 350 patients underwent RATT. There were 347 females and 3 males. Mean age was 38.63±11.21. Mean thyroid volume was 25.34±10.73 ml, mean nodule diameter was 27.6 (5-60) mm. 195 patients underwent hemithyroidectomy (HT) and 155 total thyroidectomy (TT). Preoperative diagnosis was: low-risk papillary carcinoma (19%), multinodular goiter (30%), undetermined nodules (47%) and toxic adenoma (4%). Mean operative time for HT was 73.8 min (range 27-175) and 90.3 min (range 65-180) for TT.

There were no significant differences between RATT and CT postoperatively values of TSH (3.44±5.29 and 3.21±3.78 microUI/ml), AbTg (83.66±128.19 and 58.11±84.94 UI/ml) and Tg levels (1.28±1.73 and 1.22±2.56 pg/ml) respectively. The postoperative remnant volume (before radiiodine ablation, when it occurred) was not significantly different between RATT (0.351±0.28 ml) and CT (0.45±0.68 ml). Also same side versus contralateral remnant volume in RATT was analyzed and it resulted similar (0.12±0.18 and 0.22±0.24 ml respectively). One procedure was converted to cervicotomy due to intraoperative finding of locally advanced thyroid carcinoma. There was one definitive nerve palsy in the entire series. Among patients undergoing TT, 3 cases of transient hypoparathyroidism were collected. We experienced 3 postoperative hematoma (pectoralis fascia): two were conservatively treated and one was controlled by endoscopic transaxillary access. One delayed tracheal leakage occurred one month after RATT and was
conservatively treated. VAS postoperative mean score was 1.79. Mean post-operative stay for HT was 1.6 days (range 1-2) and for TT was 1.9 days (range 1-4).

**Conclusions.** In our experience, RATT is safe and feasible and it might represent a valid treatment option in selected cases.

**TRUCUT VERSUS FINE NEEDLE ASPIRATION (FNAC) IN THE DIAGNOSIS OF ANAPLASTIC THYROID CANCER (ATC): WHICH IS THE BEST?**

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**Key words:** TRUCUT

**Background:** Preoperative identification of ATC is extremely important to better plan patient management and to avoid useless and potentially dangerous surgical procedures. High-grade histological features and cellularity for a definitive diagnosis of ATC can be difficultly recognised only in FNAC sample. Trucut needle biopsy is already used as an alternative to FNAC for preoperative diagnosis of other tumors. The aim of the study is to compare the diagnostic efficacy of trucut biopsy vs FNAC in a large series of locally advanced neck cancers suspicious for ATC from a single centre.

**Methods:** between 2014 and November 2017, 46 cases of locally advanced neck cancers suspicious for ATC were collected. All cases simultaneously underwent FNAC and trucut biopsy. Thyroglobulin, TTF-1 and other immunohistochemical citokeratins were analysed in all trucut samples. The epidemiological, clinical and pathological data were collected.

**Results:** 100% of trucut samples were diagnostic (20/46, 43% for ATC; 16/46, 35% for poorly differentiated thyroid cancer, PDTC; 10/46, 22% for lymphoma or metastases from other primary tumor). No complications were reported. In FNAC series the cytological diagnosis was ATC in 4/46 (9%), PDTC in 13/46 (28%), thyroid cancer in 17/46 (37%) and insufficient for a diagnosis in 12/46 (26%). Only 14/46 (30%) patients underwent a surgical procedure as there was no preoperative evidence of massive infiltration. In all these 14 cases preoperative trucut diagnosis was confirmed by final histological examination, while FNAC was positive for ATC only in 3/14 (21%).

**Conclusions:** Trucut resulted to be a safe and effective procedure to preoperatively diagnose ATC so as to immediately plan the most appropriate treatment for the patient and to avoid surgical biopsy.

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IS INTRAOPERATIVE US-GUIDED NECK DISSECTION USEFULL IN THYROID SURGERY FOR CANCER? A PILOT STUDY.

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Key words: Thyroid surgery

Background. Differentiated thyroid cancer (DTC) may be associated with lymph node metastases in 20-50% of cases. Nowadays, the use of intraoperative ultrasound (IO-US) to guide the type of cervical lymph node dissection has been little investigated. The aim of this study was to verify the efficacy of IO-US in detecting central and lateral neck compartment metastases by thyroid cancer.

Method. From June 2013 to October 2015, 23 patients were enrolled. Patients were divided into 2 groups: group A, patients with cytological diagnosis of papillary thyroid cancer (PTC) and lymph node metastasis underwent total thyroidectomy and US-guided modified radical neck dissection (MRND) included 17 patients (15 females; mean age 44±3.2 years); group B, included 6 patients (4 females; age 55±2.7 years) underwent only US-guided MRND for thyroid cancer recurrence. 24 months follow-up period was routinely adopted.

Results. In group A PTC was confirmed in all cases, and the IO-US was useful to detect unrecognized lymph node metastasis in 11 patients (65%) at level IIa and Vb. In the group B, the histological findings showed PTC metastases in all patients, and the IO-US was useful to detect missed lymph node metastasis in 2 patients (33%) at level IIa. The follow-up period was negative for recurrence of disease in both groups.

Conclusion. The literature already states that the US, performed by experienced hands, is the screening and surveillance imaging modality of choice for detection of lateral neck metastases. This pilot study shows that the IO-US is a very useful imaging modality to detect occult or unrecognized lateral neck compartment metastases in patients with thyroid cancer, and it can modify the surgical strategy with successful results in terms of recurrence rate during follow-up.

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SERUM LEVELS OF ANGIogenic CYTOKINES DECREASE AFTER THYROID SURGERY: A REVOLUTION IN THE MANAGEMENT OF THYROID DISEASE?

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Key words: Thyroid surgery

Background. Serum levels of angiogenic cytokines decrease after therapy in patients with hematological and solid tumours, may be considered relevant for treatment response and progression-free survival. We determined whether circulating Ang-2, FGF-2, HGF, PDGF-β, PLGF, HBEGF, VEGF-A and C may represent a prognostic markers in term of remission after surgery and progression-free survival in patients with thyroid cancer and if these patients can be stratified for their prognosis.

Method. Between May 2016 and December 2017, 74 consecutive patients were consecutively enrolled and underwent to surgery (total thyroidectomy; total thyroidectomy with lymphadenectomy; mini-invasive video-assisted total thyroidectomy) because of neoplastic and non neoplastic thyroid diseases. Of the 74 enrolled patients 60 (37 F, 23 M; mean age: 46, range: 34-68 years) results evaluable for angiogenic cytokine serum levels. The serum levels of Ang-2, FGF-2, HGF, PDGF-β, PLGF, HBEGF, VEGF-A and C were evaluated at diagnosis and two weeks after surgery by enzyme-linked immunosorbent assay (ELISA). The cytokines levels were correlated both with histology, with surgery methods and patient’s characteristics.

Results. After surgery, Ang-2, FGF-2, HGF, PDGF-β, VEGF-A and C but not HBEGF, PLGF, showed correlation with surgical radicality. No correlation between cytokines or with surgery methods and patient’s characteristics have been evidenced.

Conclusion. FGF-2, HGF, VEGF-B and C serum levels at diagnosis and their variation after surgery have predictive significance for treatment radicality and for the recurrence, so, the stratification of patients based on cytokines levels at diagnosis and variation after therapy could be useful to individuate different patients risk groups for outcomes.

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THYROID DISEASE AND CANCER IN KIDNEY TRANSPLANTATION: A SINGLE-CENTER ANALYSIS

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Key words: Thyroid

Background: Thyroid disease is frequent in patients with end-stage renal disease. This study evaluated the incidence of thyroid disease and cancer in a population of kidney transplant recipients performed in a single center. Methods: 760 patients receiving a kidney transplantation between January 2000 and October 2017 were followed with thyroid ultrasonography to determine nodules together with thyroid hormone levels. Ultrasound-guided fine-needle aspiration citology (FNAC) was performed to the nodules > 10 mm.

Results: 204 patients (26.8%) patients demonstrated functional or morphologic changes in the thyroid gland compared with pre-transplant period. Among the 204 patients with newly diagnosed thyroid disease, 165 patients had single or multiple nodular lesions less than 1 cm in diameter, and were followed yearly. Nodule size progression was observed in 23 patients (13.9%), and they underwent a FNAC. A total of 62 patients (30.3%) underwent FNAC. The biopsy samples were cytologically interpreted as benign in 20 patients (32.2%), suspicious in 40 patients (64.5%), or at high risk of cancer in 2 patients (3.2%). 42 patients underwent total thyroidectomy. At histological examination, 18 patients had a thyroid cancer. Thyroid cancer was more frequent in male patients with a mean time from transplant to diagnosis of 5.6 years. At a mean follow-up was 8 ± 1.2 years, all patients are alive with a normal functioning graft. Conclusions: Thyroid disease may evolve after transplantation, probably as a consequence of immunosuppression. A complete evaluation of thyroid disease is mandatory in kidney transplant recipients because early diagnosis and appropriate treatment of thyroid disease and cancer may significantly decrease the morbidity and mortality in these patients.

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LATERAL APPROACH TO ALLOW SCAR-FREE FRONT OF THE NECK IN THYROID SURGERY

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Key words: thyroid surgery, surgical approach

Introduction. A number of surgical approaches for removal of thyroid and parathyroid glands has been suggested for today. The major issue is hemithyroidectomy, thyroidectomy, or parathyroidectomy with preservation of recurrent laryngeal nerves and intact parathyroid glands with favorable functional and esthetical results of the surgery.

Materials and Methods. Starting from 2013, we have been using a unilateral or bilateral approach in 58 patients, 34 of which suffered from nodular goiter, 12 had thyroid cancer, and 12 were diagnosed with Graves’ disease. This approaches required dissection of cervical skin, subcutaneous adipose tissue, and muscles starting from the exterior side of sterno-cleido-mastoid muscle (SCMM) to the middle third of the clavicle, 2 cm above the latter. This approach allows isolating and preservation of the recurrent nerve, as well as the supper and the lower parathyroid glands behind the posterior SCMM margin. Subsequently, the SCMM is moved laterally, and the recurrent laryngeal nerve is dissected up to its entry point into the laryngeal muscles. Functional integrity of the recurrent nerve can be verified by intraoperative neuromonitoring. This approach allows to perform uni- or bilateral central and selective lymphadenectomy.

Conclusions. Lateral approach allows for removal of the thyroid, as well as to perform central and selective lymphadenectomy, leaving no scar on the neck front.

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VOICE DISORDERS AFTER TOTAL THYROIDECTOMY: PATIENT SELF-ASSESSMENT IN COMPARISON WITH INDIRECT LARYNGOSCOPY AND ULTRASOUND OF THE VOCAL CORDS

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Key words: thyroidectomy

The study included 52 patients who underwent total thyroidectomy on multinodular goiter. The vocal cords of all patients before surgery assessing with indirect laringoscopy (IL) and ultrasound (US) were unchanged and mobile.

On the third day after surgery the mobility of the vocal cords was preserved in full volume in all 52 patients assessing with IL and US. Nevertheless all of them noted the presence of voice disturbance. The
The voice was impaired by all criteria of the GRBAS scale but mainly due to roughness (84.6%) and grade (46.2%). By the 6-th month the subjects considered their voice to be altered mainly due to asthenia (38.5%).

The reason for the worsening of the voice is the postoperative edema of the vocal cords in 42.3% cases. US revealed blurriness and vagueness of vocal cords contours. The ultrasound image was correlated well to the results of IL. With the resolution of the edema the voice is almost completely restored in 6 months after the surgery. In other cases voice disorders may be associated with the laryngeal nerve traction or with trachea intubation. Due to the high concordance of the methods US of the vocal cords may be an adequate alternative to IL in the assessing of vocal cords function in patients with thyroid disease.

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### 2 YEAR ADRENALECTOMY EXPERIENCE OF SINGLE CENTER

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**Key words:** ADRENALECTOMY

**Introduction:** Adrenalectomy is most commonly done for insidentalomas, %90 laparoscopically. However, rare cases as aldesteronomas are also indication. In our study, we wanted to share our experience of histopathological results of adrenalectomies that took place at Gulhane Training and Research Hospital, Department of General Surgery at 2015-2016.

**Results:** 14 adrenalectomies took place at our center in which 11 (78.57%) of them were laparoscopic excision. We excluded adrenalectomies as a part of radical nephrectomy operated by urology department. 7 (50%) male and 7 (50%) female patients were operated with mean age of 49.42 years. Ratio of right to left adrenalectomies were 9/5. 6 (42.85%) adrenalectomies were adrenocortical adenoma, 3 (21.42%) were adrenocortical carcinoma and 1 (7.14) adrenalectomies were diagnosed as adrenal oncocytic carcinoma, mixt germ cell tumour of testis metastasis, adrenal hamartoma, feocytochroma and gastric gist invasion.

**Conclusion:** Most common indication for adrenalectomy is incidentaloma. Incidentalomas end up with a final histopathological diagnosis in which %60 are non-functioning adenomas. As appropriate with the literature, 42.85% of our adrenalectomies resulted as adrenocortical non-functioning adenomas. Beside, adrenal glands are also a frequent site for metastasis as a result of their rich blood supply. However, in our study, we had only 1 adrenal metastasis which was testicular carcinoma. Being contrary to our study, most common metastasis to adrenal glands is from lung, gastrointestinal track, pancreas and kidney. We had 11 laparoscopies (78.57%) which is less than the literature. Indication for open adrenalectomy was because of the size of the adrenal mass. In conclusion, our adrenalectomy serie approximately reflects the literature data.

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OUTCOME PREDICTION BY 7TH AND 8TH EDITION OF THE AJCC/TNM STAGING SYSTEM FOR PAPILLARY THYROID CANCER: A 10 YEAR FOLLOW-UP STUDY IN A SINGLE INSTITUTE

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Key words: AJCC/TNM staging

PURPOSE: Clinical implication of minimal extrathyroidal extension (mETE) in papillary thyroid carcinoma (PTC) has been controversial. Recently AJCC TNM classification was revised to 8th edition. The aim of present study is to evaluate whether 8th AJCC TNM classification is better than previous version in prognostification in PTC.

PATIENTS AND METHODS: We retrospectively evaluated a total of 239 PTC patients who underwent primary surgery for PTC at our hospital from Jan. 2007 to Dec, 2008. We reviewed medical records and interviewed patients by phone call. We used IBM SPSS Statistics 24 for statistical analysis. Disease free survival (DFS) rate and overall survival (OS) rate were evaluated by Kaplan Meier method.

RESULTS: There were 203 females and 36 males; 235 total thyroidectomy and 4 lobectomy cases; maximum tumor size of 1.3±1.0cm (131 microscopic PTCs); ETE(+) in 100 patients; lymph node metastasis (+) in 74 patients and Lateral neck dissection in 11 patients. Duration of a median follow-up was 113.4 months. By 8th edition compared to 7th, TNM stages migrate downward in 81 patients (33.9%). A 10-year disease-free survival (DFS) rate was 97.0% for stage I, 100% for stage II, 97.0% for stage III, and 64.8% for stage IV by 7th edition while that was 96.9% for stage I, 88.9% for stage II, and 66.7% for stage III by 8th edition of the AJCC/TNM staging system, respectively. There were 3 mortality cases, not related with PTC.

CONCLUSIONS: Because of limitations in present study including a small sample size, we could not evaluate mortality rates according to different staging systems. Compared to previous edition, however, 8th edition of the AJCC/TNM staging system differentiated more patients who have a low-risk of recurrence (down-staging).

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MESENTERIC LYMPH NODES AS ALTERNATIVE SITE FOR PANCREATIC ISLET TRANSPLANTATION IN A DIABETIC RAT MODEL

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Key words: Type 1 Diabetes Mellitus

Background: The long-term results of islet transplantation could be significantly increased by improving the quality of the islet isolation technique even exploring alternative islet transplantation sites to reduce the number of islets required to mitigate hyperglycemia. The goal of the study was to test the lymph node as a suitable anatomical location for islet engraftment in a rodent model.

Methods: 40 Lewis rats, 6-8 weeks old, body weight 250-300 g, have been used as islet donors and recipients in syngeneic islet transplantation experiments. Ten rats were rendered diabetic by one injection of 65 mg/Kg of streptozotocin. After pancreas retrieval from non diabetic donors, islet were isolated and transplanted in the mesenteric lymph nodes of 7 diabetic rats. Rats were followed for 30 days after islet transplantation.

Results: A total of 7 islet transplantations in mesenteric lymph nodes have been performed. 2 rats died 24 and 36 hours after transplantation due to complications. No transplanted rat acquired normal glucose blood levels and insulin independence after the transplantation. The mean blood levels of glycemia were significantly lower in transplanted rats compared with diabetic rats (470.4 mg/dl vs 605 mg/dl, p 0.04). The transplanted rats have a significant weight increase after transplantation compared to diabetic rats (mean value 295g in transplanted rats vs 245g in diabetic rats, p<0.05), with an overall improvement of social activities and health. Immunohistochemical analysis of the 5 mesenteric lymph nodes of transplanted rats demonstrated the presence of living islets in 1 lymph node.

Conclusions: although islet engraftment in lymph nodes is possible, islet transplantation in lymph nodes in rats resulted in few improvements of glucose parameters.

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DIAGNOSTIC AND MANAGEMENT MISTAKES OF THYROID CANCER

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The choice of therapeutic tactics for a number of thyroid diseases, combined in clinical practice by the term “nodular goiter”, despite apparent simplicity, is one of the most complex issues, and even for certain nosological forms is ambiguous.

Treatment of thyroid cancer should be comprehensive and it presents a difficult task. Each form of thyroid cancer requires the doctor extensive knowledge in the field of endocrinology, medical radiology and pathohistology.

Inadequate surgical interventions (enucleation, lobe resection or subtotal resections) are carried out mainly in surgical and endocrinology departments of general profile, whereas these surgeries are not adequate even in case of benign thyroid formations.

The purpose of our work was to find out the state of treatment tactics of the patients with thyroid cancer in RA.

Over the past 15 years 330 patients with thyroid cancer (primary- 267(80,9%) and recurrent 63(19,1%)) underwent examination and received treatment at the NCO MH RA.

63 patients were admitted to NCO for recurrent thyroid cancer. They were operated in other clinics diagnosed with thyroid adenoma. In this group of patients before surgery, the diagnosis wasn’t verified by cytological method of examination, and volume of surgery was limited only to resection of an affected lobe without subsequent pathogenically substantiated additional treatment.

Thus, for the development of optimal tactics for the treatment of the patients with thyroid cancer comprehensive preoperative examination, refined diagnosis, oncological alertness are necessary.

ADRENAL MYELOLIPOMA. MANAGEMENT OF AN INCIDENTALLY FOUND GIANT TUMOR: A CASE REPORT

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Key words: adrenal gland, myelolipoma

Introduction

Myelolipoma is a rare benign tumor, which is biochemically inactive. This neoplasm is composed of macroscopic fat and mature hematopoietic tissue, resembling bone marrow and predominantly occurs in the adrenal gland. In the past, the incidental detection of adrenal myelolipoma has become more common (up to 10–15% of incidental adrenal masses) due to widespread use of radiological studies such as ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI). Management
this tumors is usually conservative because they are typically asymptomatic and rarely show signs of spontaneous hemorrhage if the tumor is small.

Presentation of case
A 59-year-old male was admitted to department of general surgery with the complaints of dull chronic pains of left abdomen. During last 12years’ patient permanently is observed and had treatment due to arterial hypertension, heart ischemic disease and diabetes mellitus. The patient appeared ill, nauseated, tearful and anxious. The abdomen was tender to deep palpation in and the left upper quadrant, with no rebound tenderness or guarding. The laboratory data of metanephrines, cortizol, aldosteron, renin, K⁺ were norma. A CT scan of the abdomen showed a mixed non homogenous well-defined mass about 28 cm with cystic component (8sm) above the left kidney. 16.11.17 the operation via left subcostal transabdominal approach was performed. There were not any intraabdominal adhesions and removal of the left adrenal gland easy performed without any complication and blood loss. The structure with cystic component was bordered from the tumor by own capsule and was removed separately. The morphological investigation of the specimen verified it to be myelolipoma of adrenal gland. It described the tumor consisted from fat cells, which are mixed with hematopoietic structures. There were no signs of malignancy.

Discussion
For this specific patient, surgery was the most cost effective option, as well as both diagnostic and curative. Surgery relieved the pains and also prevented complications such as spontaneous rupture and bleeding

Conclusions
While the tumor is benign, surgery has an important role for symptomatic cases and those lesions that cannot be distinguished reliably. The optimal treatment and management for myelolipoma depends on the size and symptoms of the mass and should be done on a case-by-case basis.

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OPTIMIZATION OF SURGICAL VOLUME IN PAPILLARY THYROID CANCER. OUR EXPERIENCE OF THYROGLOBULIN MEASUREMENT IN WASHOUT FLUID FROM LYMPH NODE FINE-NEEDLE ASPIRATION BIOPSY

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Key words: Thyroglobulin, fine-needle aspiration cytology, lymph node

Introduction
Papillary thyroid cancer common is accompanied with neck lymph nodes(LN) metastasis. Central and lateral neck dissections increase the level of such complications as permanent and temporary
hypoparathyroidism, nerves injures, bleeding, chyle leak, seroma, wound infection and other. The detection of thyroglobulin (Tg) levels in washout fluid from lymph node fine-needle aspiration (FNA) biopsy has been suggested to improve the diagnosis and choose the optimal surgical volume.

**Aim**

Aim of this study was to analize our first results of FNA-Tg measurment in diagnosing of malignant lymph nodes.

**Methods**

A total of 168 cases from the Astghik medical center (Yerevan, Armenia) were included. In all patients of study the thyroid cancer was accompanied with the central or lateral neck lymph nodes enlargement more than 1.0 cm. The results of FNA cytology, FNA TG measurment and postoperative histological investigations were compared.

**Results**

FNA cytology was non informative in 47 patients (28%), in 59 patients(35%) - metastasis were detected. FNA TG was positive (more than 1.0ng/mL) in 31 cases (66%) of non diagnostic FNA cytology, in all 59 cases which diagnosed by FNA cytology as a metastatic lymph nodes, and in 4 cases from 62 that were diagnosed as a non metastatic lymph nodes by FNA cytology. All FNA TG positive results were confirmed by surgery (100% specificity and informativity).

**Conclusions**

Thus, by analyzing of results we demonstrated very high specificity and informativity of FNA TG in lymph nodes washout, which increses the diagnostic value of FNA cytology ang allow to choose the optimal surgical volume in well differentiated thyroid cancer

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A RARE CASE OF TYPE II OF FIRST BRANCHIAL CLEFT CYST: A CASE REPORT

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Key words: branchial cleft anomaly, first branchial cyst

Branchial cleft cyst is a congenital anomaly. First branchial cleft cyst is a very rare type of branchial cleft anomaly. Because of its rarity, first branchial cleft cyst can present difficulty in diagnosis and surgical management. Here, I report a case of type II first branchial cleft cyst. A 20 years old girl who had suffered from swelling on RT lower jaw visited my clinic with the chief complaint of a swelling. Diagnosis was made preoperatively by M.R.I and F.N.A.C. She underwent complete excision of the cyst. Histopathology showed the cyst lined by squamous as well as columnar epithelium, which was a characteristic finding of branchial cleft cyst. The patient recovered well and had no complications. The aim of presenting this case is its rarity.

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EXCISION WITH LAYERED PRIMARY CLOSURE AS SURGICAL TREATMENT OF PILONIDAL SINUS DISEASE. SINGLE CENTER EXPERIENCE

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Abstract Background:
There are various surgical treatments in the surgeon’s armamentarium for treating pilonidal sinus disease. We present the results of an easy to perform surgical technique which fulfills all the goals of the operative treatment of the disease. Methods: This is a prospective, multi surgeon, single institution, case series which includes a group of 76 patients. All patients were suffering from pilonidal disease. They underwent en bloc excision of the lesion and the wound was closed meticulously in multiple layers so no residual cavity was left behind. Results: Full primary healing was achieved in 75 patients. The
mean hospital stay was 2.68 days with minor pain and inconvenience. Follow up was 48 months and one recurrence occurred in one patient who failed to follow the postoperative instructions. Conclusions: Meticulous, layered, suture closure is a promising, easy to perform technique which achieves the goals of treatment of pilonidal disease.

**Key words**: layered primary closure, pilonidal sinus, surgical treatment

**Introduction**

Pilonidal sinus disease is a common condition affecting young adults. The incidence rate of the disease is 27 cases per 100,000 people (1). Males are affected 2-4 times more often than females (2). The first case in the medical literature was presented by Mayo in 1833 (3). Warren proposed the incarcerated hair growth as the causative agent (4). Currently, it is established that the factors contributing to the development of pilonidal sinus are poor hygiene of the area, local trauma, hirsuteness, and presence of deep natal cleft (5). Many operative and conservative treatment options have been suggested. The ideal treatment criteria should include low recurrence rate, short hospital stay, low cost, minimum time off work and minimum patient inconvenience. Also, treatment should also address the predisposing factors for pilonidal disease, such as correction of the depth of the natal cleft and removal of the hair follicles of the region. The main cause of failure and recurrence is the persistence of a deep natal cleft which predisposes to hair follicle entry which begins the vicious cycle of abscess formation (6). The experience of surgical excision of the pilonidal sinus lesion and layered closure of the wound in order to achieve primary healing is presented.

**Patients and methods**

The aim was to conduct a prospective multi surgeon, single center study of pilonidal cyst excision and primary layered closure. A total of 164 patients with diagnosis of pilonidal sinus disease were treated between December 2011 and December 2016 at NMC speciality hospital- Dubai. Patients with acute pilonidal abscess were excluded. Eight patients were excluded from the study, due to multiple recurrences. Therefore 156 patients met the inclusion criteria. All patients were above 16 years old. Data collected from the patients included age, sex, direction of the pilonidal sinus, operative time from the incision to the last suture placed, in hospital length of stay in days, postoperative pain, (in the numeric pain scale 0 was the number for no pain and 10 for the worst imaginable pain), type of medication administered, early and late complications, complete wound healing time, recurrences, and hospital. The median follow up period was forty eight (48) months. An informed consent was taken and each patient was counseled about the benefits and the demerits of the procedure. Technique: All patients were operated under general anesthesia. At the time of introduction of anesthesia antibiotic prophylaxis of cefoxitin 750 mg and metronidazole 500 mg was administered intravenously. After intubation the patient was placed in the prone jack-knife position (Figure 1). The skin in the operative field was shaved and prepared. The extent of the pilonidal sinuses was investigated by probing and injection of methylene blue. An elliptical skin excision including all the orifices of the pilonidal sinuses was performed. The skin with the subcutaneous fat was excised en bloc up to the lower sacrococcygeal fascia. Meticulous hemostasis was achieved with diathermy cauterization and the wound washed with povidone iodine 10%. The wound was closed by meticulous suturing in multiple layers using absorbable vicryl sutures 2/0. The deepest layer included the sacrococcygeal fascia and part of the deeper layer of the subcutaneous fat tissue. The remaining part of the subcutaneous fat tissue was approximated in two to three layers. The skin was approximated with 3/0 nylon subcutical suture to ensure eversion of the wound and minimal wound tension. No residual cavity was left behind. The patients
Postoperatively returned to the inpatient ward and received intravenous antibiotics of metronidazole 500 mg 3 times daily and cefuroxime 750 mg 3 times daily. They were advised to stay in the prone or left/right side position. They remained in the hospital for one to two days with restricted movements and daily wound dressing changes. One-half of the skin sutures were removed after 10 days and the remaining sutures were removed on the 15th postoperative day. After discharge from the hospital, the patients were instructed to maintain the movement restrictions, to keep good hygiene of the area, and to eradicate hair follicles around the wound. All patients preferred to use hair removing gel to keep the area hair free. Results A total of 76 patients were included in the study. The average age was 27 years (18-50 years). There were (75%) male patients. The number and the extent of the sinus tracts did not influence the ability to perform the closed excision of the pilonidal disease. The mean operative time was 40 minutes (range 35-50 minutes). All patients postoperatively presented minor pain which was controlled by non-opioid medication. (72%) patients reported pain scale score 2, (18.5%) patients pain scale score 3, and (9.5%) patients pain scale score 4. Patients with pain scale score 2 and 3 received paracetamol (acetaminophen) 500 mg iv while in patients with pain all patients used sparsely 500 mg paracetamol p.o. for three to four days never exceeding two tablets daily. The mean hospital stay period was 2.68 days (2-3 days). (86%) patients stayed for two days and (14%) patients stayed for three days. The last group included patients with larger skin defect after excision of the lesion and required longer hospitalization for antibiotic treatment and wound observation. (2.6%) presented minor wound dehiscence due to infection and were successfully treated conservatively. During the follow up period, one patient reported recurrence due to failure to follow the post-operative instructions, giving a total recurrence ratio of (1.3%).

Discussion

Pilonidal sinus is a blind epithelial tract with opening or orifices at the skin of the natal cleft which contains hair (7). It was first reported in 1833 by Mayo (3). The etiology and the pathogenesis of the disease is still a matter of debate. Initially it was considered having a congenital origin (8). The disease gained wide recognition during the Second World War, where in three years period, 78,924 soldiers were treated in army hospitals. It was called the ‘Jeep’s disease’. Due to the large number of cases during this period, many articles appeared in the medical literature proposing various surgical techniques and hypothesis about the pathogenesis of the disease (9). The present view is that the pilonidal sinus is caused as a result of folliculitis in the natal cleft which produces edema and follicle occlusion. The infected follicle forms a pilonidal abscess which results in a sinus tract that leads to a deep subcutaneous cavity having the direction of the growth of the hair follicle. When the abscess ruptures, it drains to the skin surface and the sinus tract becomes an epithelized tube. Friction and movement of the buttocks whenever the patient stands or sits causes loose hairs to drill and be sucked into the sinus tract stimulating a foreign body reaction and infection (5,6,7). Factors predisposing to pilonidal disease are hirsuteness, poor hygiene and humidity of the region, and a deep and narrow intergluteal cleft causing buttock friction and local trauma. The treatment of the disease should aim to remove all these factors. The patient should cooperate and keep an area of 20cm x 20cm free of excessive hairiness either by laser treatment or by hair removing gel repeating the application every 10-14 days, as well as improve the hygiene of the area and keep it dry. Ideal surgery should remove all the sinus tract with reliable wound healing, short period of hospitalization, minimum pain and need for wound care for the patient, with low morbidity and low recurrence risk (11). The technique of excision of the sinus tract and closure of the wound in meticulous way so that no cavity is left behind and the skin approximated in the middle line has the advantage of eradicating the lesion and flattening the natal cleft. It differs from
the classic method where whole thickness sutures are used in the sense that in our technique the wound edges are approximated in layers of sutures until a perfect no cavity closure is achieved. The skin edges are approximated in a way to prevent skin inversion. The classical closing method has the disadvantage of micro-organism migration through the whole thickness stitches into the deep area of the wound causing infection and high risk of recurrence. Our technique is simple to perform with no need for extended flap transposition as the Limberg flap (11) or the Karydakis technique (12) and has excellent aesthetic results. Healing with secondary intention has the advantage of short hospital stay probably in an outpatient basis but requires prolonged period of healing (60-180 days) and necessity for supervised wound care with delayed return to work (8,9). The intra hospital stay, the post-operative pain and discomfort as well as the complication rate (2.6%) is comparable with the results of other complex surgical methods in the medical literature. It is cost effective since the DRG cost is 736 Euros while more complex techniques or techniques which require sophisticated equipment such as laser or radiofrequency ablation (RF) the DRG cost is 1436 Euros. The recurrence rate is 1.3% which is quite acceptable since the range of recurrence in the literature varies between 1%-5%. (10,11,12) In the post-operative period, exercising and sitting down on the wound should be minimized for 15 days. The patient returns to his/her everyday activity slowly according to the nature of working activity and uses inflatable O-ring for twenty days so that the fresh wound stays on air and pressure is not applied to the area. After this period all patients returned to their normal working activities. The return to work period is quite compatible with the results of complex procedures in the medical literature which range from 15 to 60 days and better than the simple open technique (60-180 days). The hair removal is a vital factor and should be continued for at least six months.

**Conclusions** The technique of meticulous layered wound closure for healing at first intention after the excision of pilonidal sinus disease is safe, easy to perform technique which achieves the goals of flattening the natal cleft and eradicate the disease giving similar results to those seen in more complicated surgical techniques.

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**EXPERIENCE OF THE COLLOST® PREPARATION USE IN THE TREATMENT OF INFECTED TROPHIC ULCERS IN PATIENTS WITH THE DIABETIC FOOT SYNDROME**

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**Key words:** trophic ulcer, collost, diabetic foot

**Introduction**

According to statistical data, 303 322 patients with diabetes mellitus (65% of the female population) are registered in the Republic of Belarus, and 18,550 of this patients have type 1 diabetes, including 2,095 children. Over the past 20 years, the number of patients with diabetes mellitus has increased by 2.8 times, while the primary incidence rate has increased 4.4 times between 1995 and 2016. In various clinical variants, the diabetic foot syndrome occurs in 30-
80% of patients with diabetes mellitus, and its purulent necrotic forms, which include trophic ulcers, soft tissue necrosis such as dry gangrene, osteomyelitis of the foot bones, as well as foot phlegmon, are observed in 10% of cases. The diabetic foot syndrome is one of the most serious complications of the disease both from the medical and social and economic points of view, which is caused by the high incidence of amputation of the lower limbs, high post-amputation mortality, disability, a significant decrease in the quality of life not only of the patients themselves, but also their the surrounding people.

**Aim**

The aim of the study was to improve the results of treatment of the wound process in the diabetic foot syndrome with the use of the preparations “COLLOST®”.

**Material and method**

A prospective study was conducted. The main group consisted of 12 patients (10 women, 2 men) with a different form of diabetic foot syndrome, in which COLLOST® membranes were used to close the wound defect. The comparison group included 10 patients treated according to standard methods. The evaluation of the effectiveness of the treatment was carried out on the basis of visual examination of wounds, acceleration of the wounds cleansing time, appearance of granulation tissue, reduction of the wound defect area, appearance of marginal epithelialization and the periods of patients’ stay in the hospital (bed-day).

**Results**

The use of “COLLOST®” drugs in the patients of the main group promoted the fastest appearance of granulations - by 1.3 times and the reduction of the area of the wound defect and the appearance of marginal epithelialization - by 1.3 times, the decrease in the patient’s stay in the hospital - by 1.4 times.

**Conclusions**

Treatment with COLLOST® showed the following benefits: ease of use, less wound healing, less bandages, less area and healing of trophic ulcers, shorter hospital stay, less repeated visits to specialized surgical hospitals for patients with diabetic foot syndrome.

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THE USE OF PARTIAL SPLENECTOMY AS THE METHOD OF CHOICE FOR 
THE SURGICAL TREATMENT OF GIANT SPLENIC ECHINOCOCCAL 
CYST [CLINICAL CASE PRESENTATION]

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INTRODUCTION: Infection of the spleen with echinococcus is a rare clinical entity, it occurs in less than 2% of abdominal echinococcosis. The echinococcosis of spleen may often be asymptomatic, and lead to growing giant size before being recognized. Surgery is the mainstay of treatment for hydatid disease of the spleen and several surgical techniques have been applied to splenic echinococcosis. Partial cystectomy is organ preserving procedure and is related with minimal blood loss. The method of partial cystectomy also supports the use of minimal invasive surgical approaches, but many authors reported long hospital stay and cases of disease recurrence after performing partial cystectomy. Splenectomy remains the therapeutic procedure of choice because it offers the complete cure from the disease with low morbidity rates and short hospital stay. Only the complete removal of the diseased organ rids the patient of a potentially infected cavity which carries the risk of recurrence, but after splenectomy the patients are more susceptible to infections or even sepsis, in particular in childhood. Although the preservation of the spleen is being increasingly advocated to prevent some complications associated with splenectomy. In presented clinical case partial spleenectomy was performed with good postoperative results.

CASE PRESENTATION: 18-year-old woman presented with symptoms related to the presence of a large abdominal mass, abdominal discomfort and she has been asymptomatic until 3 months before. Physical examination showed a palpable mass in the left hypochondrium. Routine laboratory studies were normal. Diagnosis was based on imaging techniques, including ultrasound examination and computed tomography (CT). Contrast CT scan revealed huge solitary cyst (size 24 x 17 x 14 cm.) in the hilum and lower pole of spleen without changing its density in different contrasting phases. The cyst was compressing the stomach, left lobe of the liver, left kidney and abdominal part of aorta. Surgery was performed under general anaesthesia, midline laparotomy was done, intraoperative observation showed that the major part of the cyst is localised in hilum and lower pole of the spleen. The cyst was occupying the left paracolic, epigastric, mesogastric regions of abdominal cavity and the pelvic cavity. The splenic vessels were dissected and ligated in the part of hilum. The cyst was separated from the adhesions surrounding the internal organs. We preserved some branches of the stomach short blood vessels for the blood supplying of the superior pole of the spleen. Since the cyst had big size, the content was aspirated with puncture needle, after which it was possible to remove the spleen from the abdominal cavity. The spleen tissue was resected with the help of a harmonic scalpel. Approximately 4 x 3 cm spleen tissue was preserved in the upper pole. Hemostatic sponge was applied to prevent parenchymatous bleeding from the spleen wound. The patient had no postoperative complications. Six months after surgery the patient was observed, she had no complaints, blood tests were normal. Ultrasound examination revealed spleen tissue with the size of 6.5 x 4.5 cm. in the left infraphrenic space. The dupplex scanning showed sufficient blood supply of the preserved spleen.

CONCLUSION: The use of modern imaging modalities provides an opportunity to identify the
localization of the cysts in spleen parenchyma, the contiguity with other internal organs and to choose the most optimal surgical treatment for each case. An organ-preserving approach as partial splenectomy seems favourable in some individual cases. Partial splenectomy may often be related to a considerable blood loss, thereafter particular vascular control should be done during parenchymal transection.

EMERGENCY MANAGEMENT OF DOG BITES WOUNDS: A SYSTEMATIC REVIEW

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Key words: Dog bite

Introduction: Classically, the dog bite wounds are treated administrating prophylactic antibiotics (PA) and not performing primary closure (PC). In recent years, however, papers have been carried out and contradicted these practices. This systematic review based on the Cochrane Handbook seeks to elucidate such divergences.

Methods: Randomized controlled trials (RCTs) were searched in MEDLINE, CENTRAL, EMBASE and LILACS databases. Unpublished studies were also sought. Inclusion criteria: RCT; PC or PA approached; present patients seen within 24 hours after injury; having wounds cleaned and debrided. Papers whose titles or abstracts appeared to be relevant were analysed. A bias survey and meta-analysis were performed.

Results: Six PC and eleven PA studies were analysed, of which four and five fulfilled the inclusion criteria respectively. Three presented unknown selection bias, one also having a high risk of friction bias, and one had a high risk of selection bias. There were no statistically difference in infection rates between primary and delayed closure neither between prophylactic antibiotics and placebos (p>0.05). The sites with the highest rates of infection were the extremities, however there was no difference among the interventions (p >0.05). The aesthetic improvement had a statistically significant difference in PC (p <0.05).

Conclusions: There is benefit in performing PC, once it increases the aesthetic outcome without changing the infection risk. Although there is no difference in infection rates between PA and placebo, it has not been possible to conclude whether this practice is recommended, since papers presented high risk of bias, low sampling and just one used the recommended antibiotic for this kind of injury. New RCTs are needed to reach a conclusion.

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LOWER LIMB AMPUTATION PREVENTION SYNOPSIS FOR DIABETIC FOOT PATIENTS

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**Purpose:** Quintessence of major principles of amputation prevention and mortality rates reduction for diabetic foot patients.

**Material and Methods:** 214 diabetic foot patients were treated and continuously observed by the multidisciplinary team of our Diabetic Foot Department, January 2016 until June 2018 between ages 38-86. Clinical evaluation and therapeutic modalities’ implementation according to WIFI classification. For 10 patients with extensive infection and crepitus ischemia grade evaluation was postponed after decompressive incisions, draining procedures and repetitive debridement procedures, systemic and local intensive treatment.

**Results:** All diabetic foot patients were controlled for meticulous normoglycemia, correction of vital organs and systems, metabolic disorders, comorbidities estimation and management. 57 patients besides local sepsis presented symptoms for systemic sepsis including high leukocytosis with left shift, urinary output decrease, fever, procalcitonin and/or C-reactive protein, lactate concentration abnormalities. Affected and contralateral lower extremities vascular status initially was evaluated by duplex scanner ultrasound. Further detailing was supported CT arteriography. Revascularization was performed for those with critical ischemia grade 3; 4. Immediate revascularization was performed in 8 limbs, including 5 angioplasties with or without stenting and 3 limbs were treated by bypass grafting. 3 cases complicated by lethal outcomes in first postoperative 10 days (cerebral or myocardial infarctions). 2 above knee amputations were performed for extensive tissue damage of foot and leg along with calcaneal destruction. 27 trans-metatarsal amputations and in 76 cases 1 to 4 toe amputations were performed with metatarsal head resections and further weight bearing foot preservation. Two 1st toe amputations for diabetic foot patients were performed for misdiagnosed melanoma maligna and previously treated for months as diabetic ulcers.

**Conclusions:** Diabetic foot patients develop more aggressive generalized macrovascular impair for aging population, even for younger persons with unfavorable glycemic profile and HbA1C. Besides ischemia diabetic foot patients suffer from distal sensor/motor/autonomous neuropathy complicated frequently with severe foot infection along with local and general immunosuppression which overshadows prognosis for limb preservation and survival data. Infection alone is an independent risk factor for amputation in diabetic patients. Another devastating challenge for diabetic foot patient may turn up foot and ankle biomechanical disarrangement in form of neuropathic osteo-arthropathic deformity of Charcot foot threatening diabetic population without arterial impair. Charcot foot with near moderate or normal arterial supply is inappropriate for weight bearing and is complicated with severe osteopenia, spontaneous subluxations, fractures, and, eventually with infection of bone in the insensitive and unprotected neuropathic diabetic foot. Combination of Charcot foot and chronic venous insufficiency doubles osteopenia and demands appropriate both orthopedic and vascular aspects’ surgical correction. Revascularization is not a contraindication for diabetic foot treatment, even complicated, but rather a direct indication for solving the problem of critical ischaemia in the extremity and an option to lower mortality rates. Minor amputations performed with correct indications and in healthy margins achieve the target of prevention of high or above
the knee amputations along with effective ischaemia and infection control parallelly with the metabolic disorders correction and biomechanical stabilization of the weight bearing diabetic foot. Male patients present more prominent and early ischaemia despite more benign progression of ischaemic component for females who more frequently suffer from early severe neuropathic and infectious complications. Normoglycemia with prandial glucose concentration achievement in rages 4,7-5,5 mmol/l is crucial for favorable surgical results expectancy and continuity.

**HISTOPATHOLOGICAL RESULTS OF SINGLE CENTER SPLENECTOMY SERIES**

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**Key words:** SPLENECTOMY

**Introduction:** Splenectomy is a routine operation done by general surgeons. Because the function of spleen was not well understood until recent times, splenectomy was part of many gastrointestinal procedures. However, due to its dominant function at immune system find out nowadays, routine splenectomy is abandoned. At this study, we wanted to share our splenectomy experience while discussing their histopathological results.

**Results:** Splenectomies done at Gulhane Training and Research Hospital, department of General Surgery at the years 2015-2016 were examined retrospectively. 48 patients (26 male, 22 female), with mean age of 48,39 had splenectomies. 22(45,22%) were normal spleen (8 diagnostic splenectomies for lymphoma, 6 part of gastrectomy-5 part of a pancreatectomy-1 part of nephrectomy procedure), 7(14,58%) were post traumatic splenectomies, 5(10,41%) were splenectomies for metastasis of ovarian carcinoma, 4(8,33%) were done for various lymphomas, 3(6,25%) were done for metastasis of gastrointestinal adenocarcinomas, 2(4,16%) were splenectomies for ITP and 1(2,08%) splenectomy was done for splenic infarct, gaucher disease, hemosiderosis, epithelial cyst, hydatic cyst.

**Conclusion:** Spleen is the major organ of immune system and suggested to be preserved if possible. According to the current approach, we revised our gastrointestinal procedures however we have done 11 splenectomies for gastric and pancreatic carcinomas without splenic involvement which we do not right now. Also 8 diagnostic splenectomies for lymphoma may also be debated. Isolated splenic metastasis of ovarian cancer is an extremely rare case however splenic metastasis of ovarian carcinoma as a part of peritoneal carcinomatosis is more common as in our case series. No partial splenectomy is done at our clinic.

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METHOD OF HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY IN FORECASTING OF SEVERE ACUTE NECROTIZING PANCREATITIS

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Key words: acute pancreatitis

Aim: search of early markers of a severe course of acute necrotizing pancreatitis

Materials & Methods: We used a high-performance liquid chromatography (HPLC). In total 81 assays of blood serum of the person are analysed. Selection consisted of three groups: №1 - healthy donors (n=17, letter “D”); №2 - patients with a favorable outcome of a disease (mild AP and average severe AP) (n=14, letter “P”); №3 - patients with severe AP from the disease failure (n=29, letter “PT”), in this group a blood is collected at the time of the highest indicators of CRP, APACHE II, BISAP.

Results: Average concentration of metabolites of D01-37, D02-05, D01-26 at patients with serious pancreatitis grows more than twice in comparison with not severe form, and confidential intervals aren’t crossed (p<0,01). Confidential intervals for metabolites of D01-35 and D03-31 are considerably crossed though average concentration at the same time grow by 1,5 times (p<0,01). The behavior of metabolites of D02-45 and D03-33 is interesting, they often meet at patients with not severe form of pancreatitis and at healthy patients, but they are absent at patients with a severe form. At further data processing the group of the metabolites meeting only at patients with a severe form was taped. These metabolites are fully disease markers. In total such metabolites it is revealed 13 (p<0,01). Considering that samples at severe patients were taken at the time of the highest indicators of CRP, integrated scales, these markers signal about the adverse course of a disease and are prognostic.

Conclusion: Metabolic profiling of blood serum by method of a HPLC shows statistically significant results. The group of 13 metabolites of blood serum of the person which are unique for the severe course of AP was allocated.

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SOLITARY FIBROUS TUMOR OF THE ANTERIOR ABDOMINAL WALL:
CASE REPORT AND REVIEW OF THE LITERATURE

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Key words: Solitary fibrous tumor

BACKGROUND: Solitary fibrous tumor (SFT) is a rare mesenchymal neoplasm affecting soft tissues
with a not well defined biological behavior. SFT occurs mostly in the pleura and the thorax, while extra-
thoracic localization is uncommon and abdominal localization is very rare. Histologically, SFT is a well
defined mass with spindle-cell proliferation in collagenous matrix with staghorn vascular network and
CD34 reactive.

CASE REPORT: A 64 years-old man with a history of recurrent gastric cancer treated with total
gastrectomy, was admitted with ultrasonographic and contrast enhanced CT-scan findings of a well
demarced oval mass of 4.8 x2.7 cm with microcysts, vascularized in the arterial phase and with wash
out in the tardive phase, located in the peritoneal side of right rectus abdominis muscle. The patient
underwent minilaparotomy and en-bloc excision of the lesion. Histologically the tumor was characterized
by a hemangiopericitoma like growth pattern and the immunostaining was positive to CD34, CD99, BCL-2
and Vimentin. The final diagnosis was SFT with a proliferation index (Ki-67/MIB-1) <3%. In our case,
chemotherapy was not indicated. At the 6-month follow-up, the patient is in good clinical conditions with
no recurrence or metastasis.

CONCLUSIONS: We reported a rare case of primitive SFT located in peritoneal side of the of right
rectus abdominis muscle treated surgically, in a patient previously affected by gastric adenocarcinoma.
In this case, SFT showed a benign behaviour during a short term follow-up. Dimensional pattern,
histopathological features and curative surgery remain the most important indicators of clinical outcome.

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ELECTROMAGNETIC FIELDS FOR TREATMENT OF CHRONIC WOUNDS: A REVIEW OF RECENT ADVANCES AND CLINICAL PERSPECTIVES

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Key words: Electromagnetic field

Background and Objective: Electromagnetic fields (EMFs) have shown therapeutic effects for different chronic wounds. So far, different modalities of EMFs including electric current, static electric and magnetic fields, and pulsed EMFs (PEMFs) have been developed. The present study aims to comprehensively review the current status of EMF based techniques for wound treatment, the clinical applications, Moreover, the common mechanisms of actions of these techniques are discussed.

Methods: The databases of PubMed [1980-2017], Web of Sciences [1980-2016], EMBASE [1980-2016], and Google Scholar [1980-2016] were searched using the set terms of “wound” OR “chronic wound” AND “treatment” AND “electromagnetic field” AND “electric current”. This study comprehensively reviewed the retrieved papers.

Results: Electric current, static electric field, static magnetic field, and pulsed EMFs are the common forms of EMF based techniques for wound healing. PEMFs and electric current are used in different clinical setting as alternative or adjunctive treatment options with promising outcomes. Low cost, no serious side effects, and easy to use are the main advantages of these techniques; however, the lack of definite dose-response and no guidelines for clinical administrations are the main limiting factors for clinical applications. The main mechanism of actions of these techniques are stimulating keratinocyte cell proliferation, triggering epidermal growth factor receptor and increasing epidermal stem cell proliferation, improving cell migration, and increasing intracellular calcium.

Conclusion: Conducting different studies on molecular and cellular mechanisms of these techniques can facilitate the development of well established clinical techniques in this regard.

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THE ROLE OF CORRECT TRANSFUSION THERAPY IN URGENT SURGERY (CASE REPORT)

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Key words: Haemothansfusion

The benefit and risk of blood transfusion should be assessed carefully because blood components can cause dangerous complications, especially in massive transfusions, which can often lead to lethal
outcome. Correct transfusion therapy is one of the most successful treatments in cases of severe condition with anemia.

We present a case from our practice. A 63 years old man was admitted to hospital by ambulance service in a critical condition with severe back and abdominal pain, which started 14 hours before. He was unconscious, with unstable haemodynamic data: P-157, /A - 70/0 mm Hg, Art., R-30. One month before common ileac artery aneurism was diagnosed by patient and surgical treatment was planned.

The rupture of common ileac artery aneurism into the retroperitoneal space as well as sigmoid colon perforation with local fecal peritonitis was found during surgery. Haematoma of retroperitoneal space included more than 3,5 liter of blood and blood clots. Left side aorta-ileac artery shunt and Hartmann’s procedure were performed. Transfusion of red blood cells and fresh frozen plasma was started during surgery, which was continued in the ICU. In the postoperative period the patient had an episode of upper GI bleeding, which caused additional blood loss. Fortunately endoscopical haemostasis was successful. Minimal level of hemoglobin during his stay in the hospital was 4,2 g/l, haematocrit-12%.

Total volume of transfused red blood cells – was 11,150 litre and fresh frozen plasma 10,5 litre - totally 21,650 litre. Transfusions were performed by using dialysis device. Despite the massiveness of blood transfusion, we managed to avoid posthemorrhagic complications.

Patient was discharged from the hospital in a good condition. (HGB – 110 g/dl), HTC – 32%).

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EARLY DIAGNOSIS OF NECROTIZING FASCIITIS (NF) AND PREDICTION OF TREATMENT RESULTS

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Necrotizing fasciitis (NF) is a rapidly progressive devastating soft tissue necrosis that usually involves fascia and subcutaneous tissues with potentially poor outcomes. Early recognition of NF and differentiation of NF and other severe soft tissue infections prior to surgery is not always possible.

The Laboratory Risk Indicator for NF (LRINEC) is a scoring system based on routinely performed laboratory tests (CRP, White blood cell count, Hemoglobin, Sodium, Serum Creatinine, Serum Glucose have been introduced as a method for identifying NF. However, only a few studies have been found that indicate a correlation between LRINEC and the results of patients treatment.

We performed retrospective analysis of data of 72 patients who were admitted to the TSMU the First University Clinic surgical department with a provisional diagnosis of soft tissue infection. According to our results, the score of laboratory risk indicators for 12 patients were 6 points and more. In all of these cases, operative exploration findings and morphological study of the intraoperative material confirmed the diagnosis of necrotizing fasciitis. In 60 cases, where the LRINEC was less than 6 points, the diagnosis of cellulites was confirmed.

The incidence of complications, the need for a repeat surgery, transfer to intensive care, were higher
among patients with higher LRINEC rates. The length of stay in the ICU and the hospital was also significantly longer.

**Conclusion:** Evaluation of LRINEC is a reliable indicator capable of detecting even clinically early cases of necrotizing fasciitis. In addition to its diagnostic role, it can identify patients at high risk, predict the risk of complications and hospital outcomes in patients with NF. Further prospective studies are needed to support this study.

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**INDICATORS OF IMMUNITY DURING TRANSMEMBRANE DIALYSIS**

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**Key words:** intraabdominal sorption-transmembrane dialysis

All patients with common peritonitis were divided into two groups: observer group - 58 patients with common peritonitis, who received intra-abdominal sorption-transmembrane dialysis in the postoperative period. A comparison group - 50 patients with common peritonitis, in the complex treatment of which transmembrane dialysis was not used.

In patients of the observation group who used intraabdominal sorption-transmembrane dialysis, the concentration of Ig-A in serum initially and in the 1st and 3rd days of the early postoperative period was possible to compare with the data of the GP (p > 0.05, p < 0.05 and p <0.05, respectively). However, in patients of the observation group compared with the patients of the comparison group at the 5th and 10th days of the postoperative period, there was a more rapid increase in the concentration of Ig-A blood serum in patients with common peritonitis, which ranged from 5.1 to 4.6 to 6.3 g / l versus 4.6 ranging from 3.8 to 5.2 g / l (p <0.05) and 5.9 ranging from 4.7 to 6.4 g / l versus 4.8 ranging from 4.0 to 5.6 g / l (p <0.05). In our opinion, this is due to the use of the proposed method of rehabilitation of the abdominal cavity in patients with prevalent peritonitis.

**Conclusions:**

1. Intraabdominal sorption-transmembrane dialysis in patients with common peritonitis contributes to the acceleration of regression of the inflammatory process in the abdominal cavity, as well as the manifestation of endotoxosis and systemic inflammation.

2. The study of humoral immunity, namely Ig-A, demonstrates the high efficiency of intraabdominal sorption-transmembrane dialysis as a way of accelerating the detoxification process in the complex treatment of patients with common peritonitis.

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SEQUENTIAL ORGAN FAILURE EVALUATION WITH INTRA-ABDOMINAL TRANSMEMBRANE DIALYSIS

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Key words: intoxication

An analysis of the dynamics of intoxication markers, such as: sequential organ failure assessment, leukocyte index of intoxication, C-reactive protein, molecules of average mass. suggest that in the majority of patients of both groups of the disease was accompanied by severe forms of sepsis with signs of sequential organ failure assessment initially and against the background of surgical treatment (p> 0.05). In addition, in spite of complex treatment, the phenomena of systemic inflammation and sequential organ failure in most patients in the comparison group progressed or persisted up to the first 5 days after surgery (p <0.05). Unlike the comparison group, in the majority of patients from the observation group in the complex treatment of which transmembrane dialysis was used, there was a steady regression of systemic inflammation events and manifestations of sequential organ failure, starting from the 3rd day of the early postoperative period (p <0.05).

Conclusions:
1. Intraabdominal sorption-transmembrane dialysis in patients with common peritonitis contributes to the acceleration of regression of the inflammatory process in the abdominal cavity, as well as the manifestation of endotoxicosis and systemic inflammation.

2. Additional use of intraabdominal sorption-transmembrane dialysis in patients with widespread peritonitis allowed to reduce the frequency of postoperative complications and reduce the mortality rate by 1.7 times. The decrease in absolute risk of lethality in the observation group was 5.6%, and the relative risk reduction was 42.3%, which is related to the reduction of manifestations of intoxication.

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INCREASE OF EFFECTIVENESS OF TREATMENT OF SERVICEMEN WITH PURULENT NECROTIC WOUNDS WITH USAGE OF ULTRASONIC CAVITATION.

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Key words: purulent necrotic wound, ultrasonic cavitation, servicemen.

Despite development of the different branches of surgery, treatment of purulent necrotic wounds is not improved and is still actual problem.
**Materials and methods**

We used the method of ultrasonic cavitation, the essence of which is that ultrasonic wave leads to cavitation by influencing on necrotized tissue. The last consists of chemical and mechanical factors.

The mechanical effect is caused by formation of closed type cavitation bubbles, besides that, they bring out thermal energy up to 700°C. The chemical effect is caused by formation of chemically active radicals in cavitation region, which have strong bacteriocidal influences.

Besides, use of ultrasound creates favorable conditions for penetration of antiseptic substances into deeper tissues.

We used “SONOCA 300” ultrasonic generator.

In our work we use 0.25% solution of lidocaine as medium of transfer for ultrasonic wave, which penetrates into deeper layers of wound under the influence of ultrasonic wave and provides local anesthesia. After the main treatment the used liquid was replaced with 0.02% solution of chlorhexidine. The usage of ultrasonic, in addition to removal of necrotized tissues, also promoted penetration of antiseptic solution into deeper tissues of wound.

**Results**

Thus, we use the method of ultrasonic cavitation for treatment of 21 servicemen with purulent necrotic wounds of different etiology. The high bactericidal effect of method was obvious which was confirmed by results of bacterial inoculation.

An average time of debridement of wound with 150 cm² surface was 8-15 minutes. For bacterial inoculation swab had been taken just after ultrasound cavitation, second time after 3-5 days, third time after 7-9 days. In all 21 cases growth of microbes was not observed, and approximating sutures were applied (12-14 days). No cases of insufficiency of wound were observed.

**Conclusion**

Thus, the used method allowed to reduce duration of treatment of patients (servicemen) with purulent necrotic wounds.

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**USING OF “COLLOST®» PREPARATIONS IN TREATMENT OF CHRONIC WOUNDS OF VARIOUS ETIOLOGY**

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**Key words:** collost, chronic wounds, trophic ulcer

**Introduction**

A chronic wound is a wound that exists for more than 4 weeks, with no signs of active healing. The chronic wounds include trophic ulcers of various etiologies, long-term non-healing surgical wounds, etc. The treatment of chronic wounds is a complex and multicomponent process requiring the use of modern wound coverings, one of which is the preparations “COLLOST®”.
Aim
The aim of the study is to analyze the effectiveness of the use of COLLOST® in the treatment of chronic wounds.

Material and method
A prospective study was conducted in which 86 patients with chronic wounds (venous, diabetic, arterial ulcers, posttraumatic wounds, ulcers in chronic osteomyelitis). The main group was presented by 44 patients, who were treated with COLLOST® preparations, the comparison group consisted of 42 patients. In this the treatment of chronic wounds was carried out in accordance with standard techniques. The static comparison was performed using the Mann-Whitney test, $\chi^2$ valid differences were considered at $p < 0.05$. Groups of patients were homogeneous by age and sex composition, diseases that caused the development of chronic wounds.

Results
With the application of “COLLOST®” preparations in the treatment of chronic wounds, the period of epithelialization of skin defects was reduced by 1.7-3.4 times ($p = 0.01-0.12$), an increase in the number of plastic operations by 2.2 times ($p < 0.05$), a decrease in the amount of amputation by 2.7 times ($p < 0.05$). The use of “COLLOST®” drugs allowed to increase the income for non-budgetary activities of the hospital in the treatment of patients with chronic wounds by 2.81 times ($p < 0.05$).

Conclusions
The application of medical products of “COLLOST®” significantly reduces the time of healing of chronic wounds and allows to avoid amputation in cases of non-effective surgical and conservative treatment.

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PARTIAL WRAP FORMATION IN ANTIREFLUX SURGERY AS A METHOD OF DYSPHAGIA PREVENTION.

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Key words: antireflux surgery, dysphagia, fundoplication, Partial wrap fundoplication.

Gastroesophageal reflux disease is one of the most common gastroenterological pathologies. Sliding hiatal hernias are one of the most common causes of gastroesophageal reflux disease. In this case, the treatment of GERD is surgical, with the use of various fundoplication methods. At the same time, anti-reflux surgeries are often complicated by dysphagia, which happens in 2.8-24% of patients after surgery.

Aim: The aim of the study is to improve the farther treatment results of hiatal hernia surgeries by using Nissen or Nissen-Rosetti fundoplication and reduce postoperative dysphagia frequency as well.

Methods: 70 patients were operated in the surgical clinic of “Armenia” MC with hiatal hernias from 2010 to 2018. Patients’ ages were from 21 to 77, 28 female and 42 male. The anamnesis of the disease ranged from 1 month to 15 years. 65 patients received multiple regular conservative treatments, some used antacids or proton pump inhibitors by themselves with temporary effect. Pre-operation contrast X-ray examination, EGDS and 24-hour pH-metry were performed in all patients. The results in early postoperative period were assessed with contrast X-ray examination and 24-hour pH-metry in 5-th to 7-th days after surgery.

24 patients were operated by open method and 46 patients with laparoscopy. In 11 of the patients, the fundoplication were combined with alloplasty of esophageal hiatus and in 53 cases cruroraphy were done. Partial fundoplication wrap were formed in 222 patients by leaving the 1/3-th of esophagus anterior wall free. A thick gastric probe was inserted into the cardia during wrap forming in all the surgeries.

Results: 11 of the patients have difficulties of swallowing in first postoperative days after surgery with a complete wrap, which gradually decreased with a appropriate diet after about a week. A constant dysphagia was observed in 1 patient, who was operated twice, with the reconstruction of the fundoplication wrap with a non-complete one.

In both open and laparoscopic surgeries with partial wrap, the patients didn’t have dysphagia.

Conclusion: Nissen and Nissen-Rosetti’s fundoplications with partial wrap reduce postoperative dysphagia appearance and improve the treatment outcomes.

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LAPAROSCOPIC SURGERY IN GASTROINTESTINAL DISORDERS

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Disorders of stomach and duodenum, caused by complicated peptic ulcer or oncological pathology, appear to be an integral part of abdominal surgery, and are generally treated by traditional open surgery. The development and implementation of laparoscopy worldwide resulted in new treatment methodologies of gastric pathologies, which was not the case in Armenia until recently. We would like to share our experience of the past few years.

Since 2014 we successfully performed 5 gastric wedge resections of gastric stromal tumor (GIST) in different locations – without complications and conversion. In 2016 we successfully did laparoscopic gastric resection by Roux due to decompensated peptic pyloric stenosis in a young man. Later another 3 laparoscopic resections of the stomach were done - by Billroth-I and Billroth-II techniques due to pyloric and gastric ulcer, as well as 3 subtotal resections by Billroth-I technique due to tumor in antral part of the stomach (2 cases) and malignant gastric ulcer (1 case). In one of the cases lymph node dissection D1 was done, and in 2 cases – D2. During the surgery both types of suturing were used – stapling (Endo GIA Echelon 60), and manual – when forming gastroduodenal anastomosis in gastric resection by Billroth-I. Postoperative period was calm, the patients were active on the second day, water intake started on day 2, fluid diet on day 3. Nasogastric tube was kept up to 4 days, depending on nature and quantity of extract. The patients were discharged on day 5-7 in satisfactory condition.

Given the technical feasibility, low traumatism, early activation of patients, absence of complications associated with large postoperative wounds such as seromas, suppuration and development of hernias, mild postoperative pain, we believe that laparoscopic interventions on the stomach should be more widely used in surgical practice, including those with oncological pathology.

SHORT BOWEL SYNDROME (SBS) AND DYSBIOSES

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Actuality: Disorders of the gastrointestinal tract is one of the most common causes for addressing a doctor. Most of all it occurs among such patients who have been operated and during which a big part of intestine was removed. In such cases a significant deficiency of intestinal absorption is detected and eventually is developing short bowel syndrome (SBS) which leads to intestinal insufficiency and different degrees of metabolic disorders, reducing the quality of life. In such cases an important role has disorder of intestinal microflora called dysbiosis.

Aim: Our goal is to examine changes of intestinal microflora, dysbiosis after removing different parts of bowel, it’s role in development of SBS and to develop effective methods of treatment.

Material and Methods: To explore features of SBS and ways of treatment we examined 73 patients
in Erebouni medical center, who were operated for acute intestinal obstruction and most part of large or small bowel have been either removed or temporarily isolated from digestive tract. We divided the patients into three groups. In first group we included 22 patients who underwent almost half part small bowel resection and we applied primary anastomosis. Among them 11 patients was operated because of thrombosis of mesenteric vessels, 8- because of intestinal strangulation, 3- because of blunt abdominal trauma. In second group were included 44 patients who underwent following operations: 13- right side hemicolecotmy with ileo-transverse anastomosis, 25- left side hemicolecotmy with stoma formation, 6 – subtotal colectomy. In third group were included 7 patients who underwent small bowel resection with stoma formation (large bowel was temporarily isolated from digestive tract). The average age of the patients was 50-55 years old , and number of men and women were equal. In postoperative period after one week, one month and three month we’ve done bacteriological analysis of intestinal content.

**Results:** It revealed dysbiosis almost in all groups after one week. After month intestinal microflora was restored at those patients at whom the large bowel was saved fully or partly. Moreover, microflora’s recovery rate as slow as distally resected the bowel. In our researches dysbiosis wasn’t restoring in those patients that had an enterostomy and subtotal colectomy done. About bacterial composition: at first is damaging and hardly recovering E. coli which has normal enzyme activity, then in order - Bifidobacteria, Lactobacterias, Enterococcus. After operation often come across Candida albicans and from bacteria -Staphylococcus Aureus. For treatment we use probiotics, antibiotics, prebiotics, antifungal medicine.

**Conclusion:** Thus, after extensive resections of bowel strictly decreases not only intestinal absorbing surfaces, which leads to various digestive disorders called short bowel syndrome, but deep intestinal microfloral disbalance. It develops dysbiosis, which aggravates normal bowel function. If we detect the changes of microflora timely, it is possible to recover it and greatly facilitate patient’s condition by reducing the cost and time for treatment in the hospital.

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**CHARACTERISTICS OF ANTI-REFLUX OPERATIONS ON CARDIA**

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One of the actual problems of modern surgery is surgical treatment of gastroesophageal reflux disease(GERD) and hiatal hernias. It is offered around 100 operations for correction of hiatal hernias. However, it indicates (Hendrics, 1981) that there is no ideal operation for correction of hiatal hernias. Experimentally it was shown that Nissen fundoplication, i.e folding of the esophagus with gastric fundus for 360 degree, and the artificial valve a little more than the natural, in the greatest degree increases the pressure of the new artificial cardia.

That means there are 2 main moments: extension of valve, a little more stretched than natural cardia
(3.5-4 cm) and folding of abdominal part of esophagus with gastric fundus for 360 degree provides formation of optimal anti-reflux valve. In that case there is mechanical pressure on esophageal-gastric transition with circular coverage (for 360 degrees) of gastric fundus, which leads to non-distended condition of it’s smooth muscle cells, closed state of esophageal-gastric transition and emergence of increased pressure zone, or new lower esophageal sphincter (LES). Theoretically this is explained by myogenic origin of the LES tone which appears in non-distended muscle. In the above mentioned remodeling of artificial valve (AV), muscle tone of gastric fundus wall, pressure of stomach bubble, and intraabdominal pressure are transferred circularly (around the perimeter) on the elongated, lowered abdominal part of esophagus, thereby AV tone is restored, it is formed LES of AV. In that case, valvular component of the anti-reflux AV is simultaneously restored.

Morpho-functional proximity of esophageal distal end and gastric fundus, and feature of it’s motor activity – prevalence of tonic waves over peristaltic in folding of the esophagus with gastric fundus (in the case of identical denervation, such as in selective proximal vagotomy), leads to formation of new construction, consisting of functional layers synchronously, densely fixed to each other, acting as one whole, i.e relaxing at the time of swallowing and preventing gastroesophageal reflux. In this way a new remodeled artificial anti-reflux cardia is formed with new artificial LES. Each of the above mentioned components of anti-reflux AV plays major role in certain situations, providing anti-reflux in every case.

Thus, assuming that LES tone (the natural as well as the artificial) is of myogenic origin, and arises in non-distended muscle of esophageal gastric transition. We can ascertain that modified Nissen fundoplication provides restoration of AV tone with restoration of all anti-reflux components of cardia.

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MODIFIED OPERATION OF THAL IN SURGICAL TREATMENT OF PATIENTS WITH CARDIAC ACHALASIA

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Key words: cardiac achalasia, esophagocardioplasty, operation of Thal

We used two methods of surgical interventions and their modifications in patients with achalasia of the cardia: 48 patients underwent extrinsic esophagocardiomyotomy combined with selective proximal vagotomy (SPV) and correction of cardia according to the type of incomplete fundoplication and esophagocardioplasty by Thal in the modification of the clinic in 19 patients. The last operation was performed in the case of impossibility of extrasyllabic esophagocardiomyotomy due to pronounced scar-
degenerative changes in the esophageal wall, as well as its thinning. Operation of Thal in the original technique bribes technical simplicity and allows reliably restore the patency of the esophagus. However, the valve-shaped fold formed due to the stitched wall of the stomach in the cardiomyotomic effect, in most cases is insufficient to reliably prevent gastroesophageal reflux. In this regard, we proposed a modification of the Thal operation, which, along with a valvular fold from the gastric wall, creates an antireflux matrix around the esophagus from the mobilized bottom of the stomach, according to the type of incomplete Nissen fundoplication. This provides, along with a reliable restoration of patency, correction of the angle of the His and valvular function, which prevents gastroesophageal reflux.

Results
Long-term results were studied in terms of 1 year to 7 years in 52 patients, including 19 patients after Thal surgery. 48 patients are considered as good. In 4 patients in the nearest postoperative period, a delayed emptying of the esophagus was noted because of the hyperfunction of the fundoplication cuff. In 3 patients after 5-7 months, these symptoms completely passed.

According to our observations, the course of the immediate and distant postoperative period in patients of both groups showed no marked differences, depending on the method of operation.

Conclusions
Thus, both extrinsic ezofagocardiomyotomy and correction of cardia in the type of incomplete fundoplication with SPV, and Thal surgery in the clinic modification are effective surgical methods for treating achalasia of the cardia, providing full rehabilitation and a good quality of life for patients.

REPLACEMENTS OF ESOPHAGUS IN BENIGN STRICTURES AND CANCER

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Key words: esophageal stricture, esophageal cancer, esophagoplasty, transplant, cervical-abdominal access.

We have experience in performing plasty of the esophagus in 57 patients aged 15 to 71 years. There were 41 men, 16 women. Esophagus plasticity for burn stricture was performed in 23 patients, 34 patients were operated for cancer.

From 23 patients with burn esophageal stricture, isolated cicatricial narrowing was observed in 19 patients, combined stenosis of the esophagus and stomach in 4 patients.

For all patients with burn stricture were performed total plastic of the esophagus. The indication for total plastic of the esophagus was extended and multiple strictures of the esophagus, which did not yield to bougie or quickly relapsed after it. As a transplant, in 22 patients were used the left half of the large intestine with blood supply by middle colonic artery, antiperistally. In all cases of colonic plasty, the graft was located behind of sternum and the operation was performed in one stage. In one patient, the plastic was made by the small intestine infront of sternum, but has not been completed due to the insufficient length of the transplant. Remobilization of the transplant two months after the first stage did not allow it to be brought to the neck and it was removed. In the subsequent success for this patient, repeated
esophagoplasty was performed with the left half of the large intestine. The results of operations in all of these observations were tracked from one year to 15 years and are regarded as good.

In case of esophageal cancer we are much more restrained about extirpation of the esophagus at the same time from three accesses - laparotomic, right-side thoracotomy and the neck incision. Tumor localization in 23 patients was in the lower thoracic part of the esophagus, in 11 - in the middle thoracic part.

Of 34 patients with esophageal cancer, esophagus extirpation from the mentioned three accesses was performed in only 4 patients, in all other cases one-stage oesophageal plastic surgery was performed. In 30 patients, an isoperistaltic tube was used as a transplant from a large curvature of the stomach. In 4 patients, plastic surgery was performed by the left half of the large intestine because the stomach, because of the previously formed gastrostomy, could not be used. Resection of the esophagus with intrapleural plasty by a gastric tube (according to the type of Lewis operation) was performed in 23 patients. In 7 cases, when the tumor was localized below the level of the tracheal bifurcation, we performed extirpation of the esophagus from the cervical-abdominal access with a one-stage esophagoplasty with gastric tube, formed from a large curvature. This operation, despite the technical complexity, which requires certain experience and skills, is nevertheless less traumatic and safer than intrapleural operations. In the near postoperative period, 3 patients died. In the period from 6 months to 5 years, 9 patients died.
EMERGENCY CARE OF PATIENTS WITH AORTIC AND LIMB ARTERIAL EMBOLI IN SAINT-PETERSBURG


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Purpose: to evaluate modern trends in surgery of embolic arterial obstruction (EAO) and assess the outcomes of the treatment.

Materials and methods: in the period between 1971 and 2018 a total of 3460 patients with EAO have been treated. On admission, all the patients underwent conventional examination necessary for decision-making regarding the management of their disease.

Results: the main trend in EAO surgical care is a shift of embolic pattern of the disease. Over the last decades a proportion of patients with non-valvular atrial fibrillation increases up to 80%, and this is the leading cause of EAO development. Thromboembolic complications of myocardial infarction and acquired heart valvular disease are currently uncommon. A number of trends is associated with the course of the main disease: increase in proportion of elderly patients with EAO; fragmentation of a small thrombus with distal arterial embolization; decreasing number of patients with decompensated or irreversible limb ischemia etc. Treatment of EAO patients currently is performed with surgery in 94% of cases. The main type of surgery performed is embolectomy with further arterial plasty in every 8th case. Improvement of surgical technique with increased potential of intensive care and prevention of postoperative complications allowed to reduce mortality rate to 6.8%.

Conclusion: Analyzing the 48-year experience of EAO treatment, it can be stated that this is still an actual issue of modern angiosurgery.

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CONTEMPORARY APPROACHES TO THE MANAGEMENT OF PATIENTS PRESENTING WITH CRITICAL ISCHEMIA OF LOWER LIMBS


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Purpose: to assess benefits of a step-by-step approach and hybrid surgical interventions in treatment of patients with critical limb ischemia (CLI). Materials and methods: a treatment experience of 380 CLI patients where 67 are those with extensive trophic lesions, has been analyzed. In addition to the conventional examination options, all CLI patients underwent computed tomography with contrast enhancement of blood vessels. Results: CLI patients were characterized by multifocal and multilevel occlusive-stenotic lesions of cardiovascular system. 17.6% of assessed patients had progressive skin infection of trophic lesions of the lower leg and foot. The first step of management after initial assessment included myocardial and/or cerebral revascularization using endovascular approach, if necessary, and sanitation of infection foci. Taking into account the multi-level lesions of arteries of femoral-popliteal-tibial segment, a surgical approach was carried out on individual basis, with a combination of open and semi-closed endarterectomy techniques and autovenous arterial plasty and/or bypass surgery with additional endovascular management of stenoses outside of the area of the surgery (if necessary). The final step of the treatment included interventions aimed at healing of ulcerous-necrotic defects. Such an approach allowed us to obtain a certain success in management of CLI patients, with postoperative mortality rate 1.7% and secondary limb amputation rate not exceeding 4.7%. Conclusion: Current management of CLI patients implies step-by-step approach with the use of hybrid technologies of limb revascularization.

THE INCIDENCE, POTENTIAL PERIOPERATIVE PREDICTORS AND IMPACT OF MYOCARDIAL INJURY AFTER OPEN ABDOMINAL AORTIC SURGERY DUE TO ANEURYSM AND/OR PERIPHERAL ARTERIAL DISEASE.

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Key words: myocardial injury after non-cardiac surgery

Frequent complication after non-cardiac surgery is myocardial injury (MINS), diagnosed as a postoperative increased level of troponin. MINS increases the risk of other complications after surgery. Methods - Group of 658 patients after open surgery divided into two groups - I with MINS (182
patients, 83% men, aged 69.9±8.5) and II without MINS (476 patients, 81% men, aged 66.8±8.3). The incidence of MINS was 27.7%.

In univariable analysis some parameters were statistically different in Group I than in II. Presence of coronary artery disease (p=0.003; OR1.943), history of myocardial infarction (p=0.005; OR1.818), aortic stenosis (p=0.045; OR2.501), congestive heart failure (p=0.003; OR2.519), COPD (p=0.007; OR1.665), other than sinus rhythm in ECG (p=0.034; OR1.991), eGFR≤ 60ml/min/1.73 m² (p<0.001), Hb<13g/dl (p<0.001) and urgent surgery mode (p<0.001, OR 4.951) increased risk of MINS.

The incidents of MINS increased with age, size of aortic aneurysm, the amount of loss blood and the amount of transfused concentrate of RBC during procedure (all p<0.001).

In multivariable analysis, age≥75 yrs (adjusted OR1.84) Revised Cardiac Risk Index score (Lee) ≥3 (aOR2.1), urgent surgery mode (aOR3.39), amount of transfused concentrate of RBC during procedure (aOR1.35 per every 220ml) increased the risk of MINS, while creatinine concentration on admission below 115 umol/l - decreased (aOR0.38).

30 days mortality among patients who suffered MINS were higher in comparison to patients without that complication (20.9 vs 3.4%, p<0.001).

Conclusions - Occurrence of MINS increased risk of death after open aortic surgery. Elderly patients with health burdens defined as Lee index≥3, requiring urgent surgery and transfusion of RBC during procedure should be considered as group of high risk of MINS.

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HYBRID INTERVENTIONS IN PATIENTS WITH EXTENSIVE FEMOROPOPLITEAL LESIONS INVOLVING THE OSTIAL PART OF THE SUPERFICIAL FEMORAL ARTERY AND COMMON FEMORAL ARTERY

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Key words: vascular hybrid interventions, femoral endarterectomy, femoropopliteal lesions.

Aim
The aim of this study was to present our technique of hybrid interventions on femoropopliteal C/D lesions (TASC II) involving ostial part of the superficial femoral artery, common femoral artery and to evaluate short- and midterm clinical outcomes (primary patency, limb salvage rates)

Methods
This was a single-center study with retrospective analysis of prospectively collected data. From July 2014 to July 2017, 31 patients (34 lower limbs) with femoropopliteal C/D (TASC II) lesions, involving common femoral artery and ostial part of the superficial femoral artery were treated with a combination of femoral endarterectomy and implantation of self-expanding interwoven nitinol stent in the
Results: 8 lower limbs (23.5%) were treated for severe claudication, and 26 (76.5%) for critical limb ischemia. A total of 43 self-expanding interwoven nitinol stents, 4 to 6 mm in diameter were implanted in 32 limbs in femoropopliteal segment, representing a mean stented arterial segment length of 223.2 mm ±65.5 (range 150 to 380 mm).

Technical success was achieved in 32 (94.1%) procedures. The mean follow-up period was 31.2 ± 7.8 months (range, 9–41 months). At 12, 24 and 36 months, primary patency rates were 81.7, 65.4% and 58.3%, respectively. The limb salvage rates were 91.2, 87.5% and 82.4% for 12, 24 and 36 month. Only 5 reinterventions were required in patients with reocclusions and limb threatening ischemia.

Conclusions: Combination of femoral endarterectomy and stenting of femoropopliteal TASC II C/D lesions with self-expanding interwoven nitinol stents demonstrates acceptable midterm primary patency rates with high limb salvage rates despite infrequent reinterventions.

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HYBRID PROCEDURE IN LIMB SALVAGE

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Key words: limb salvage

Objective: To improve the surgical treatment of patients with multilevel lesions of arteries of lower extremities.

Material and Methods: From March 2013 to June 2017 58 patients with multilevel lower extremity arterial occlusive disease underwent hybrid procedure. The mean age was 66 years (range: 39-82) Most patients were male (31 males, 55%). According to the Fontaine grading, 26 patients (43%) were treated for severe intermittent claudication, 25 patients (39%) had persistent rest pain and 97 patients (24%) had minor tissue loss. And 1 patient with acute ischemia. Iliac lesions were defined according to the TASC II Type A 5 patients type B 3 patients type D 12 patients. The most commonly associated cardiovascular risk factors were hypertension (100%), smoking (59%), dyslipidaemia (73.6%), coronary artery disease (76.3%). Totally 60 hybrid interventions were performed (2 patients underwent procedures on both extremities).

Technique: The most common open procedure was endarterectomy of the External iliac artery and stenting 41, SFA remote endarterectomy folowed by PTA of BTK vessels 12 cases, Iliac stenting with SFA endarterectomy in 9 cases Iliac stenting Femoro-popliteal bypass 8.

Results:
Technical success was achieved in all patients (100%). Mean ABPI increase was 0.40. Mean length of hospital stay (6.1 days). The median follow-up period was 10.5 months (range, 1-18 months); Primary patency rates at 12 months 86.7%. Limb salvage rates 95%.

Conclusions: Hybrid procedures provide an effective treatment of multilevel lower extremity in critical limb ischemia. Our data suggest that the immediate results, expressed as technical and haemodynamic success and the mid-term outcomes, represented by the patency and limb-salvage rates, are satisfactory.

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AROTID ARTERY STENTING IN ELDERLY PATIENTS

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Key words: carotis artery stenting

Background: Carotid artery stenting (CAS) could be safely performed in elderly patients if certain anatomical and clinical markers such as excessive vascular tortuosity.

Objectives: We tried to determine the influence of age on complication rates of carotid artery stenting.

Methods: From April 2014 to December 2015, 52 patients underwent 69 procedures. Patients had either symptomatic stenosis ≥50% or asymptomatic stenosis ≥70%. All patients underwent carotid CT angiography to determine anatomic suitability and stent risk. Independent neurology evaluation was performed before and at 24 hr after the procedure. The mean age was 75.2 years, 73.7% were male, 70.5% were symptomatic, 3.5% had postcarotid endarterectomy restenosis, and 8.0% had contralateral internal carotid artery occlusion. Results: CS was successfully completed in 67 procedures (97.1%). There are two procedural failures. One patient had a distal filter stuck in the stent which can not to be removed. This patient underwent emergency surgery. Another patient common carotid artery dissection during sheath placement, deployed one more stent. There were no intracranial hemorrhages or periprocedural myocardial infarctions. One patient had minor contralateral stroke. Thus the overall 30-day stroke rate was 1.4%.

Conclusion: CS can be performed safely in elderly patients with low adverse event rates. CS should remain a revascularization option in appropriately selected elderly patients.

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QUALITY OF LIFE IN PATIENTS WITH VARICOSE VEINS AFTER ENDOVENOUS INTERVENTIONS

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Key words: varicose veins

The aim of our study was to estimate quality of life (QoL) in patients with varicose veins C2-4 after treatment with radiofrequency ablation (RFA) and endovenous laser ablation (ELA).

Methodology. The 267 patients were enrolled into study in accordance to purpose and tasks. From the total quantity of patients RFA was performed to 196 (73.41%) patients and ELA was undertaken for 71 (26.59%) patients.

The degree of clinical manifestation of varicose disease has influence on quality of life. Taking this information into account, the patients were additionally divided into groups C2-3 and C4 (CEAP), respectively. According to CEAP classification and type of surgical intervention the total cohort of patients was finally divided into 4 groups: I – C2-3 + RFA, II – C2-3 + ELA, III – C4 + RFA, IV – C4 + ELA. The estimation of QoL was made using questionnaire MOS SF-36 in groups with the same clinical classes CEAP – I with II, III with IV at baseline.

Results. The comparable groups were homogeneous regarding gender and age. It was mentioned before conduction of statistical analysis.

It was revealed that parameters “Physical component of health” and “Psychological component of health” are higher in groups of patients with baseline clinical classes C2-3 as well as C4 in case while RFA was performed. The higher statistically significant changes of scales “Social functioning” (p<0.05) and “Role functioning caused emotional condition” (p<0.05) were shown.

On the basis of comparative analysis of values of QoL, it is possible to conclude that RFA is indicated to patients with C4.

Conclusions. In patients with both C2-3 and C4 level of QoL was higher in group with RFA in comparison to group with ELA. This difference is connected with absence of pain syndrome and good esthetic effect.

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ILIAC ARTERY ANEURYSUM AS DIFFERENTIAL DIAGNOSIS OF RIGHT ILIAC FOSSA PAIN

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Key words: iliac artery aneurysum

Abstract
Our patient presented with symptoms resembling acute appendicitis, during diagnostic laparoscopy a retroperitoneal hematoma without palpable aneurysm was found, because the patient was hemodynamically stable it was decided to carry out further radiological investigations, a computed tomography revealed a right sided solitary iliac artery aneurysm and a retroperitoneal hematoma and because we were sure about the diagnosis endovascular reconstruction was done, patient recovered nicely and the retroperitoneal hematoma was reabsorbed spontaneously and patient was send home after 7 days.

Case summary and discussion
40 years male patient was presented to the emergency department complaining from pain at the right iliac fossa area for the last 48 hours. On clinical examination there was right lower quadrant peritonitis with no palpable mass, body temperature was 37.8 C and the patient leukocytosis was 18000, ultrasound was done and it was not conclusive because of dilated loops of bowel, rebound tenderness was positive, psoas sign was positive. Acute appendicitis was suspected and laparoscopic appendectomy was planned to be done under general anaesthesia. The view was poor and a decision of laparotomy to be done is taken at the same session. There was a normal appendix and a retroperitoneal hematoma on the lateral side of the cecum. The retroperitoneal hematoma was pulsating and it was a very clear vascular problem, since the patient was hemodynamically stable the operation was terminated with the diagnosis of retroperitoneal hematoma which needs further investigations postoperative CT scan (fig 3,4,5) showed a right iliac artery aneurysm with the diameter or 4 cm and a retroperitoneal hematoma. As with aortic aneurysms size seems to be the most important determinant for rupture of iliac aneurysms, patients with isolated iliac artery aneurysms larger than 4 cm in diameter should undergo elective repair.

Involvement of the iliac arteries is seen in 10%–20% of patients with abdominal aortic aneurysms (AAAs) (5). On the other hand, isolated IAAs are relatively rare, with an estimated prevalence of 0.008%–0.03% based on large autopsy series (6,7). Like AAAs, IAAs most commonly occur in Elderly men. IAAs occur much more frequently in the common and internal iliac arteries than in the external iliac arteries. The most common cause of IAA is atherosclerosis. Other causes include trauma, infection,
dissection, excessive athletic effort (eg, bicycle racing), paraanastomotic graft failure, and connective tissue disorders such as Marfan syndrome and Ehlers-Danlos syndrome. Like AAAs, IAAs can mimic neurologic, genitourlogic, and gastrointestinal symptoms due to external compression (9,10). In addition, at clinical examination or conventional angiography, IAAs with luminal narrowing secondary to aneurysmal thrombosis may mimic arteriosclerosis obliterans (2,3). Hence, it is desirable that iliac artery stenosis or aneurysm be routinely evaluated with CT or magnetic resonance (MR) imaging prior to angioplasty, even if the entity appears to be a simple stenosis. In some studies, IAA is defined as enlargement of the artery to a diameter of more than 1.5 cm. As mentioned earlier, the natural course of an IAA consists of progressive expansion with eventual rupture, and the risk of rupture increases with aneurysm size (11). A review of the literature reveals that surgical repair should be recommended for isolated IAAs greater than 3.0 cm in diameter, since the smallest reported ruptured IAA was 3 cm (6,9,12). However, this procedure is associated with mortality rates of 7%–11% for elective surgery and 50% for emergency surgery. IAAs with compressive symptoms (eg, neurologic or urologic symptoms) should be treated with open surgery because endovascular treatment cannot rapidly reduce aneurysm size (Fig 2). In our experience, aneurysms that are thrombosed with endovascular treatment show a gradual reduction in size over a long period of time (3).

**CONCLUSION**

*Detailed medical and radiological examination is a must in every surgical case. Putting in mind the rare causes of right iliac fossa pain as the iliac artery aneurysm.*

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**RESULTS OF TREATMENT OF PATIENTS WITH THROMBOSIS OF DEEP VEINS OF THE LOWER EXTREMITIES ON THE BACKGROUND OF ONCOLOGICAL PATHOLOGY**

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**Relevance of a subject:** the problem of developing of the thrombosis of deep veins (TDV) of the lower extremities with possible the subsequent development of a thrombembolia of a pulmonary artery (TELA) in patients with existence of oncological process is relevant now.

**Purpose:** to estimate results of treatment of patients with TGV of the lower extremities on the background of oncological diseases in the conditions of specialized parts of vascular surgery.
Materials and methods: in clinic during the period of 2013-2015 years, 182 patients were treated with thrombosis in the system of deep veins of the lower extremities, from them 33 (18,1%) on the background of oncological process. Among these patients, men were 16 (48,5%), women – 17 (51,5%), aged from 37 up to 84 years (average – 55,1 +/-2,2).

On localization of thrombosis, the distribution was as follows: ileofemoral flebotrombosis (ileofemoral segment) – 20 patients, a popliteal and tibial segment – 12, thrombosis of the lower hollow vein-1.

The most frequent localizations of primary center of an oncological disease men had a prostate gland, tumors of women’s reproductive system. In 2 (6,1%) cases observed existence of multiple metastases in a liver, lungs, basin bones, and primary center, despite use of modern methods of diagnostics, it wasn’t succeeded to reveal.

Results: all patients have been divided into the following groups: 1 – with the revealed earlier oncological disease which received the combined treatment – 10 (30,3%), 2 – onco-process is revealed at TGV demonstration – 18 (54,5%), 3 – patients in a terminal state (metastases, germination of the next bodies, a vascular bunch) – 5.

Expeditious treatment by us was carried out in 1 both 2 groups and served as the indication: the floating part of blood clot more than 4-5 centimeters and TELA in the anamnesis. To three patients, about it, alloying or a plication of a vein is executed blood clot tops in the place of a venous confluence are higher. One patient from 3 groups has refused the offered surgery.

All patient carried out medicinal therapy: heparin, low-molecular heparins within 5-7 days, and then oral anticoagulants among which used more often – dabigatran 13 (39,4%). Before widespread introduction in clinical practice of new oral anticoagulants quite often used varfarine or even the disaggregating therapy, sometimes combined (acetilsalicylic acid and kopidogrel). In all cases flebotonik and compression therapy of the lower extremities appointed.

In our observations TELA has been noted in 5 cases, and small branches of a pulmonary artery were surprised (in 1 group – three observations, in 2 – two). Lethal outcomes are noted by us.

Conclusion:
1) Most often (54,5%) TGV noted 2 groups that is when onco-processes came to light for the first time at a thrombosis demonstration at patients.
2) Indications to operation didn’t depend on group of observation and in our opinion as them served flotation of a head of blood clot over 4 centimeters and TELA in the anamnesis.
3) Despite the being available prerequisites for development of TELA in patients in the started stages of an onco-process, we in the observations of this pathology haven’t noted that it is perhaps connected with small number of observations.

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LAPAROSCOPIC TREATMENT OF INGUINAL HERNIAS THROUGH LOW-COST TRANSABDOMINAL PRE-PERITONEAL (TAPP) PROCEDURE: A CASE-SERIES.

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**Background:** Patients with hernias comprise around 30% of all patients in the surgery department of the Abovyan Medical Center. Approximately 20% of them are patients with inguinal hernias. In the regional hospitals of Armenia, like the Abovyan Medical Center, the offered mini-invasive surgical techniques are not usually accepted by the population due to the comparably high cost. On the other side, evidence-based medicine recommends the use of modern mini-invasive techniques which are also implemented in our center. The financial burden was the main reason we started to use the TAPP procedure for hernia repair without using stapling devices, special sutures and special meshes.

**Methods and Materials:** All patients for TAPP procedure were selected by the size of hernia (small and middle) and by the duration of disease (up to 5 years). Large, scrotal and recurrent hernias were excluded. Factors, such as direct and indirect hernias, previous abdominal surgeries were not important, and femoral hernias were also operated. Surgeries have been done by placing the standard lightweight macropor mesh 10x15cm. Peritoneum was closed by Vycril 2/0 continuous suture.

**Results:** The first TAPP procedure was performed at the Abovyan Medical Center 2 years ago. Sixteen hernia cases were successfully managed by TAPP procedure during these 2 years. The age range of patients was from 39 to 67 years. Of those, 3 had double-sided hernias, 4 were females. The average length of surgery was 70 minutes. Average hospital stay was 2 days. All patients have been followed-up during this 2 year period. There were no major or minor complications and recurrences.

**Conclusion:** Laparoscopic TAPP hernia repair can be successfully done for selected patients with good results and without using fixation devices, which will reduce the financial burden of surgery, especially in the rural communities. Larger studies need to be done to strengthen the findings of our study.
"How to measure outcomes in surgery"

The concept of value of a surgical procedure derives from the relationship between surgeon, patient, disease and society. We are moving from the strict surgical act value to a more extensive surgical “performance” value. How could we correctly measure the surgical treatment value? The endpoint of the recent introduction of outcome measurement tools (as “Programma Nazionale Esiti” PNE by Agenas in Italy) is not to create competition within the healthcare system, but to establish a standard level of Care. This is aimed to guarantee the best clinical results considering the available resources. Quality costs, but it is not a cost. The social value of a clinical pathway is measured on the ability to guarantee health to citizens, in a rigorous and uniform way and in the correct time, and is measured and evaluated by tools as indicators and standards.

"Hernia surgery and standard"

In recent years, certification of surgical activity has become of primary importance. Nowadays we have several independent certification programs for different kinds of surgery. Standards are the certification’s fundament, enabling to vouch for experiences and results of both surgeons and facilities. Why do we have to measure outcomes in hernia surgery or to certificate hernia center? Every year 20 million operations of inguinal hernia are performed worldwide, in both specialized and general surgery units. The commitment of human and economic resources involved in hernia care must be assessed not only for the surgical activity but extended to the health care and social management too.

"Indicators"

A lot of indicators are available. We must remember that each indicator has its maintenance cost, therefore we should choose a small and appropriate sample. Historically, outcome indicator for inguinal hernia surgery is recurrence. Nowadays a multiple therapeutic choice among different care settings levels, techniques and devices-meshes- requires a simple panel of indicators which describes the quality of the process, and therefore the expected outcome. ISHAWS identified the best outcome measures related to safety and effectiveness of inguinal hernia repair with the following criteria: morbidity, mortality, surgical site infections, recurrence and chronic pain. EHS in latest guidelines listed a wider panel, useful both to describe the clinical pathway and to prevent complications.

"Conclusions"

There are still pending queries on the result of the data collection about outcomes, as: how long should the follow-up last? How are the measurements made (and are they accurate)? Which is the impact on surgeons’ or other healthcare workers’ workload? Will costs be increased? Which are the legal implications of outcome data collection and dissemination? Business intelligences, with the help from the introduction of registries can resolve some of these doubts.
COMBINED LAPAROSCOPIC APPROACH FOR THE TREATMENT OF STRANGULATED INGUINAL AND FEMORAL HERNIA

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Key words: TEP, strangulated, hernia,

Using the traditional open approach to strangulated inguinal and femoral hernia has several problems, such as difficulty of evaluation viability of strangulated bowel, high risk of contamination of the mesh, complexity of differentiation tissues if hernia is recurrent.

Since 2017 combined laparoscopic approach for the treatment of strangulated inguinal and femoral hernia is used in our clinic and 7 patients underwent laparoscopic exploration for strangulated inguinal and femoral hernia followed by TEP repair. The first stage was performed by a standard diagnostic videolaparoscopy. The strangulated organ was gently retracted into the abdominal cavity and inspected. If no bowel resection was needed, the peritoneal cavity was desufflated, all trocars removed. 11-mm balloon-tip port is then inserted into the preperitoneal space and inflated. A 10-mm, 0°-angle laparoscope is inserted and used to dissect the tissues in the preperitoneal space. After that balloon-tip port was removed and Hasson trocar was placed. A 10x15-cm polypropylene mesh was used for the repair as we practice routinely in TEP hernia repair.

Of the 7 patients, 3 had strangulated inguinal hernia and 4 had strangulated femoral hernia and included 3 male and 4 female. Reduction of the strangulated organ was straightforward, and no bowel resection was needed. The mean operative time was 80 min, and the hospital length of stay was 4 days in all cases. None of the patients needed opioid analgesics. No major complications or wound or mesh infections occurred.

Combined laparoscopic repair can be used instead traditional open techniques and has advantages such as low risk of contamination of the mesh, possibility to evaluate viability of strangulated bowel, lower postoperative pain, early discharge.

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COMPLEX, MASSIVE INCISIONAL HERNIAS - BENEFITS FROM COMPONENT SEPARATION TECHNIQUE WITH TRIPLE STRIPS OF MESH.

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Key words: massive hernias component separation

Management of complex massive incisional hernias (defect greater than 15 cm) remains a surgical challenge. Problems associated with the management of the massive hernias are: concomitant diseases; intraoperative anatomical and technical difficulties; diminished volume of the abdominal cavity; compartment syndrome; respiratory, embolism, hemorrhage, infection etc. Considerable increasing of the abdominal capacity is achieved only by the component separation. Aim of the study was to show advantages of component separation method with triple mesh technique. The method differs from classic Ramirez by utilizing additional strips (usually 3) of mesh to cover midline and weak areas on both sides after relaxing incisions. Methods: Number of patients with complex, massive hernias (largest 45 cm x 20 cm) - 382, from total 1137 incisional hernias operated in the last 10 yrs; Male/female 181/201. Concomitant diseases – 375 patients. Obese patients (BMI > 40) - 301. Operation types: component separation – 87; component separation with triple mesh technique – 184; component separation with Rives - 43; Rives – 68. Mean operation time 135 minutes (45-500). 274 patients required ICU (up to 18 hrs in postop.); 108 patients ventilated postoperatively for 2/7 days; Mean hospital stay 8.4 days (3-50); Complications haematoma (26), seroma (62), infection (27), Pulmonary/cardiac (38), Fistula (4). 12 patients required further surgery. 9 late (2 years) partial mesh removal, 4 recurrences (lateral to mesh): 5 deaths (fistula, pulmonary embolism). Conclusion: Advantages of component separation method with triple mesh technique are: considerable increasing of abdominal cavity, maintenance of flexibility of anterior abdominal wall and reinforcement of weak areas (after relaxing incisions)

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COMBINED PLASTICS IN CASE OF LARGE ABDOMINAL HERNIAS

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Surgical interventions for hernias of the abdominal wall are most frequently performed. Despite the use of hundreds of new hernioplasty techniques in case of large and giant abdominal hernias, the results in many cases are unsatisfactory. The application of the principle of non-stretching hernioplasty made a revolution in herniology, allowing the reduction of the number of relapses from 35-60% to 3-5%.
The aim of the study is the improvement of the results of surgical treatment of patients with complex forms of abdominal hernias.

The investigation is based on the analysis of the treatment results of 203 patients with large ventral hernias. The non-stretching alloplastic method of plastic surgery of the hernial gates with the formation of an artificial white belly line is applied. 82 patients with obesity, with SH-1U degree herniotomy, were combined with dermatolipectomy.

It has been established that the non-stretching alloplastic method of plasticizing the hernial gates, with the formation of an artificial white line of the abdomen, provides the necessary balance of straight and lateral muscles’ forces, preventing an excessive divergence of rectus abdominis muscles, which allows to resist the increase in intra-abdominal pressure evenly and steadily. Compared with plastics with local tissues significantly decreased: complications of general nature - from 7.9% to 5.1%, wound complications - from 17% to 13%, suppuration - from 8.7% to 4.2%, recurrence of hernia - from 22.9% to 2.3%. The method allows to improve immediate and long-term results of treatment of patients with complex abdominal hernias of middle localization and extends indications to operations, especially to patients with severe respiratory and cardiac concomitant diseases.

The introduction of herniotomy method in combination with dermatolipectomy in persons with excessive body weight and deformity of the abdominal wall, in addition to aesthetic advantages, allows the reduction of the load on the seam line, reducing the number of relapses and, undoubtedly, reducing the length of stay of patients in the hospital.

Thus, the advantage of proposed methods of combined plastics with large hernias is undeniable.

THE USE OF POLYMERIC ENDOPROSTHESIS ‘REPEREN’ IN THE INGUINAL HERNIA TREATMENT.

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Key words: inguinal hernioplasty, Reperen, single-stage light polymerization of the acrylate

Aim: Inguinal hernias have been treated with the use of fundamentally new volume prothesis “Reperen” in the surgical department of the “Armenia” Medical Center. The “Reperen” is a polymer which is obtained by single-stage light polymerization of the acrylate. This method of polymerization minimizes the presence of monomer in the material. A small amount of monomer minimizes the postoperative complications occurrence.

Reperen is resistant to the action of biologically active and aggressive liquids. It is available in sterile packages. The shape is oval, the size is 40x85 mm. Plates “Reperen” correspond to such requirements as bioinert, strength, elasticity, hydrophobicity. This material is easily modeled according to the shape and size of the hernial defect, very elastic. At the same time, it perfectly retains its shape, which is important in hernia surgery.

Methods: 12 hernia surgeries were performed with the use of the Reperen endoprosthesis. There were 10 men and 2 women at the age of 22 to 70 years with inguinal hernia. The disease duration was from 6 months to 12 years.
All patients underwent surgeries with the Liechtenstein method, under local or spinal anesthesia. A daily dose of cephalosporines was administered immediately before the surgery to prevent postoperative purulent complications. Thorough haemostasis was performed during the operation. There were no intraoperative complications.

Drainage with chlorovinyl tubes with vacuum aspiration were used in patients with large postoperative wound or expressed subcutaneous fat. The first dressing was performed no later than 5-6 hours after the surgery. Drainage removal were on the 4-6 th days. All the patients received infusion and antibiotic therapy. After the operation, antibiotic injections continued for 5-7 days.

**Results:** The postoperative period course was active. Patients were allowed to move actively already on the 2nd day. Physiotherapy and exercises were to prevent postoperative complications that occur in increased intra-abdominal pressure due to coughing, intestinal paresis, and acute urinary obstruction. No complications were in postoperative period and so it was short in all patients, nearly 6 days. Wound complications were not observed. All patients were under observation after surgery from 1 to 10 months. No complaints, no implant rejections and no hernia recurrences were noted.

**Conclusions:** Good results of using the “Reperen” implant in the surgical department of the RMC “Armenia”: biological compatibility, absence of rejection or allergic reactions, smooth healing of postoperative wounds allows to recommend it for inguinal hernioplasty.

Thus, with surgical treatment with endoprosthesis “Reperen” allows to reduce the number of relapses, improves the patient’s life quality and the treatment results in an aesthetic sense as well.

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**REPAIR OF COMPLEX ABDOMINAL WALL HERNIAS**

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The treatment of postoperative ventral hernia is still relevant today the reported incidence after a midline laparotomy ranges from 3% to 20% and is doubled if the index operation is complicated by wound infection. About 50% of incisional hernias are detected within one year of surgery, but they can occur several years afterwards, with a subsequent risk of 2% a year. The recurrence rate after open suture repair can be as high as 54%, and as high as 36% for open mesh repair. Recurrence rates for laparoscopic repair seem to be comparable to open mesh procedures but laparoscopic repair requires a shorter hospital stay. The method of choice for repair of incisional hernias is still debatable.

In our department 71 patients aged 30 to 82 were operated due to large and giant postoperative hernia since 2008. 26 were male and 45 – female. 16 patients had 2 or 3 concomitant diseases. According to SWR classification S-middle W2 R1 was 47 patients and S-middle W3-4 R2-3 were 24 patients. 19 patients of W3-4 were operated by Ramirez technique. Among them in 15 cases additionally was used onlay mash. 3 of them were operated with minimally invasive component separation technique. Posterior component separation technique with Transversus Abdominis muscle release (TAR) was performed in 5 patients (W3-4) during last year. Intraoperative control of intra-abdominal pressure was carried out in cases of usage of component separation technique. Sublay+onlay method (“sandwich”) was used in 12 cases. Rives-stoppa repair was used in the other cases (W2). Follow up period for 37 patients were 3 years, for 14 patients - 5
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The presented material demonstrates the successful application of different types of component separation technique in the cases of large and giant hernias. We can say that this technique can be considered as an operation of choice in such cases. In any case large-scale longterm multi-centric trials need to be conducted to evaluate these repairs, especially TAR further.

**Key words:** Abdominal Wall Hernia

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DESARDA TECHNIQUE FOR OPEN INGUINAL HERNIA REPAIR: OUR EXPERIENCE

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Key words: inguinal hernia

Worldwide, more than 20 million patients undergo inguinal hernia repair annually. The problem of our age is to find an operation that is simple, does not require implantation of a foreign body like mesh and does not produce major complications during or after surgery. Desarda repair is based on the concept of providing a strong, mobile, and physiologically dynamic posterior wall.

We represent 118 male patients who underwent hernioplasty by Desarda method between 2008 and 2017. 84 were elective and 34 – acute patients, respectively. Hernias in 26 cases were direct, 88 – indirect. Among elective cases 2 patients had bilateral hernia. 2 elective patients had recurrent hernia. There were 6 scrotal hernias, 13 - sliding hernia cases among elective patients. The age of patients was from 18 to 86 years. 33 patients were aged 70 and over. Among these 33 patients 12 had severe comorbidity of circulatory, respiratory systems and/or other diseases. Mean operating time was 42.43±2.8 min. There were no intraoperative complications. Postoperative pain according to VAS (Mean ± SD) on day 1 was 31.27±0.86. No patient had discomfort for more than 15 days after this repair. Among postoperative complications there were not any severe complications. No chronic pain, sensation of foreign body and no recurrence was observed. The mean hospital stay was 1.87 ± 0.78.

According to our experience Desarda method seems to be an attractive alternative of other methods widely adopted today. It is safe, fast, simple and easy to learn and perform. This operation is based on the physiological principles, does not use a mesh, consequently it can be used effectively, as risk of mesh infection is eliminated. Desarda repair has the potential to become the gold standard of hernia repair.

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RIGHT-SIDED BOCHDALEK HERNIA IN AN ADULT, CASE REPORT OF A MINIMALLY INVASIVE SURGICAL APPROACH.

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Key words: Bochdalek Hernia

Introduction: While frequently diagnosed in the neonatal period, being associated with high morbidity, Bockdaleck hernias are rarely diagnosed in adults. Right-sided Bochdalek hernias are even rarer. When
incarcerated, the herniation is associated with a high mortality rate as well, which makes elective surgery the choice whenever the diagnosis is made. The surgical approach should be planned on a case-to-case basis, with the help of imagiologic findings.

**Clinical Case:** We present the case of a 46-year-old female with long lasting symptoms of upper abdominal pain and a thorax plain radiography showing a thoracic mass adjacent to the right cupula of the diaphragm. After imagiologic characterization, a hepatic herniation through a righ-sided Bochdalek hernia was found. The patient underwent surgery to repair the diaphragmatic defect with biological mesh via laparoscopic approach.

**Conclusion:** The patient was successfully operated on and discharged three days after the intervention. Three months after the surgery the patient remains asymptomatic and without evidence of hernia recurrence.

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STATE OF ART IN MINIMALLY INVASIVE LIVER SURGERY

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Background:
The introduction of laparoscopic liver resection has been challenging because new and safe surgical techniques have had to be developed, and scepticism remains about the use of laparoscopy for malignant neoplasms.

Materials and methods:
This review presents modern status of laparoscopic liver resection with reference to both available research literature, the Morioka and Southampton consensus meetings and own institutional experience, including over 1150 cases operated since August 1998 at Oslo University Hospital – Rikshospitalet (Oslo, Norway).

Colorectal metastases represented the main indications for surgery (68%). Other metastatic lesions were neuroendocrine metastases in 5%, melanoma in 1.5%, other various metastases from gastrointestinal and gynecological tract, lungs, retroperitoneal space and breast cancer in 3.4%. Primary malignancies were presented by hepatocellular carcinoma in 7% and cholangiocarcinoma in 1.5%. Benign lesions were verified in 13.6% of cases (cysts, nodular hyperplasia, hemangioma, hepatocellular adenoma, biliary cystadenoma, benign tumours of gallbladder and fibrotic lesions).

Median follow-up of patients operated for colorectal liver metastases was 33 months.

Results:
Rate of conversions to laparotomy was 3% and to hand-assisted laparoscopy 1.4%. Anatomic resections were presented in 18%, non-anatomic paranchyma-sparing 79%, and in remaining 3% both anatomic and non-anatomic resections were performed in one procedure. Laparoscopic resections were combined with local ablations (either cryoablation or radiofrequency) in 59 cases. The median operative time and blood loss were 130 (20-635) minutes and 250 (<50-4000) ml, respectively. There were 17% complications, including 3.5% of major complications (Accordion grade 4 or higher). Perioperative mortality was 0.3%.
The median postoperative stay and opioid requirement were 3 (1-42) and 1 (0-11) days, respectively. For malignant cases R0 resection margins were achieved 82%. The 5-year overall survival rates were 47% and the median length of survival was 51 (95% confidence interval 48-64) months for patients with colorectal liver metastases.

**Interpretation:**
Alterations in procedural strategy and tactics during last decades are analyzed. Wide ammlication of multimodal approach is a modern trend. Emphasis on parenchyma-sparing concept is shown and justified. Details of the completed and ongoing randomized studies ,proving safety and advantages of laparoscopic approach to liver resection, are presented. An interesting case with illustrative video is shown.

In experienced hands, laparoscopic liver resection is a favourable alternative to open resection. Perioperative morbidity and mortality and long-term survival after laparoscopic resection of colorectal metastases appear to be comparable to those after open resections.

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**RATES OF BILE ACID DIARRHOEA DIAGNOSIS IN PATIENTS FOLLOWING CHOLECYSTECTOMY**

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**Key words:** Cholecystectomy

Bile acid diarrhoea can occur due to disruption of the enterohepatic circulation e.g. following cholecystectomy (LC). Post-LC diarrhoea has been reported in 0.9-40% of patients. The Bile acid precursor C4 has been shown to increase after cholecystectomy, but with no clear relationship in the development of post-cholecystectomy diarrhoea. We sought to determine the rates of bile acid diarrhoea diagnosis after LC.

A prospective electronic database of patients who underwent LC at University Hospitals Coventry and Warwickshire between 2013 and 2017 was cross-referenced with a list of patients who underwent 75SeHCAT testing during the same time period. A 7 day retention time of <15% was deemed to be positive. Patient demographics were collected and compared for significance (p<0.05) using non-parametric t-Test.

Out of 2381 patients undergoing LC, 39 had chronic diarrhoea and underwent endoscopic examination as well as a 75SeHCAT test. 5 were excluded in view of the 75SeHCAT test occurring prior to surgery. Of the remaining 34, 20 (59%) had a 75SeHCAT retention of <15%. The median age of the cohort was 47 years (17-66); 4 males and 16 females. The mean time from surgery to 75SeHCAT testing was 564 days (SD=371), and women were tested significantly later than men (660 vs 287 days, p=0.006).

Only a small proportion of post-LC patients were investigated for BAD (1.4%), and in those that were investigated 59% were positive. There was also a significant time delay to diagnosis. This may be partly due to the fact that cholecystectomies are now undertaken as a day case and routine follow-up is
rarely required. The true prevalence of BAD post cholecystectomy may be much higher, and clinicians need to have an increased awareness of this condition as its easily treatable.

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MODERN TREATMENT OF LIVER ALVEOCOCCOSIS.

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Introduction
Alveococcosis is a rare parasitic disease caused by Echinococcus multilocularis. It is characterized by infiltrative growth of parasitic tissues, with damage to adjacent tissues and the possibility of metastasis. Almost in 100% of cases, alveococcosis is developed in the liver, more often in the right lobe. One third of patients also have nodule in one or more organs (2, 3).

Material and methods
During the period of 2011 to 2018, 97 patients with liver alveococcosis (49 of them men and 48 women) have been treated in the National Medical Research Center for Surgery named after Vishnevsky. The disease mainly occurs among middle-aged people (the average age is 35-40 years). All 97 patients have undergone operative treatment.

Treatment of alveococcosis depends on the stage of the disease. WHO recommends surgical treatment in stages P1N0M0 and P2N0M0. The main surgical intervention in case of alveococcosis is the radical removal of the parasitic nodule. Criteria of radicality correspond to oncological: R0 - complete removal of the site of a contamination, R1 – left of microscopic site, R2 – left of macroscopic site. An important factor determining the possibility of performing a radical operation is the involvement of vascular structures and bile ducts.

An important factor determining the possibility of performing a radical operation is the involvement of vascular structures and bile ducts. Resection of the liver can be accompanied by resection-plastic interventions on the main vessels and bile ducts. From the main vessels commonly are infected the lower hollow vein and portal vein. In cases of such operations, it is important to assess the blood supply to the liver and the degree of involvement of various vessels, as this can significantly prolong the time of vascular reconstruction and the time of parenchymal ischemia, which requires a clear planning of the stages of the operation, the time of vascular isolation and the protection of the liver. The final decision on the scope of the operation is taken at the intra-operative revision with the implementation of Ultrasound examination.

In those cases when the parasitic “tumor” is spread in the organ or in the zone of the inferior vena cava, it is possible to perform palliative resection of the liver followed by cryodestruction of the parasitic tissue left on the vital formations of the-gates. In the risk zones (the gates of the liver, the area of the inferior vena cava), the surgeon leaves a thin plate of parasitic tissue up to 0.5 cm thick on the vessels. The part of left tissue is exposed to cryodestruction with the help of a cryodestructor. These interventions, by their
indirect and remote results, are approaching to radical operations, since ultra-low temperatures destroy parasitic tissue. In this case, one should not be afraid of the destruction of the walls of large vessels, since even a complete freezing of large vascular trunks does not lead to their destruction.

The combination of palliative interventions with cryodestruction expands the possibilities of treating recurrence of liver alveococcosis and positively influences on the results of treatment, improves the condition of patients and prolongs their life, often for a very long period.

We produced 21 (from 2012 to 2018) palliative resections of the liver followed by cryodestruction of parasitic tissue without lethal outcomes with good immediate and long-term results in terms of up to 6 years.

If surgical methods cannot be applied and after surgery performed to prevent recurrences or further growth of parasitic site, after cytoreductive interventions, drug treatment (albendazole) is assigned. Unfortunately, albendazole has a low bioavailability in terms of therapeutic concentrations in plasma and in the liver, which requires a constant drug intake. A number of studies of experiment on mice has showed a greater effect of albendazole encapsulated with chitosan, which opens up further prospects for drug treatment.

**Conclusions**

The main and radical method of treatment of alveococcosis is surgical treatment, at the same time active research is being carried out to improve medical therapy.

The development of molecular technologies and subsequent studies of alarming ways and molecular mechanisms will help create targeted therapy and help patients in inoperable cases. Modern technologies in surgery combined with drug treatment can significantly prolong lifetime of patients with alveococcosis.

In case of alveococcosis when there is a lesion in both lobes of the liver, or the parasitic nodule is localized in the gates of the liver, it is possible to perform liver transplantation.

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**CURRENT STATUS OF ORGAN TRANSPLANTATION IN GEORGIA AND SOUTHERN CAUCASIAN REGION**

_Gia Tomadze_

**Keywords:** Transplantation

Organ transplantation in Southern Caucasian region has many similarities among countries. Total territory of southern Caucasus is 187 000 sq.km. Out of it Armenia occupies 16%, Georgia – 37% and Azerbaijan – 47%. Population of all three countries is 16,5 mln. Armenia is 18% of total population, Georgia – 22% and Azerbaijan – 60%. During 1st Caucasian Conference of Transplantologists Caucasian Transplant Coordinators Bureau has been founded with the aim to share information and experience in the field of organ transplantation.
None of Southern Caucasian countries has cadaveric donation program. All transplantations are performed from living donors. Kidney is been transplanted in all three Countries, liver – in Georgia and Azerbaijan. Total number of kidney transplanted patients in Armenia is 150, in Georgia – 298.

All three countries have legislation about organ transplantation. In Armenia adopted in 2002, in Georgia and Azerbaijan – in 2000. In Armenia legislation is based on presumed consent, in Georgia and Azerbaijan – on informed consent.

First kidney transplantation in Southern Caucasian countries was performed in Azerbaijan in 1971, then in Georgia (1977) and Armenia (1984).

In Georgia first tx was performed in 1977, when 6 cadaveric kidneys where imported from Moscow. Since then no cadaveric transplantation has been performed in Georgia.

In 1995 we started kidney transplantation program from living related donors. In 1998 Georgia Ministry of Health started Governmental financing of kidney transplantations from living donors in limited amount. Two years later in 2000 our Parliament adopted a law about organ transplantation, which is based on informed consent and had severe restriction from the point of view of living donor pool. Just close genetical relatives and spouse was permitted to be living donor. The law has been changed in 2015, when definition of close personal related donor has been adopted by Parliament.

According to the data from Organ Transplant Registry of Georgian Association of Transplantologists, currently there are 386 organ transplant patients in Georgia. Out of them 298 are kidney, 82 – liver and 6 – heart transplant patients (all patients with cadaveric organs are operated in abroad). First successful liver transplantation was performed in 2014 from living related donor. Total number of liver transplantations performed in Georgia is 32. In 2017 31 organ transplantations has been performed in Georgia (8,4 PMP). Out of them 21 was KdTx (5,7 PMP) and 10 - Livtx (2,7 PMP).

Indicated number is absolutely not sufficient for Georgian need. Major problem we are facing is absence of cadaveric donation problem, absence of corresponding infrastructure and absence of sufficient necessary funding. Same problems are facing Armenia and Azerbaijan.

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INITIATION OF THE LIVING DONOR LIVER TRANSPLANTATION IN GEORGIA: AVERSI CLINIC - OUR EXPERIENCE OF 14 CASES

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Key words: Living donor liver transplantation

Background. Acute hepatitis C is the prominent problem of the Georgian healthcare. Nowadays liver transplantation is the only curative treatment for liver cirrhosis. This complex procedure demands
specified facilities, equipment, trained staff and financial resources. Unfortunately only living donor liver transplantation (LDLT) is conceivable in Georgia so far because of the gaps in legislation.

Methods. We retrospectively reviewed 14 cases of the living donor liver transplantation performed in Aversi Clinic in collaboration with our colleges from Seoul National University Hospital. All but one patients suffered from decompensated liver cirrhosis. In 7 cases the origin was active hepatitis C, in two patients hepatitis C virus was successfully eliminated before admission. 2 patients had hepatitis B (1 patient with hepatitis D virus). One patient had HCC nodule in cirrhotic liver, in Milan criteria. Left lobe was grafted in one case. 2 recipients were female. 1 case was ABO incompatible. 1 case was pediatric. In one case LDLT was done in emergency settings because of cryptogenic acute liver failure.

Results. All our LDLTs were successful, without any perioperative death. 1 recipient had the thrombosis of the arterial anastomosis (grade IVa complication) which was successfully treated by reanastomosis. 2 recipients developed biliary stricture (grade IIIa complication). 4 recipients and one donor had grade II complications (diarrhea and pneumonia). 7 recipients and 4 donors had seroma and/or biloma formation and mild wound suppuration after surgery grade I complication.

Conclusions. Our first results are inspiring. High demand of liver transplantation in Georgia requires establishment of the national system for deceased donor liver transplantation.

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MODERN METHODS OF TREATMENT OF OBSTRUCTIVE JAUNDICE SYNDROME

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Materials and Methods: A retrospective analysis of the clinical data of 1973 patients with obstructive jaundice of benign and malignant etiology was carried out in the Erebouni Medical Center from 1991 to 2016. The number of patients in the elderly age group (aged 61 to 80) constituted 1000 (50,7%); over the age of 80 – 109 (5,5%); and under the age of 60 – 864 (43,8%). Outcomes: It should be noted that among the total number of hospitalized patients 1195 (60,6%) were female and 778 (39,4%) were male. The number of patients with the syndrome of obstructive jaundice of benign genesis was 1561 (79,1%) and of malignant genesis 412 (20,9%). 830 (42,1%) of the patients suffered from serious concomitant diseases (IHD, stage II and III hypertension, diabetes mellitus, etc.), which had been aggravating the severity of the underlying disease. The main causes of the obstructive jaundice were neoplasms of hepato-pancreatic-duodenal zone – 412 people (20,9%), acute calculus cholecystitis – 479 people (24,3%), chronic calculus cholecystitis – 323 people (16,4%), postcholecystectomy syndrome – 671 people (34%), and biliary pancreatitis – 88 people (4,5%). An immediate correction of the bile duct obstruction was performed among 1348 patients (68,3%), while 270 patients (13,7%) were operated in two stages, and 1013 patients
(51.3%) had 1255 endoscopic interventions. 355 patients received conservative treatment. **Conclusion:** During the first stage papillosphincterotomy is performed with temporary external (nasobiliary drainage) or internal decompression of the biliary tree (stenting), which can be the final stage for oncological diseases. During the second stage, depending on the genesis of the obstructive jaundice, surgical interventions are performed, which can be both radical and palliative. A surgical intervention with immediate full correction of patency of the bile ducts is indicated for acute, intractable cholestasis. A two-stage surgical treatment based on minimally invasive technologies is indicated for prolonged jaundice, which must start with the most developed technique/method in the hospital.

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### APPROACHES TO RECONSTRUCTIVE RESTORATIVE OPERATIONS IN CASE OF THE INTRAOPERATIVE DAMAGE OF EXTRAHEPATIC BILE DUCTS

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**Key words:** bile duct, damage, reconstructive operations

Till now, the treatment of patients with postoperative complications remains one of the most difficult problems in modern emergency surgery. In recent decades, complications arising after surgical interventions on the bile ducts are the main cause of repeated operations on the biliary tract.

**Aim:** to improve the results of treatment of patients with intraoperative damage of extrahepatic bile ducts.

Materials and methods. Systematized approaches to the diagnosis and treatment of intraoperative damage of extrahepatic bile ducts in 40 patients. Hepaticocholedoch damage occurred in traditional cholecystectomy in 38 (95%) patients, and in laparoscopic cholecystectomy - in 2 (5%) patients.

**Results.** Radiocontrast studies of bile ducts (ECPG, PTCG, MR-cholangiography, fistulocholangiography) allowed to determine the level and extent of the lesion, the degree of the biliary duct block. Based on the results of the survey, the following types of lesions and strictures were identified (Galperin E.I., 2002): “+2” - in 16 (40%); “+1” - in 12 (30%); “0” - in 7 (17.5%); “-1” - in 3 (7.5%); “-2” - in 2 (5%) patients. The passage from the bile to the intestine in 7 (17.5%) patients was restored by a seam on the T-shaped drainage between the injured ends of the hepaticocholedoch. The remaining 33 (82.5%) patients had different versions of biliodigestive anastomoses: choledohoduodenostomy was used in 13 patients, hepaticoduodenostomy - in 2, hepaticoentero- and bihepaticoenterostomy on the loop turned off on the Roux - in 8, hepaticoenterostomy with interintestinal Brown anastomosis - in 10. In case of proximal strictures for the reliable formation of anastomosis, external drainage by Felker (4) or through-hole drainage by Seipol-Curian (3) was used. These drains were stored for a long time (up
to 2 years) in the lumen of the anastomosis and, if necessary, replaced (removable drains) with others.

Various postoperative complications were noted in 10 (25%) patients, 3 (7.5%) patients died. The cause of death included the inconsistency of anastomotic sutures and peritonitis (1), bleeding of acute gastric ulcers (1), hepatic-renal failure developed as a result of severe intoxication with purulent cholangitis (1).

Conclusion. The choice of the surgical correction method of iatrogenic biliary excretion is based on the results of the complex use of radiocontrast diagnostic methods, the level and extent of hepaticocholedoch disease. The detection of bile duct trauma is an indication for radical correction of the bile duct by the imposition of biliary and biliary digestive anastomosis even before the development of severe complications. Postoperative complications were noted in 10 (25%) patients and 3 (7.5%) patients died. The best results were obtained when the hepaticoentero anastomosis was applied to a loop that had been turned off on the Roux.

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DIFFERENTIAL DIAGNOSIS OF MECHANICAL JAUNDICE, ACUTE CHOLANGITIS AND BILIARY SEPSIS

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Key words: mechanical jaundice, acute cholangitis, biliary sepsis.

In the scientific literature, the mechanisms determining the developmental period and the degree of expression of bacteriocholia in progressive cholestasis in patients with mechanical jaundice (MJ) are poorly studied, the cause of which are various diseases of the hepatopancreatoduodenal zone, there are no materials for a comprehensive study of the staging of pathomorphological changes in the bile duct, liver and other internal organs at the stages of transformation of MJ to acute cholangitis (AC) and biliary sepsis (BS).

Aim: to select a rational tactic for treating patients with MJ, AC and BS.

Material and methods. The clinical section of the work is based on the results of examination and treatment of 184 patients with MJ syndrome who were hospitalized in the surgical clinic of “Heratsi 1” hospital complex from 2006 to 2017. 112 women (60.9%) and 72 men (39.1%) were hospitalized. The duration of icteric period was from 1 to 30 days. The age of patients was 23 to 84 years.

Results. The causes of MJ development in obturation genesis in 162 patients were: choledocholithiasis - 118, stenosis of the fater’s nipple - 14, acute papillitis - 8, Mirzzy syndrome (type II) -8, stricture of choledochus - 10, stricture of biliodigestive anastomosis - 4. Causes of development of MJ of compression genesis in 22 patients were: Mirizzi syndrome (type I) found in 4, pseudotumorous pancreatitis in 8, pancreatic head cancer in 4, metastatic hepatoduodenal ligament injury in 3, periulcerogenic infiltration of ligament in 3. The significance of the cause of the cholic outflow as a factor affecting the frequency and timing of AC on MJ, as well as the severity of its course and the frequency of development of the BS is
analyzed. As criteria for conducting differential diagnosis, we use the following indicators: the severity of the systemic inflammatory response syndrome (SIRS), the severity of multiple organ dysfunction on the SOFA scale, as well as the indicator of the level of procalcitonin. In 60 (32.6%) patients uncomplicated MJ course was established (SIRS = 0, SOFA = 0.8, procalcitonin 0-0.2 ng / ml). A complicated form of MJ in the form of AC was diagnosed in 84 (45.7%) patients (SIRS-1, SOFA <4, procalcitonin 0.2-1.3 ng / ml). The diagnosis of BS was established in 40 (21.7%) patients, where the clinical and laboratory parameters were within the following limits: SIRS> 2, SOFA> 4, procalcitonin> 1.3ng / ml.

Conclusion. Timely differential diagnosis between MJ and complicated forms of this disease allowed us to implement a differentiated approach to the selection of rational tactics for the treatment of patients depending on the nature of the revealed pathology. The standard of conservative therapy in each group was significantly different in character and volume, which is of great economic importance. Principles of surgical treatment for patients of all three groups were of the same type, including decompression and sanation of the biliary tract with priority use of a set of minimally invasive transpapillary or (rarely) percutaneous interventions aimed at eliminating the cause of cholestasis and AC. For some patients (choledocholithiasis, papilla stenosis, etc.), transpapillary intervention was the final treatment. The inability to resolve MJ with endoscopic manipulation or percutaneous transhepatic cholangiostomy under ultrasound guidance was an indication for an open surgery.

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SHORT-AND LONG-TERM COMPLICATIONS DURING LIVING DONOR LIVER TRANSPLANTATION

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Living donor liver transplantation, as from surgical technical view as from postoperative complications view, is the hardest and the most time-consuming operation in abdominal surgery field. Whole cascade of complications are possible to occur during intraoperative, early, and late postoperative period. These are bleeding, primary graft nonfunctioning, portal vein, liver artery and liver veins thrombosis and stricture, bile leakage, stricture of biliary anastomoses or complete occlusion. Secondary viral invasion, cholangitis, early and late period rejection, viral or bacterial damage, cancer metastasis.

Materials and methods: from 14 December 2014 until today 25 living donor liver transplantations were performed. 23 from which were right liver lobe transplantation and only 2 left liver lobe transplantations. In 2 cases lethal outcome occurred in early postoperative period – after 6-7 days from operation. In 2 cases in late postoperative period – after 19-45 days. One patient died 3 years after transplantation.

3 cases with terminal liver insufficiency caused by idiopathic (autoimmune) disease. 2 cases with budd- chiarie syndrome. 4 cases with hepatitis B+D, 16 cases with hepatitis C, from which 5 were complicated with hepatocellular carcinoma. All cases suited Milan criteria.

Results and review: postoperative bleeding that needed reoperation was seen in 1 case, reoperation was performed, bleeding site was found and eliminated. Portal vein thrombosis was seen in 8 cases, in all cases thrombectomy was performed and flow was recovered. In 3 cases rethrombosis occurred during
reconstruction, again thrombectomy was performed successfully, but in 2 cases rethrombosis occurred on 7-18th day. In first case, we were unable to operate due to sever coagulopathy. In second case, flow wasn’t restored and decision was made, to connect portal vein with right renal vein, to maintain portal perfusion. Unfortunately both cases hade lethal outcomes. In 2 cases weakening of liver artery was seen on 3rd and 5th day. With Doppler, we could not measure the flow. In both cases, significant laboratory changes were not seen and we began anticoagulation and antiaggregation treatment. Which had positive outcome, after 2 weeks flow was measurable with CT angiography and Doppler. In 1 case biliary peritonitis occurred on 12th day. Patient was monitored with ultrasound and percutaneous drainage with antibiotic administration was done. Out treatment had positive effect and patient was cured on 3rd week, but total biliary stricture occurred, because of which percutaneous drainage was done and after 2 months successful bilio-entero anastomoses was performed. In 2 cases, one after 8 months and another after 4 months, biliary stricture occurred, which was managed by retrograde cholangiography and choledocho-biliary stenting of anastomoses. In 1 case patient had streptococcal cellulitis 7 years before the transplantation. After operation cellulitis occurred, which needed operational intervention (skin transplantation). On 6th day infection spread on torso and lower extremities, which finished with polyorganic failure and patient’s death after 13 hours. Patient who had nonspecific lung infection and distress syndrome died after 49 days. In 1 case biliary stricture after 3 years occurred, stenting was performed. On regular stent change cholangitis occurred. Patient died after 48 hours with polyorganic failure. This patient was also hospitalized 4 times during 6 months, because of viral and bacterial infections.

Conclusion: Of course, it is true that our experience consists of 25 operations, but it shows us those tendencies that are characteristic to our clinical cases and it requires more attention towards infection control, because lethal outcomes were divided in two pathways, which are portal rethrombosis and infectious complications. We think that with our mobilization and correct interpretation of cases, it is possible to greatly influence outcome and correct situation with infection.

ACUTE CHOLECYSTITIS IN ELDERLY PATIENTS

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Key words: acute cholecystitis, elderly, cholecystectomy, laparoscopic cholecystectomy.

Abstract

Background: The elderly represent a rapidly growing segment of the Bulgarian population, with increasing demands on our health care system. The prevalence of gallstones increases sharply with age. 15% of men and 24% of women have gallstones by age 70. The frequency of Acute cholecystitis (AC) in patients up to 60 years is about 6%, while in patients over 60 years is up to 20-21%. Between 5 to 10% of all cases are presented by acalculous cholecystitis.

Design: Retrospective analysis for ten years period between 2007-2017 of 495 patients, aged over 60, with clinical presentation of acute cholecystitis treated in 2nd Department of Surgery.
Material and methods: Complications were recorded at 332 patients of all hospitalized with AC in elderly patients. There are no typical clinical symptoms in most of them, and only prevalence of vague general complaints with single expression right-sided abdominal weight, nausea and history of cholelithiasis. The atypical clinical manifestation is expressed most often with a rapid progression to the complicated forms of AC - hydrops, empyema, gangrene, perivesical and/or subhepatic abscess, cholangitis, perforation, local or diffuse peritonitis.

Over 90% of these patients had serious concomitant diseases (cardiovascular, respiratory, neurological, diabetes, etc.) and to them the AC proceeds unpredictable with a higher risk of complications, and also with a higher frequency of mortality – 3 to 5% develop biliary sepsis.

25% of all patients failed to undergo cholecystectomy during their initial hospitalization. It was associated with increased readmission rates for biliary tract disease, and higher subsequent morbidity and mortality. Cholecystectomy is the only definitive therapy for AC and other gallstone-related complications. Both laparoscopic and open cholecystectomy have been shown to be safe in the setting of AC.

Conclusion: Cholecystectomy for AC in elderly patients should be performed during initial hospitalization to prevent episodes of cholecystitis, multiple readmissions, and increased cost. According to us the gold standard is laparoscopic cholecystectomy, but still not everywhere is done routinely, because of the controversy regarding timing and surgical approach to patients with AC. According to the prevalence of complicated forms of AC and comorbidity in the elderly patients, the treatment often requires open cholecystectomy in earlier periods.

TECHNICAL ASPECTS OF LIVING DONOR LIVER TRANSPLANTATION


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Relevance. Liver transplantation is the most effective and, often, the only radical method for treating patients with terminal stage of chronic diffuse liver diseases, fulminant liver failure, malignant and benign liver tumors and inoperable parasitic liver disease. Features of the donor vascular anatomy of the liver or portal and/or hepatic caval gate injury in Liver Alveococcosis contribute to complex reconstructions of portal venous inflow or outflow from the hepatic vein from liver graft.

Aim. The immediate and long-term results of the difficult liver transplantations at its terminal lesions because of the features of donors liver vascular anatomy or defeat portal and/or hepatic caval gates by Liver Alveococcosis have been studied.

Material and methods. 300 liver transplantations (LT) were performed in the Center for Surgery and Transplantology of the State Research Center Burnazyan FMBC of the FMBA of Russia in the period from June 2010 to June 2018. 231 living donor liver transplantation (LDLT) in the form «adult-to-adult» have been performed, 69 cadaveric liver transplantation have been performed (including adult split liver transplantation and retransplantations). 158 (68.3%) difficult LDLT have been performed because of the features of donors liver vascular anatomy or defeat portal and/or hepatic caval gates by Liver Alveococcosis. Complex reconstructions of portal venous inflow or outflow from the hepatic vein from liver graft have been required. Resections and reconstructions of the IVC and/or the right atrium by
PTFE-conduits due to the parasitic lesions of the IVC have been performed. Isolated venous outflow from the 8 segment of the liver to middle hepatic vein, isolated venous outflow from the 6 segment of the liver and its diameters more than 5 mm were an indication for vascular reconstruction. Reconstruction and formation common embouchment of the portal vein via using autovenous Y-shaped portal conduit at «back table» was performed at trifurcation of the portal vein. Anastomosis between the portal vein of the recipient and autovenous portal conduit was formed for a short stump of the right portal vein of the transplant. Reconstruction of the portal vein at it complete fibrous obliteration was performed by autovenous prostheses. Saving the middle hepatic vein in the living donor’s liver was a prerequisite. Linear prosthesis of the inferior vena cava and/or resections of the right atrium with atrium-caval prosthesis by the PTFE-conduits have been performed at their parasitic lesions, in this cases hepaticocaval anastomoses have been formed by type «vein-to-graft».

Results. Mortality among recipients was 2.5%. Morbidity was 38.0%. Vascular complications after LDLT were 1.9%. Frequency of the biliary complications (grade A, B (ISGLS, 2011) was 15.8%. Mortality among living donors was not. The morbidity among living donors was 10.7% and was mainly represented of the bile leakage (grade A, B (ISGLS)). Postoperative hospital stay for recipients was 27 (23-32) days.

Conclusion. Presented technologies allow achieving a good immediate and long term results of the liver transplantations, even in complex cases.

OUTCOMES ANALYSIS FOLLOWING TRAUMATIC LIVER INJURY – RETROSPECTIVE STUDY

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Key words: Liver Trauma

Background
The aim of the study was to look at morbidity with respect to bile leak and Pseudoaneurysm/AVM in patients with traumatic liver injury.

Methods
A retrospective review of all patients admitted with liver trauma from July 2012 to March 2018. AAST grade, associated injuries profile, transfusion requirements, length of stay, morbidity and mortality were analysed.

Results
459 patients were included in the study with a median age of 33(Range 1-92). Mechanism of injury included RTC (42.70%), stab injury (28.10%), GSW (3.26%), falls (13.94%) and others (11.98%). Out of which 68.62% was blunt and 31.37% was penetrating injury. The AAST grade of majority of the Liver trauma patients were Grade 2(45.53%) followed by Grade 3 (22.44%).

Associated organ injury included Spleen (12.63%), Lung (26.57%), Kidney (12.20%), pancreas (1.74%), Heart (2.61%), hollow viscus injury (8.49%) and Head injury (19.38%)

73 patients (15.90%) with associated Liver injuries presented to ED with shock.

129 (28.10%) patients with liver injuries underwent laparotomy. 38 (8.27%) patients underwent
packing, 9 (1.96%) underwent angioembolisation of the hepatic artery and only 2 patients (0.43%) underwent liver resection.

Overall morbidity was 15.25%. Bile leak was noted in 11 patients (2.39 % of the total Liver injury patients). Bile leak needed IR drainage in 9 patients, ERCP in 5 patients and PTC in 1 patient.

Post traumatic pseudo aneurysm was noted in 2.39% and AVM was noted in 0.22% in liver trauma patients.

The overall mortality was 9.2%

Conclusions
High grade liver injuries may need packing and/or angioembolisation of the hepatic artery and liver resection is a rare option. Follow up CT should be done in liver trauma patients to rule out pseudo aneurysm and AVM.

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AN OVERVIEW OF PANCREATIC TRAUMA MANAGEMENT - TERTIARY TRAUMA CENTRE EXPERIENCE

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Key words: Pancreatic Trauma

Background
The aim of the study was to give an overview on pancreatic trauma management in an tertiary trauma centre

Methods
Retrospective review of pancreatic trauma patients from July 2012 to March 2018. AAST grade, associated injuries profile, transfusion requirements, length of stay, morbidity and mortality were analysed.

Results
29 patients were included in the study with a median age of 25. Mechanism of injury included blunt (75.86%) and penetrating (24.13%). Head/neck of the pancreas was involved in 6 patients (20.68%) and the body and tail in 23 (79.31%) patients. The AAST grade of majority of the pancreatic trauma patients were Grade 1 (44.82%) followed by Grade 3 (34.48%).

Associated organ injury included Liver (34.48%), Spleen (44.82%), Lung (37.93%), Kidney (31.03%), Heart (3.44%), hollow viscus injury (34.48%), Head injury (10.34%) and pelvic # (10.34%).

12 patients (41.37%) with associated pancreatic injuries presented to ED with shock. Blood products requirement in the first 24 hours was RBC (Range 0-31), FFP (Range 0-28), Platelets (Range 0-7) and Cryoprecipitate (Range 0-11).

23 patients with pancreatic injuries underwent laparotomy and out of which only 9 patients underwent
pancreatic resection. 77.77% of the pancreatic resections were for high grade pancreatic injuries (≥3 AAST grade) and majority (77.7%) were done as a staged procedure.

Median hospital stay was 14 days (Range 1-68 days). Morbidity with relation to pancreatic leak was 31.03%. The mortality rate was 6.89% and was associated with injuries incompatible with life and sepsis.

**Conclusions**

Pancreatic resections are usually done for high grade pancreatic injuries (AAST Grade ≥3) and should be done during relook operation ideally combined with a hepatobiliary surgeon.

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**SINGLE-STAGE LAPAROSCOPIC COMMON BILE DUCT EXPLORATION AND CHOLECYSTECTOMY AFTER FAILED ERCP: OUR PRELIMINARY EXPERIENCE**

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**Key words:** choledocholithiasis

Approximately 19% of patients with gallstones have concomitant common bile duct stones (CBD). The appropriate management is still a matter of debate. There are two options: an endoscopic approach that forego or follow the cholecystectomy (two-step procedure) and a complete laparoscopic operation (one-step procedure). A careful evaluation of benefits and risks is mandatory to identify the best option for the patient. We report our preliminary experience of full laparoscopic approach in four patients with choledocholithiasis and unsuccessful preoperative ERCP. Three patients had previous gastric resection with Billroth II reconstruction. In the other one endoscopic treatment failed because of a duodenal diverticulum. The presence of CBD stones was confirmed by preoperative RM-cholangiography. Laparoscopic cholecystectomy was followed by one-time choledococholithotomy. Then bile duct was sutured intracorporeal with or without T-tube placement. No complication occurred in post-operative period. After two-months follow up all patients had complete stones clearance. In a literature review, the two therapeutic options show the same results in terms of clinical outcomes and complication rate. The single stage approach has some advantages such as shorter hospital stay, better patient compliance and cost saving although requires high laparoscopic skills. Our experience supports the idea that a single-time laparoscopic surgery is safe and effective for clearing CBD stones and treat associated gallstone disease when ERCP fail or is not feasible.

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TRANSPARENT ENDOBILIARY INTERVENTIONS IN TREATMENT OF CICATRICIAL STRUCTURES OF BILIARY DUCTS AND BILIODYGESTIVE ANASTOMOSES

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Key words: mechanical jaundice, cicatricial stricture, biliodigestive anastomosis.

Recently, there has been an increase in the number of patients with a complicated course of benign diseases of the hepatopancreatobiliary zone and severe iatrogenic lesions of the bile ducts. Treatment of this category of patients is a complex task, the solution of which requires great and skill of surgeons.

Aim: to determine the possibility of transhepatic endobiliary interventions in the treatment of cicatricial strictures of bile ducts and biliodigestive anastomoses.

Materials and methods. The results of endobiliary interventions in 13 patients with mechanical jaundice (MJ) caused by cicatricial strictures of choledochus (8) and biliodigestive anastomosis (5), which were treated in various clinics of the city of Yerevan from 2013 to 2017, were analyzed. The age of the patients ranged from 22 to 74 years. Among the patients, women predominated: there were 9 women (69.2%) and 4 men (30.8%). The main cause of cicatricial strictures of the bile ducts was their damage when performing cholecystectomy - 7 patients and gastrectomy - 1 case. Violation of patency of bypass anastomoses developed after surgery for scarring of choledoch strictures in 4 patients, chronic indurative pancreatitis in 1 patient. All patients had a syndrome of persistent biliary hypertension. The duration of MJ was from 2 days to 3 months. Symptoms of cholangitis in the form of an increase in body temperature with tremendous chills were found in 7 patients (53.8%).

Transhepatic endobiliary interventions included external drainage, recanalization of strictures, dilatation with balloon catheters followed by prolonged skeletal drainage.

Results. Percutaneous transhepatic cholangiostomy (PTCS) resulted in a rapid decrease in the level of bilirubin in the blood, sanation of the bile ducts, relief of endotoxicosis and liver failure, restoration of the functional state of other vital organs. Recanalization of strictures was successful in 6 cases out of 8 with stricture of choledoch and in all cases with narrowing of biliodigestive anastomoses. Only in 2 cases with early detection of choledoch strictures by repeated dilations and by long frame drainage was it possible to restore the lumen of choledoch with a favorable long-term result. All other patients required surgical intervention due to relapse of the disease. Endobiliary dilatation of strictures with balloon catheters of increasing diameter (7-8 mm) followed by carcass drainage was effective in all cases. The total duration of treatment required to consolidate the effect of dilatation and epithelization of the anastomosis zone was from 6 months up to 1.5 years. Remote observations for 8 patients from 8 months up to 2 years revealed
no cases of recurrence of the disease.

**Conclusion.** PTCS is effective, and for constrictions of biliodigestive anastomosis is the only possible minimally invasive method for decompressing the bile excretory system and eliminating MJ in cicatrical strictures of the bile ducts. Endobiliary balloon dilatation and prolonged skeletal drainage are most effective in “fresh” strictures of choledocho; in the presence of formed strictures, repeated dilatation does not provide complete recovery of the lumen and is accompanied by a relapse of the disease. X-ray endoabiliary dilatation and skeletal long-term drainage is the method of choice in the treatment of constrictions of biliodigestive anastomosis, as it ensures the restoration of adequate outflow of bile and the absence of relapses in the long-term period.

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**ANALYSIS OF COMPLICATIONS AFTER ENDOSCOPIC RETROGRAD COLANGIOPANCREATOGRAPHY (ERCP) AND ENDOSCOPIC SPHINTEROTOMY (EST)**

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In work presents a comparative analysis of the performance of ERCP / EST in 3489 patients examined at the Erebouni Clinical Center during two periods, the initial period (1987-2002) and the subsequent (2003-2017).

The effectiveness of the endoscopic procedure depends on the correct training, skill and experience of the endoscopist and fluctuates within 90-95%, even if performed by experienced specialists. Avoid complications impossible, the most frequent complications are pancreatitis, bleeding, retro-duodenal perforation, cholangitis. The percentage of complications varies between 4.5-13.5%, the death rate is 1-5%.

**Aim.** The present study is devoted to the study and treatment of patients with emerging complications in the course of or after endoscopic retrograde cholangiopancreatography and sphyncterotomy.

In the initial period, the number of complications was 192 for 1645 patients (11.7%). As a result of changes in the tactics of performing endoscopic manipulations, the use of new instruments, changes in the methods of anesthesia, in the following period the number of complications decreased and amounted to 87 for 1,844 patients (4.7%). In the following period, the frequency of post-manipulative pancreatitis was noted at 2.1% less than in the initial period. Patients with severe degree were registered almost 3 times less, patients with moderate and mild severity were 1.5 times less. Bleeding after EPTS in the subsequent period was registered almost 2 times less than in the initial period (1.4% vs. 2.4%). Patients with mild and moderate severity in the following period were almost 1.5 times less (0.7% vs. 0.9%), with a severe degree more than 3 times less (0.2% vs. 0.7%). The percentage of retro-duodenal perforation after EST in the following period was registered at 0.32% less than in the initial period, and amounted to 0.4%. Patients with moderate to severe severity in the following period were, respectively, 10.0% and 33.3% less than
in the initial period. According to our data, post-manipulation cholangitis in the initial period occurred in 3.2% of patients, followed by 2.2.0%. Patients with an moderate and severe degree of cholangitis in the following period were, respectively, 13.0% and 18.0% less.

Conclusions:
1. The use of, cannulas, papillotomes with a guide, improves the successful cannulation of the duodenal papilla and reduces the occurrence of postmanipulation pancreatitis.

Strict adherence to the rules for the performance of endoscopic sphincterotomy in risk groups, taking into account the factors associated with the technical performance of the endoscopic operation, is essential for the prevention of bleeding after endoscopic operation.

The use of tactics of stepwise sphincterotomy with the control of the information obtained, the replacement of instruments, reduces the percent of retroduodenal perforation.

Using a complete set of tools for the successful resolution of the problem in the choledoch, including the entire arsenal of tools for decompression of the bile ducts, reduces the likelihood of postmanipulation cholangitis.

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THE TREATMENT OF BENIGN BILIARY STRicture WITH BALLOON DILATION AND CARCASS DRAINAGE

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Key words: stricture, restenosis, biliary hypertension, balloon dilation, drainage

Preface: Evaluation of benefits of balloon dilation and carcass drainage as an alternative treatment for benign biliary strictures.

Methods: The method is used in Armenia for first time in 2016. so far 5 patients were treated. 3 cases after laparoscopic cholecistectomy and 2 after pancreatoduodenectomy. Only one patient completed the treatment so we are presenting the results of this patient and our experience in all 5 interventions which are done with 2-3 months intervals.

Results: For decompression of biliary tract and treating cholangitis, PTCD was performed with cholangiography and the level and extent of stricture was evaluated, within 10 days of cholangitis absence and normal level of bilirubin, the main treatment begins- balloon dilation of stricture, five minutes exposure with 12 Atm, followed by 10Fr carcass external-internal drainage installation. Same procedure is repeated 3 times, with 12, 14, 16Fr drains, and pressure of 10, 8, 2 Atm within five minutes of exposure till stricture dissapears. After two months, cholangiography is performed, and the stricture was absent. A safety external drainage is installed. A month later, after secondary cholangiography and absence of stricture, drainage was removed.

Conclusion: In benign biliary strictures, PTCD with subsequent balloon dilation and carcass drainage is considered an alternative to traditional surgical treatment. Unlike surgical treatment, it is possible to
acheive maximum stretching of the stricture zone, and reduce treatment time and restenosis. At last stage of treatment it is possible to assess the patency of stricture, which is impossible with surgical treatment. The results make it possible to conclud that balloon dilation with carcass drainage can be used as an independent treatment method with high efficiency.

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**TOTALLY LAPAROSCOPIC COMMON BILE DUCT REPAIR: INITIAL EXPERIENCE AT A SINGLE CENTER**

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**Key words:** laparoscopy

**Background:** Laparoscopic common bile duct repair (LCBDR) is a technically challenging procedure, while its role in clinical practice is not fully established. To the best of our knowledge, LCBDR is very uncommon in Armenia and open procedures are normally considered for common bile duct (CBD) repair. In this study, we present our initial experience with LCBDR.

**Methods:** From March 2017 to April 2018, three patients underwent LCBDR with T-tube insertion at Central Clinical Military Hospital. All of those were initially scheduled for elective laparoscopic cholecystectomy. Two patients were intraoperatively diagnosed with the CBD stones; thus, a decision was made to proceed with laparoscopic choledochotomy and stone extraction. One patient had iatrogenic injury of the CBD during laparoscopic cholecystectomy, which required LCBDR and T-tube insertion.

**Results:** Median operative time and estimated blood loss were 180 (130-220) min and 50 (50-100) ml, respectively. None of the patients had conversion to open procedure. The postoperative period was uncomplicated in all patients, and the median hospital stay was 10 (4-14) days. The T-tube drains were removed as surgically indicated. On a median follow-up of 11 months, CBD stricture or bile leakage were not observed.

**Discussion:** Our initial experience with LCBDR demonstrates that it is a feasible and safe technique when performed by surgeons sufficiently trained in laparoscopy. Further data is needed to provide insight on the validity of LCBDR and compare its outcomes with those of its open counterpart.

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IMPROVING LAPAROSCOPIC APPENDICECTOMY OPERATION NOTE STANDARDS

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Key words: Laparoscopic appendicectomy

The aim of this study was to assess and improve compliance of laparoscopic appendectomy operation notes at St Thomas’ hospital with comparison to the Good Surgical Practice (GSP) guideline by Royal College of Surgeons England (RCSEng).

Methods
A total of 75 operation notes were reviewed and compared to an 18-point criteria. A retrospective and prospective review of laparoscopic appendectomy operative notes was carried out before and after use of a new operation note proforma.

Results
Proforma use showed a statistically significant increase in average compliance from 51% to 98.9% (p<0.0001) showing at least 90% compliance in all 18 criteria and 10 out of 18 criteria showed statistically significant increase.

Discussion
High standards of operation notes that are accurate, comprehensive and legible are essential to allow continuity of care by another doctor who may not have been involved during the operation. Currently, use of a blank operation note paper allows surgeons to record details in a range of structures with varying emphasis on procedure detail, operative findings, post-operative plans. Although complications are rare, clear documentation and post-operative advice allows optimisation of patient care. This proforma minimised amount of hand-written notes improving legibility and enabled prompts for important detail such as post-operative anticoagulation plans.

Conclusion
A standardized proforma is a simple measure that has significantly improved quality of documentation with compliance to RCSEng guidelines and can be implemented on a national level to improve patient safety.

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ABDOMINAL WALL FUNCTION AFTER MINIINVASIVE INCISIONAL HERNIA REPAIR

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Key words: incisional hernia

Aim of study: to compare abdominal wall function at patients after incisional hernia repair with laparoscopic and open alloplastics using electromyography diagnostics method.

Materials and methods: Patients with diagnosis of incisional hernia participated in study of total number of 60 and was divided into two groups. First group consisted from 30 patients, aged from 24 to 72, 18 men and 12 women, with hernias from 5 to 17 cm. These patients underwent laparoscopic hernioplasty by authors method. Second group was consisting from 30 patients with 6 to 17 cm, aged 26-76, 20 men, 10 women, were operated open. The abdominal wall muscles tonus and voluntary activity four months after surgery were studied. We inspected a total potential of the motor units using skin placed electrodes which was located in similar areas. The study was conducted in time of 5 seconds. The analysis of the amplitude, frequency and spectral characteristics was performed.

Results and discussion: For results analysis was used Fourier transform. The better was subjective operation results, the more similar was characteristics of post-operation and healthy myograms. Medium amplitude (A med) of muscular contractions was higher after laparoscopic surgery (351±26 mV) than after open (299±24mV). Registered myogram after laparoscopic surgery was more regular and similar to the ones of unimpacted tissues as well. Correlation of amplitude to effective spectral bandwidth (A med/ ∆f) at affected zone was 1,1±0,2 after laparoscopy; 0,9±0,2 after open plastic.

Conclusion: Usage of laparoscopic hernioplasty in incisional hernia repair induced the more physiological neuromuscular activity of operated areas. The method proposed can improve the quality of patients life.

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LARGE INGUINAL HERNIA TAPP REPAIR DISTANT RESULTS

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Key words: hernia

Aim of study: to evaluate distant results of laparoscopic treatment at patients with large and gigantic inguinal hernia.

Materials and methods: 20 patient operated using author’s modified TAPP method with one-sided hernia. According to Nyhus there were 3a,3b and 4 type hernias, according to Gilbert-Rutkow-Robbins there
were 3,4, and 5 type hernias. Size of hernia sac was in average 13,1 ±1,2 cm. Meshes of 10x15 cm size were used. Control group consisted of 20 patients with same pathology and operated by unmodified methodic.

**Results and discussion:** The occurrence of chronic pain was observed in 5% of patients in the first group and 10% in the control one. Using SF-36 scale, results after plastics were better in first group. Usage of sonographic examination gave us next: the size of the fibrous layer 1,9 ± 0,2 cm in the first group and 2,1 ± 0,2 cm in the second, vascularization index was 3,7 ± 0,1 and 4,1 ± 0,2, the index of blood flow was 25,2 ± 0,4 and 21,7 ± 0,4, vascularization flow index was 7,0 ± 0,5 and 5,12 ± 0,4, coefficient of variation was 22% and 16% correspondingly. So structure of tissues and level of perfusion was closer to unimpact at patients in first group. Using electromyographic examination in 3 months after surgery gave us average amplitude of contractions was 417 ± 26 mV in first group, 356 ± 25 mV in second. The average correlation of the amplitude to the effective width of the spectrum was 1,2 ± 0,2 and 1,0 ± 0,2, the coefficient of variation - 31% and 27%, indicating better functional status of muscles in first group.

**Conclusion:** usage of modified laparoscopic hernioplastic in cases of large inguinal hernia can improve treatment results. By using proposed method level of distant complications decreased, quality of patient’s life increased.

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**ENDOSCOPIC STENTING IN UPPER GI SURGERY**

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**Key words:** stenting esophagus, stomach, duodenum

**Materilas and methods:** Esophageal, gastric and duodenal stenting was performed in 40 patients from 2009 in Aversi clinic. In 26 cases stenting procedure was utilized due to esophageal malignant obstruction; in 2 cases – for longitudinal caustic strictures of the esophagus; in 11 – esophageal fistulas and esophagogastric anastomotic leak. In 36 cases fully covered stents were placed in the esophagus and stomach. In 1 case partially covered and 1 uncovered stents were placed in the duodenum. In 17 cases carcinoma was located in the middle and distal portions or the esophagus and in 9 cases esophageal malignances involved proximal stomach as well. For the latter stents with special antireflux valves were used. There were no complications detected during stent placement. In 1 case the stent migrated into the stomach. The problem was fixed on the other day by the special stent extractor device. All fistulas were close in 2-12 week period.

**Conclusion:** Esophageal, gasric and duodenal stenting by covered stents should be considered as an effective mini invasive method of choice in the treatment of malignant and benign obstructions of upper GI tract and for effective closure of fistulas and anastomotic leaks.

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VIDEOLAPARASCOPIC APPENDECTOMY WITH THE USAGE OF LIGASURE DEVICE

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One of the main achievements of modern surgery should be considered video laparoscopy, as an operative intervention performed with the help of special tools and methods of visual control. The use of laparoscopic technologies in emergency surgery reduces by 30% the length of stay of patients in the hospital and by one third the number of postoperative complications.

The opinion of surgeons on the occurrence of both intraoperative and postoperative complications of laparoscopic appendectomy (from 3 to 7%) is uncertain. One of frequent complications is bleeding from the mesentery of appendix.

In our clinic, the technique of laparoscopic appendectomy with the use of the LigaSure device is developed and introduced into clinical practice. It is an electrosurgical unit with computer control, that provides a dosed supply of energy depending on the properties of the coagulated tissue. Dosage bipolar electrocoagulation allows to stop bleeding and reliably coagulate vessels.

The method is used in 59 patients. A study of the immediate results of laparoscopic appendectomy with the usage of the LigaSure device has established that effective dissection of tissues and adequate hemostasis are achieved.

Complications, both intraoperative and postoperative, have not been identified. The average length of stay of patients in the hospital is 3 days.

In this way, in case of laparoscopic appendectomy, the usage of LigaSure device increasing its safety simplifies the technique of performing the interventions, reduces the duration of the operation and improves the immediate results of the operation. The method allows to reduce the number of intraoperative and postoperative complications. Promotes a more favorable course of the postoperative period, rapid postoperative rehabilitation of patients, and a reduction in the duration of stationary treatment.

CORRELATION BETWEEN LEARNING CURVE AND CONVERSION RATE AFTER LAPAROSCOPIC CHOLECYSTECTOMY

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Conversion rate during laparoscopic cholecystectomy is greatly depended on the experience of surgeon. The aim of the article was to compare conversion rate during laparoscopic cholecystectomy according to the learning curve and surgeon’s experience.
Data were analyzed according to learning curve period as well as according to surgeon’s operating activity.

In total results of 5 surgeons in one surgical center since 2000 has been analyzed. Total number of analyzed operations performed during 18 years was 1998. Total conversion rate was 6%. Maximal conversion rate 12% found during first 3 years of learning curve. Minimal conversion rate 6% was detected after 6 years. Difference in conversion rate among surgeons with same duration of learning curve but different surgical activity has been revealed. Conversion rate in surgeons performing more than 100 laparoscopic cholecystectomy per year was 2.5%, versus 20% in case of surgeons performing less than 25 laparoscopic cholecystectomy per year.

After 5 years of method’s implementation laparoscopic approach for cholecystectomy was used in 77% and after 15 years in 86% of all cholecystectomies. Total average conversion rate after 5 years of method implementation was 25% vs 6% after 15 years.

The reasons of conversion were different in each period of learning curve. Major reasons were degree of inflammation, perivesical infiltration, anomalies of the biliary ducts, diffuse peritonitis etc. In 2000-2008 acute cholecystitis were operated by laparoscopic approach in 60% of cases. After gaining experience this number has been increased and in 2010-2017 reached 85%. Conversion rate from 30% in case of destructive cholecystitis has been deceased till 15%.

Conclusion: conversion rate during laparoscopic cholecystectomy is greatly depended on the period of learning curve and on the ongoing surgical activity of surgeon. Maximum number of conversions was revealed during first 3 years after implementing laparoscopic cholecystectomy in the clinic. Rate became stable after 5 years and was depended on operational activity of surgeons as well as on degree of inflammation of gallbladder, being in direct correlation with them. Minimal conversion rate revealed in case of surgeons having more than 5 years of learning curve and more than 100 laparoscopic cholecystectomy per year.

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LAPAROSCOPIC APPENDECTOMY IN CASE OF DESTRUCTIVE AND COMPLICATED APPENDICITIS

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Wide spread occurrence of endovideosurgical technique has allowed to observe the laparoscopic appendectomy as a surgery of choice for the non-complicated cases of acute appendicitis. However, up today the unified approach of acute appendicitis’ treatment of destructive and complicated cases by laparoscopic method is missing. In 2008-2018 at 2nd Surgical Department of Nairi Medical Center there were performed 452 appendectomies (244 men, 208 women), including: laparoscopic appendectomy was performed in 422 cases (96- acute catarrhal, 264- phlegmonous, 22-gangrenous, 29 - gangrenous - perforated, 11- chronic), appendectomies performed by traditional method – 30. 46 patients needed conversion, to 14 patients we performed laparoscopic assisted appendectomy. The age of patients fluctuated from 14-82 years old. Leaded by the principle of: from the simple to the hardest – we gradually made transition to destructive and complicated forms of appendicitis, including cases with peritonitis. And the experience shows that the post-surgical period during the above-mentioned cases the patients
bear much more easier than the patients that had the traditional method of appendectomy. It means: decrease of post-surgical pains, early activation of patients, fast recovery of intestine activity, absence of wounds’ suppuration and possible complications, reduction of bed rest. Today, in Nairi Medical Center all appendectomies start with laparoscopic method, which allows to correctly estimate the location of inflammatory process and the level of its spreading in abdominal cavity. In 66 cases the patients had atypical location of appendix and vermiform appendix (retrocecal, subhepatic, pelvic), which in case of traditional surgery would lead to an increase of the surgical wound. We believe that today the treatment of appendicitis’ destructive and complicated cases by laparoscopic method must occupy its own unique place.

BOEY SCORE AND PATIENT SELECTION FOR LAPAROSCOPIC REPAIR OF PERFORATED DUODENAL ULCER

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Key words: peptic ulcer, ulcer perforation, Boey score, laparoscopy.

Aim
The aim of this study is to compare results of treatment of patients with perforated duodenal ulcers with Boey score 0 and 1.

Materials and methods
In this study we include the results of treatment of 85 patients operated for a perforated duodenal ulcer during last 7 (2010-2017) years in RMC “Armenia”, Clinic of Surgery. Those were patients with Boey score 0 and 1. Preoperative workup included plain X-ray of abdomen and chest, computed tomography (CT) of abdomen, and esophagogastroduodenoscopy in selected cases. All the patients had symptoms of peritonitis. After the diagnosis of a perforated ulcer the treatment was stratified according to the severity of the disease. The Boey score, used for evaluation of the severity of the disease, is based on the available information of the following three criteria: shock at admission (systolic blood pressure < 90 mm Hg), severe medical illness (ASA III–V), and delayed presentation (duration of symptoms > 24 h). For this scoring system, the patient is given one point for each positive criterion, with possible scores of 0–3. 51 (Boey 0 – 26, Boey 1 – 25) patients were operated by laparoscopy and 34 (Boey 0 – 9, Boey 1 – 25 patients) patients by laparotomy.

Results
In the laparoscopy groups the average duration of the operation was significantly shorter than in laparotomy groups: in Boey 0 group - 90 (45–130) min vs. 115 (60–160) min (p = 0.023), Boey 1 group - 100 (50–140) min vs. 135 (80–210) min (p<0.001), respectively. In Boey 0 group there were 4 patients with postoperative complications (laparoscopy – 2 (7.7%), laparotomy – 2 (25%)), Boey 1
group – 8 patients (laparoscopy – 3 (12%), laparotomy – 5 (20%)). There was one fatal outcome in the laparotomy group with Boey score 1 (cardiovascular and pulmonary complications). Leak from the suture line developed in 3 cases of laparoscopy group (1 in the Boey 0 group and 2 in the Boey 1 group). All cases were managed conservatively by nasogastric tube aspiration and subhepatic drainage for 7 days. None of the patients required reoperation. All cases of suture leak occurred during the learning curve. 1 patient with Boey score 0 from laparotomy group was operated due to stenosis of pyloric region. Other complications were pulmonary and wound infection (Boey 1 laparotomy), and were treated conservatively. Duration of hospitalization was significantly shorter in laparoscopic than in open procedures: Boey 0 – laparoscopy 4.7 days (3-12) vs. laparotomy 10.1 (6-25) (p<0.001), Boey 1 - laparoscopy 5.2 days (3-14) vs. laparotomy 9.8 (7-20) (p<0.001).

**Conclusion**

The Boey scoring system is simple and acceptable for selection of patients with perforated duodenal ulcer for laparoscopic operation.

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**ROBOT-ASSISTED AND LAPAROSCOPIC ORGAN-PRESERVING OPERATIONS FOR BENIGN LESIONS OF THE SPLEEN**


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**The purpose**: determination of the adequate tactics of surgical treatment in patients with spleen focal lesions (SFL).

**Materials and methods.** Since 1976 we saw over 430 patients with SFL. Among the possible operations the preference was given to organ-sparing operations, and in case of their inability performed the heterotopic autotransplantation of splenic tissue.

Laparoscopic surgery, including robotic (15), was produced in 83 cases: unroofing–52 (robot-assisted-9); resection–27 (anatomical-6, non-anatomical-16, robot-assisted laparoscopic-5), including accessory spleen cyst; echinococccetomy–2; splenectomy-2. Morphological verification: non-parasitic cysts-56 (true–44, pseudocysts-12), echinococcosis–4, benign tumors-22 (hemangioma-4, lymphangioma-18).

**Results.** In 4 cases laparoscopic (robot–1) intervention required conversion due to severe bleeding. Disease recurrence requiring re-intervention were observed in 4 cases (lymphangioma–3, true cyst-1). Puncture interventions under US-control regarding residual cavities in 6 cases. Given the postoperative results in addition to commonly used deepithelization of the remaining part of the cyst wall with the use of argon and/or coagulation, we began to dissect the cyst to make processing solution of ethyl. In the case of benign tumors should strive for the maximum possible destruction of the walls of lesion. Statistically significantly fewer complications and better long-term results, including assessment of quality of life were
found in patients after organ-sparing surgery, especially when using laparoscopic access.

**Conclusion.** In case of benign SFL, while maintaining at least a small part of unaffected parenchyma, organ-preserving surgery is preferable. Depending on the SFL sizes, localization in the spleen, anatomical features it’s possible to perform laparoscopic organ-preserving operations.
NEW APPROACHES TO TREATMENT OF ACUTE PANCREATITIS

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The inclined rate of morbidity with acute pancreatitis (AP) fixed during last years-8-9% from general morbidity. The raise of destructive forms of AP also noticed, from which 70-80% of necrotic zones were infected. The operative treatment in those cases has high lethality rate-from 20 to 85%. Even now the treatment modality is not elaborated, as well as terms and types of conservative treatment and types of operations.

This study based on investigation of 638 patients with AP, which has been treated in different departments of “Erebouni” MC from 2001 to 2017 years. Most rational modality of treatment has been conservative-waiting, which is useful in 227 patients. Beginning from 2001xylocain and natrium thyosulfas has been used in standard dosage in all the AP patients. Usage of this medications decreased the percentage of complications and lethality.

The type of surgical intervention depends from ethiological factors of AP. In case of biliary pancreatitis (214 patients) -cholecystectomy with necessary drainage of biliary ducts. In non-calculous cases we preferred cholecystostomy as a method of detoxication. In cases with mostly edematous, fatty pancreonecrosis, as well as acute accumulation of fluid in omental bursa and absence of stones we used less invasive procedures like laparoscopic drainage of abdominal cavity and omental sac-(55 patients), because infections of aseptic necrosis is the risk factor of possible future complications. In cases of purulent AP, primary and secondary, as well as non-boarded necroses with seqvestration we used omento-burso-pancreatostomy as a method of choice or laparostomy in cases of correlative peritonitis (100 patients). as a rule such patients has been hospitalized in late terms and severe conditions. We are propaganding omento-burso-pancreatostomy as a method for dynamic pancreatic revision, seqvestrectomy, prevention and treatment of arrosive bleeding.

Thus, the search of new scheme of conservative treatment, as well as versions of abdominal debridement and drainage is for improvement of treatment datas for such difficult severe patients.
ROLE OF PROINFLAMMATORY CYTOKINES IN THE COURSE OF NECROTISING PANCREATITIS

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Key words: necrotizing pancreatitis

Introduction. The aim of our study was to estimate the correlation between the level of proinflammatory cytokines (PCs) and the severity of necrotizing pancreatitis (NP).

Methods. The study included 112 patients with diagnosis of NP. IL-8, IL-6, IL-1β and TNF-α levels in serum and in the peritoneal fluid were determined.

Results. Levels of PCs in peritoneal fluid (near the inflammatory site) were significantly higher than the corresponding values in serum (p<0.01).

In patients with high levels of PCs in the blood serum, fluid accumulation in parapancreatic areas and in the abdominal cavity, as well as multiple organ failure, were more common.

At IL-1β values ≥12.0 pg/ml and TNF-α ≥20.0 pg/ml, we observed the most severe course of NP – with hyperleukocytosis, hyperthermia, marked signs of multiple organ failure and common necrosis in the pancreas and parapancreatic sites. Body temperature indices depended on the concentration of PCs in serum, primarily on the level of TNF-α (r=0.57, p<0.01). A direct correlation between the concentration of IL-8, IL-6, IL-1β and TNF-α and the number of neutrophils and lymphocytes (p<0.05) was found.

The direct correlation between the concentrations of all PCs and the values of the hematocrit number – IL-1β (r=0.92; p<0.001), IL-6 (r=0.49; p<0.05), IL-8 (r=0.62; p<0.001) and TNF-α (r=0.62; p<0.01).

Conclusion. PCs stimulate the development of hypovolemia and inflammatory reactions by deepening microcirculation disorders, which are a hallmark of early stages of severe NP.

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LAPAROSCOPIC PANCREATODUODENECTOMY: 260 CASES IN HIGH VOLUME CENTER

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Moscow Clinical Scientific Center named after A.S.Loginov

Background: Two hundred and fifty laparoscopic pancreatectoduodenectomies (LPDE) were performed by single surgical team. Total Clavien-Dindo IIIa-V complications rate was 31.8% (80 patients).

Objective is to assess the short-term and long-term outcomes of LPDE performed in patients with pancreatic head and periampullary area diseases and to reveal the risk factors for having the Clavien-
Methods: 250 patients underwent LPDE during last 10 years. Among 230 patients 138 were females and 112 were males. Mean age was 60 years (range 29-82). 216 patients were operated on because of malignancies and 34 because of benign diseases. Postoperative complications including pancreatic fistula (PF) and biliary leak (BL), delayed gastric emptying (DGE) and postpancreatectomy hemorrhage (PPH) were analyzed.

Results: Mean operative time was 412 (range 240-875) min and mean blood loss was 350 (range 10-2100)ml. The Postoperative course of 31.8% of patients was complicated by Clavien-Dindo IIIa-V complication. Among them IIIa – 21.9%, IIIb – 7%, IV – 0.45%, V – 5.6%. Clinically relevant postoperative pancreatic fistulas were diagnosed in total of 13.4% patients, among them 11% were classified as grade B POPF and 2.4 as grade C. The PF rate during the first 100 procedures was 21% and decreased to the 8.2% in last 150 procedures. Patients with ampullary carcinoma and distal cholangiocarcinoma more likely were in group of complicated patients: 28.9% and 22.7% versus 7.1% in patients with pancreatic cancer. The BL was diagnosed in 6 patients (2.4%) who was in group of the first 100 procedures. DGE was diagnosed in 7% of patients. Negative trend was revealed over the 250 procedures: the frequency decreased to 4.2% in last 150 procedures with slight modification of technique. PPH complicates the postoperative course of 11 patients (4.4%). Nine of them had concomitant PF.

Conclusion: Patients with ampullary carcinoma and distal cholangiocarcinoma are at risk to have PF. Rate of PF, BL and DGE rates are higher during the learning curve. PF is the risk factor for having the postoperative hemorrhage.

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PANCREATOGASTROANASTOMOSIS WITHOUT SUTURES

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Key words: Pancreatogastroanastomosis

Last 20 years testify new approaches in pancreas cancer treatment. Nowadays we already have a good experience in pancreas cancer surgery with post-surgery complications less than 5% compared to the data of 20-25% 30 years ago. There are many types of pancreatodigestive bypasses after pancreateoduodenectomy in literature but every case should be discussed individually before using any bypass with the pancreas. Pancreatogastroanastomosis became more popular during the last years. Many surgeons evaluate these results after using pancreatogastroanastomosis as more reliable. While the reconstruction of the biliary tract is quite standardized, entailing the anastomosis of the common bile duct to the jejunum and the reconstruction of the pancreatic stump is a subject of discussion.
2010 years different types of pancreatoenteroanastomosis were performed without any complications in our Surgery Department of Medical University. From 2010 five pancreatogastroanastomosis have been performed after Whipple procedures. We should use any surgical procedure to reconstruct pancreatic stump after pancreatoduodenectomy. We should mobilize pancreas stump (tail) for about 4 cm first; then on the posterior wall of the stomach we are doing a hole (with a diameter less than of a pancreas) inside and outside and around of the stomach hole we put circular sutures. After putting pancreatic stump in the stomach hole and tying sutures and the pancreatogastroanastomosis is performed. It is not necessary to put any other sutures between stomach and pancreas and therefore we call this type of bypass non-traumatic and without sutures. All cases of pancreatogastroanastomosis have been performed without any complications or leakages.

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LAPAROSCOPIC APPROACH TO THE TREATMENT OF PANCREATIC PATHOLOGY

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The pancreas has a complex anatomical location, which until recently forced surgeons to access this organ by a traditional open method. The introduction of the laparoscopic method into surgery has opened up new possibilities in the treatment of pancreatic pathologies, whether it is sanation and drainage of the omental bursa and abdominal cavity in acute pancreatitis, necrectomy in pancreatic necrosis, or operations in oncological pathologies.

We have experience of laparoscopic treatment of pancreatic pathologies, carried out since 2012. 48 sanation laparoscopies were performed in the department in patients with acute pancreatitis with or without concomitant cholelithiasis, 2 cases of conversion in pancreatitis with concomitant chole- and choledocholithiasis, 4 relaparoscopy with sequestrectomy, 5 cases of laparoscopic transgastric gastrocystoanastomosis in pancreatic pseudocysts, 1 case of laparoscopic distal resection of pancreas with splenectomy in 2016 because of the pseudopapillary tumor of the tail of pancreas measuring 6.6 × 5.4 cm, and two years later, a pancreato-duodenal resection for pancreatic head cancer was carried out - the patient was discharged to an outpatient treatment and dispensary observation in a satisfactory condition.

Activity of patients operated with laparoscopic method was restored sooner, and the duration of hospital stay was also reduced. Postoperative complications were not observed.

Thus, the laparoscopic technique of surgery allows for large-scale interventions on such a complex organ as the pancreas, inflicting minimal operational injury on the patient, reducing the length of stay in the hospital, restoring activity sooner and avoiding complications such as suppuration of postoperative wounds and the emergence of postoperative ventral hernia.
NEW TRENDS IN THE DIAGNOSIS OF CYSTIC PANCREATIC NEOPLASMS (CPNS): IS IT THE TIME OF ENDOSCOPIC ULTRASOUND (EUS) GUIDED NEEDLE-BASED TECHNIQUES?

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Cystic Pancreatic Neoplasms (CPNs) have been increasingly detected over the past two decades due to the widespread use of cross-sectional abdominal imaging. CPNs are often identified in asymptomatic individuals and their incidence increases with age. CPNs can be divided into mucinous and non mucinous. Non mucinous lesions consist of serous cystic neoplasms (SNCs) which are regarded as benign and don’t need any treatment, unless symptomatic and the uncommon Solid Pseudopapillary Neoplasms (SPNs), which are low malignant lesions. Mucinous lesions are considered precancerous. They are classified into Mucinous Cystic Neoplasm (MCNs) and Intraductal Papillary Mucinous Neoplasm (IPMNs) either Main Duct (MD), Branch Duct (BD) or mixed type. MD or mixed type IPMNs have a cumulative invasive malignancy rate of approximately 40% and up to 70% versus 15% of BD-IPMN [1]. Therefore, a preventive surgical resection is justified in MD IPMNs, but in case of BD-IPMNs should be considered only for the lesions really associated with high risk of malignancy.

In order to assist the management of MCNs and BD-IPMNs over the past decade several national and international guidelines have been developed, which are based on standard clinical assessment, radiographical imaging, and ancillary fluid studies. The International Consensus Guidelines (ICG) are probably the most reliable. They were drawn up in Sendai in 2006 by the International Association of Pancreatology at. A revised version of ICG (Fukuoka 2012) [2] takes into consideration “high risk stigmata”, which imply a surgical resection and “worrisome features”, that necessitated a further investigation by Endoscopic Ultrasound (EUS) and EUS-FNA. Unfortunately, these worrisome features demonstrated low positive predictive values in detecting high grade dysplasia or invasive carcinoma [14 in new guidelines]). Moreover, they cannot be adequately assessed by Magnetic Resonance Imaging (MRI), that is the most valuable noninvasive technique as well as by EUS. In addition, the ancillary evaluations on cyst fluid collected during EUS-FNA are unsatisfactory. CEA levels can be useful only to differentiate mucinous from non mucinous cysts, with a suboptimal sensitivity. Moreover the cytology has a poor sensitivity with a low diagnostic accuracy, ranging from 50 to 60%. Therefore it is evident that current diagnostic work-up should be improved. Several new tools are now emerging, which are based on EUS guided puncture of the cyst. These techniques include in particular Confocal Endomicroscopy (CLE) of the epithelial surface of the cyst and biotic sampling of the cystic wall with microforceps. Moreover additional molecular biomarkers on cystic fluid have been recently proposed.

Confocal laser endomicroscopy is a novel technology that provides real-time laser-assisted microscopic imaging of tissue, facilitating in vivo histopathology. The CLE probe can be inserted through a 19-gauge FNA needle for real time microscopic examination of the pancreatic cyst epithelium during EUS (needle-based CLE). Multiple clinical trials have identified and establish specific characteristic needle–based CLE (nCLE) findings of various pancreatic cystic lesions. Within of 29 pancreatic cystic lesions (16 mucinous
and 13 non-mucinous cysts the overall sensitivity, specificity, and accuracy of nCLE were respectively 95%, 94%, and 95% for the diagnosis of mucinous PCLs and 99%, 98%, and 98% for the diagnosis of Serorous Cystoadenoma (SCA) [3]. For IPMN and MCN, characteristic findings include finger-like papillae and a single or layers of band-like epithelium, respectively [4]. It has also been evaluated the ability of nCLE to differentiate the histologic subtypes of BD-IPMN but only the oncocytic subtype demonstrated distinct patterns [5].

Microforceps are single-use miniature biopsy forceps, 230 cm long, with an outer diameter <1 mm, that can be passed through a standard 19-gauge EUS needle. This allows histologic sampling of PCLs by obtaining biopsies of the cyst wall and/or mural nodules before the aspiration of cystic content for fluid analysis. The largest published series includes twenty-seven cases [6]. Microforceps biopsies diagnosed mucinous cyst in 9 patients (33.3%), serous cystadenoma in 4 (14.8%), neuroendocrine tumor in 1 (3.7%), and benign and/or inflammatory cyst in 10 (37.1%). In 7 patients (26%), microforceps biopsy results drastically changed the diagnosis, providing diagnoses otherwise not suggested by cytology or cyst fluid CEA levels. Certainly the use of microforceps can improve the diagnosis of various types of PCNs and the detection of dysplasia or invasive carcinoma because the sampling can be targeted on high risk areas like mural nodules, but focal areas of dysplasia can be missed.

Over the last decade, DNA-based molecular testing of cystic fluid has emerged as a potential diagnostic modality for the assessment of pancreatic cyst lesions. However results have been controversial, due to poor sensitive detection strategies (conventional Sanger sequencing). The use of next-generation sequencing (NGS) has revealed specific molecular markers that seem to be very reliable for the diagnosis of mucinous cysts as well as detection of advanced neoplasia. In a large prospective study recently published, 626 pancreatic cystic fluid specimens from 595 patients submitted to EUS-FNA, were assessed by targeted next-generation sequencing (NGS). On 102/595 patients with surgical follow-up, KRAS/GNAS mutations were detected in 56 (100%) IPMNs and 3 (30%) MCNs, and associated with 89% sensitivity and 100% specificity for a mucinous cystic lesion. The combination of KRAS/GNAS mutations and alterations in TP53/PIK3CA/PTEN had an 89% sensitivity and 100% specificity for advanced neoplasia. [7] More biomarkers suggesting malignancy in CPNs are now being investigated. Recently, some authors reported that circulating HE4 (Human epididymis protein 4) levels were higher in subjects with pancreatic adenocarcinoma than in the controls. We found high levels of this marker on cyst fluid and low serum HE4 values with a high fluid/serum ratio in a patient with a mucinous malignant lesion [8]. Although prospective multicenter studies are needed, it is foreseeable that the integration of the novel EUS guided needle-based technologies (CLE and microforceps) with molecular analysis on the cystic fluid collected by EUS-FNA will change the management, especially of BD-IPMNs allowing for more accurate risk stratification.
SURGEON EXPERIENCE OR ANNUAL VOLUME AS A DETERMINANT OF OUTCOMES AFTER PANCREATODUODENECTOMY IN A LOW RESOURCE SETTING

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Key words: pancreatoduodenectomy

Background: Surgeon experience and volume influence the outcomes of pancreatoduodenectomy (PD) in high-volume centers operating within a centralized health-care system. Yet the effect of these factors is less studied for low-volume centers and decentralized health care system. The aim of the study was to assess the impact of surgeon volume and experience on outcomes of PD in a low resource setting.

Methods: Single-surgeon experience in a low-volume hospital setting was examined. Patients undergoing PD for periampullary lesions from January 2000 to December 2017 were included. Patient demographics, clinical and perioperative data were analyzed. Surgeon experience with PD was considered sufficient when ≥ 50 procedures were performed, while >12 PDs per year was used as a cut-off to define annual volume.

Results: A total number of 115 patients underwent PD over the study period. Sufficient experience with PD was associated with an increase in the rate of pylorus-preserving procedures and with a decrease in median operative time (280 vs 300min, p=0.02) and blood loss (400 vs 500ml, p=0.03). Annual volume did not affect intraoperative parameters. In contrast, postoperative outcomes such as severe morbidity and length of hospital stay improved with high annual volume (5.3 vs 17.2%, p=0.04 and 12 vs 14 days, p=0.02, respectively). Relaparotomy rates declined with both high annual volume and sufficient experience.

Discussion: Surgeon experience with PD is associated with an improvement of intraoperative parameters, such as operative time and blood loss. It also affects the decision-making on the need for relaparotomy. High annual volume results in better postoperative results, as it is associated with a reduction in severe morbidity and length of hospital stay following PD.

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MODERN PRINCIPLES OF PANCREONECROSIS MANAGEMENT

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Key words: Pancreonecrosis

Acute pancreatitis is one of the most common diseases, despite the fact that the mortality from acute pancreatitis has decreased over time. Based on our research, we focused on the early treatment of acute pancreatitis, especially in pancreonecrosis. The main emphasis of acute pancreatitis treatment
was early aggressive intravenous hydration. Later antibiotics, diet, endoscopic, radiological, and surgical and other invasive methods were used. From laboratory parameters we preferred the determination of serum lipase, since serum lipase is more specific and lasts longer in the treatment of this disease. For the diagnosis of acute pancreatitis, all patients were examined by transabdominal ultrasound. Most episodes of acute mild pancreatitis require only short-term hospitalization. Patients whose condition did not improve on day 3-4 were examined on a CT with bolus contrast or MRI to identify local complications, such as pancreonecrosis. To distinguish between sterile and infected pancreonecrosis, under the control of ultrasound or CT directional fine needle aspiration was done. Since the prevention of infection with necrosis is important, we used intravenous antibiotics that have the ability to penetrate into the pancreatic tissue: carbapenem, quinolone, metronidazole and cephalosporin. Percutaneous or endoscopic necrosectomy is recommended if besides the treatment, the patient’s condition does not improve or clinically worsens. If infected necrosis does not resolve, the question is raised about a wider range of surgical intervention. Minimally-invasive approach to treatment of infected pancreonecrosis is preferable to open surgery. In comparison with sterile necrosis, patients with infected pancreonecrosis have a higher mortality rate.

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SOLID PSEUDOPAPILLARY NEOPLASM OF THE PANCREAS

Case report

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Abstract
Solid pseudopapillary neoplasm of pancreas (SPN) is a rare entity; therefore proper diagnosis, evaluation and treatment protocols is difficult. We are reporting a case of a female aged 30 years. The presenting symptom was abdominal pain and mass. She was investigated thoroughly and operated, recovery was smooth and follow up shows no complication.

Introduction
Solid pseudopapillary neoplasm of pancreas (SPN) is a rare entity. It is almost exclusively seen in females and occurs in the second or third decades of life. Due to the paucity of the number of cases seen, the natural history of the disease is not fully understood. There has been a steady increase in the number of diagnosed cases of SPN recently, with more than two-thirds of the total cases described in the last 10 years. This case report was undertaken to examine the clinico-pathological characteristics of the disease and to evaluate the outcome of surgical intervention.

Case report:
A 32-year-old Filipeno woman with no prior medical history presented with complaints of epigastric and left upper quadrant (RUQ) pain for the last 7 days. The pain had a sudden onset, with intermittent attacks; it was stabbing in nature and radiating to her back. It was not associated with nausea and vomiting. Review of systems was otherwise unremarkable. Her vital signs were stable. On physical examination, she was not icteric, her abdomen was soft, non-tender and nondistended.
There was a palpable mass, not tender, not mobile, and bowel sounds were audible. Laboratory data revealed aspartate transaminase (AST)-280 IU/L \( (n=15–41) \), alanine transaminase (ALT)-490 IU/L \( (n=14–54) \), alkaline phosphatase (ALP)-94 \( (n=33–116) \), total bilirubin-1.8 \( (n=0.2–1.5) \) with direct bilirubin-1.0 \( (n=0.1–0.5) \). Amylase, lipase and white blood cells (WBCs) were within normal limits. Abdominal ultrasound showed a heterogeneous, slightly echogenic and vascular ovoid mass, measuring 9 × 9.5 cm, situated at the tail of the pancreas. CT scan of the abdomen and pelvis revealed a similar mass in the tail of the pancreas, with slight dilatation of the pancreatic duct (PD) and common bile duct (CBD) Fine needle aspiration (FNA) was not possible due to patient refusal. Given the unusual appearance of the tumor, its growth and indeterminate pathology, as well as the symptoms, laparotomy was performed. The bulky mass \( (9\times9.5 \text{ cm}) \) was resected by means of a distal pancreatectomy and with out splenectomy. There was no liver metastases, no portal lymphadenopathy. The patient had an uneventful 9-day postoperative course. Histologic review of the lesion revealed a variegated, yellow tumor with hemorrhagic and necrotic areas admixed with solid areas. There was invasion into peripancreatic fat, the surgical margins were free. None of the nine lymph nodes recovered was positive for malignancy. Microscopic analysis revealed sheets of uniform polygonal cells with a pseudopapillary appearance and cholesterol crystals Immunohistochemistry was negative for chromogranin, but reactive for synaptophysin, CD56, and alpha-1-antitrypsin.

Discussion

This case illustrates many of the salient features of this rare tumor, which makes up <1% of all pancreatic neoplasms. Many reports have emerged over the last 25 years describing nearly 300 cases. However, despite generally consistent pathologic and clinical characterizations, some controversies remain.

The nomenclature of this pathologic entity is confusing and ranges from Frantz tumor to the recently favored papillary cystic neoplasm. We prefer the term solid pseudopapillary tumor of the pancreas for two reasons. First, cystic changes are not a ubiquitous feature, and instead usually occur in larger lesions secondary to ongstanding tumor necrosis. Secondly, the papillary appearance of the tumor is a result of cellular clustering around the microvasculature with more discohesive cells in the periphery, and is not due to the presence of true papillary stalks.

The precise cellular derivation of this tumor remains elusive, so routine immunohistochemical staining is not consistent in determining its phenotype. A variety of stain expressions have been described, representing neural, epithelial (ductal), and stromal (acinar) elements, but a general immunophenotype has emerged. These neoplastic cells regularly express vimentin, alpha-1-antitrypsin, and alpha-1-antichymotrypsin. Also, neuron specific enolase is usually faintly positive. The literature regarding the cellular differentiation of this tumor remains inconclusive. Arguments have been made that champion each of the three lineages described above. Given the inconsistent findings, an attractive hypothesis has been developed that these tumors originate from a ‘primordial’ pancreatic cell line.

However, there are no conclusive data to support this line of reasoning. The biologic behavior of solid pseudopapillary tumor is less aggressive than that of many other pancreatic tumors, and its prognosis is better. Surgical extirpation of the tumor will result in almost total survival (>95%) for those patients with tumors confined to the pancreas at presentation. Despite its potential for local infiltration, recurrence is rare following complete excision. Likewise, it is rare for metastases to develop metachronously. Metastatic disease is present in up to 15% of cases, usually synchronous and confined to the liver or peritoneum. Lymphatic disease is not a feature. Death ascribed directly to the tumor is rare, and long-term survival (years to decades) has been described with asymptomatic metastases. It was noticed that advanced age is a prognostic factor for development of metastatic disease. Although the paucity of such cases
precludes a definitive analysis of this concept, one series indicated that there was no age difference between metastatic and non-metastatic tumors, and furthermore their review of all metastatic cases in the literature revealed an average age of 29 years.8 These findings suggest that metastatic disease in this setting is not particularly aggressive, and therefore should be considered more readily for surgical removal when feasible. Our patient opted for this pro-active approach to her disease, with excellent short-term results.

**Conclusion:**

the patient bearing a solid-pseudopapillary tumor of the pancreas has a good prognosis if the tumor is removed completely, shows no histological evidence of malignancy and demonstrates a diploid population of tumor cells in DNA analysis.
NEGATIVE PRESSURE THERAPY IN URGENT SURGERY.

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Key words: abdominal sepsis

Introduction: Open abdomen is an alternative to the repeated laparotomy for severe abdominal sepsis associated with organ failure and infection.

Objectives: To explore if the concept of negative pressure wound therapy (NPWT) with yields superior control of underlying, life-threatening abdominal infections and its effects on the survival and morbidity in patients with severe abdominal sepsis when management with an open abdomen is required.

Methods: A retrospective of 89 patients with severe abdominal sepsis, managed with repeated laparotomy (52) and NPWT (37) were performed. NPWT was initiated utilizing the same parameters on all patients. We observed the effects on primary fascia closure rate, mortality, hospital and intensive care unit length of stay and associated complications. Our patient group that was managed with repeated laparotomy consisted of 20(38%) males and 32(62%) females. Average age was 53 years. Mortality in these patients was attributed to pulmonary embolism (n = 2), acute renal failure (n = 3) and cardiopulmonary arrest (n = 2). Average total hospital stay was 31 days. Our patient group that was managed with NPWT consisted of 20(54%) males and 17(46%).

Results: All patients presenting abdominal compartment syndrome resolved after initiation of the NPWT. A total of 31 patients (85%) achieved fascia closure after NPWT after an average of 7-10 days. Acute complication related to the NPWT was fistula formation in two cases (5,4%). One patient (2,7%) died during the course of treatment of the causes unrelated to NPWT.

Conclusion: NPWT showed added benefits when compared to traditional methods such as repeated laparotomies in the management of the open abdomen pertaining to severe abdominal sepsis. Enteroatmospheric fistulas is a severe complication of NPWT.

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THE CAUSES OF IATROGENIC LESIONS DURING LAPAROSCOPIC
CHOLESCYSTECTOMY

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The method of surgical treatment of calculose cholecystitis by laparoscopy is been accepted as golden standard of treatment. During this operation, iatrogenic lesions of extra hepatic biliary tract have occurred in 0-2,7% of cases. The trend of decreasing of this indicator has not been observed in recent years.

The reasons for iatrogenic damage are different and can be presented in following categories:

Surgeon’s qualification. According to experience, surgeons are divided into three categories: the first category of surgeons with up to 50 surgeries. They have 55% of complications. The surgeon, who has had 50 to 100 surgeries, has 23-33% of complications. The third category of surgeons who have performed more than 100 surgeries have 1,2-10% of iatrogenic complications.

The second group of reasons is a deformity of anatomical structures developed as a result of infiltrative-adhesive process in sub hepatic area, which may cause dislocation of anatomical structures located in Kalo triangle.

The third group of reasons is the anomalies of biliary tract and blood vessels. For this purpose 5 levels are considered: 1. the level of liver ducts; 2. The level of common hepatic ducts; 3. The level of gallbladder and its duct; 4. level of CBD; Possible anomalies: 1. Long cystic duct (7.5% of cases); 2. Short cystic duct (6,7%); 3. Cystic duct joins right hepatic duct (1,2%); 4. Additional liver duct (0,3%); 5.Lushka duct (0,6%); 7. Bile duct cysts (0,6%); 8. Gallbladder agenesia (0,08%); 8. Gallbladder is located in the left liver (0,08%).

We should remember that any experienced surgeon may be under the danger performing non-complicated easy laparoscopic cholecystectomy. In the case of non-standard anatomy in Kalo’s triangle or hepato-duodenal ligament special caution is necessary to use the so-called “critical viewpoint” technique - minimal traction and non-coagulation before identifying anatomical structures. And if such suspicion remains, then it is better to have a timely transition to an open method that does not indicate the low qualification of the surgeon

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The aim of our work is to discuss the structure of postoperative complications of planned and urgent surgical treatment of patients admitted the department of general and thoracic surgery during 2013-2017.

**Study Material:** The study material are patients admitted the general and thoracic surgery clinic of Erebouni Medical Center per 2013-2017 who were treated both operatively and conservatively. In the research the conscripts were not included 1-2 days of controlled patients, patients undergoing plastic-aesthetic, minor thoracic surgery, endoscopic papillosphincterotomy. The study is retrospective and descriptive.

**Research Results and Discussion:** In 2013-2017 12233 patients were admitted to the general and thoracic surgical department of Erebuni Medical Center, of whom 8779 were in general surgery and 3454 - thoracic. 287 patients were operated in planned indications with pulmonary pathology, and 912 patients were undergone of drainage of pleural cavity, 2255 patients were treated and controlled conservatively. Out of 8779 admitted general surgical patients 6163 (70.2%) were operated. The structure of surgical pathologies was as follows: cholecystitis - 16.9%, biliary hypertension - 4.88%, accompanying pancreatitis - 1.8%, hernioplastics – 17.4%, appendectomy - 12.4%, minor proctologic surgeries - 2.9%, bowel obstruction - 7.66%, stomach surgeries - 5.8%, pulmonary lesions - 4.65%, other surgeries – 25.6%. 2518 (40.8%) patients were operated in urgent indications. The overall mortality was 2.45% (151), among urgent surgeries were the most prevalent- 149 cases (5.9%, vs 0.16% planned).

Total mortality was assessed in three age groups - up to 50 years-18 patients (11.9%), 51-70 years-55 patients (36.4%), 71 and elder-78 patients (51.6%). Death was also discussed in the structure of specific surgical pathology. So; perforated ulcer -11.9%, bleeding ulcer – 15.5%, adhesive bowel obstruction without intestinal resection – 5.3% with intestinal resection – 19.6%, oncological obstruction – 20.2%, mesenterial thrombosis – 62.7%, appendicitis – 0.26%, strangulated hernias – 20.7%, planned hernectomy – 0.12%, cholecystectomy – 0.86%, cholecystectomy with drainage of bile ducts – 5.3%, pancreatitis – 16.2%, other pathologies (peritonitis, transported patients from other clinics, flegmons, abscesses, palliative surgeries, etc.) - 26 patients. The most common cause of death in the structure of death is the continuing intoxication associated with the major illness and connected multiple organ filure - 123 (81.5%) patients, among 95 cases during the first 5-7 days. Of the cases, 13 (8.6%) have been contracted with broken stitches. In other cases, the causes were varied - thromboembolism, infarction, thrombosis, infections and other complications.

There is no any features revealed in postoperative complications discussion; wound complications were 0.36%, pulmonary and thromboembolic complications - 1.23%, evisceration - 0.1%, ongoing peritonitis - 0.68%, other cardiovascular complications - 3.44%; Repeated surgeries were performed 125 (2%) in 79 patients.

**Conclusions:**

1. Complications and mortality certainly are rising sharply in urgent pathologies.
2. The major part of the causes of deaths is related to the impossibility of main illness compensation,
with the condition of contracted severity, late admission, age of patients, accompanying cardiovascular and other pathologies.

3. It is important to focus on those pathologies which are frequent leads to death-bowel obstructions.

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THE USE OF ULTRASOUND EVALUATION OF INTESTINAL PERISTALSIS WITH ADDITIONAL DUPLEX-DOPPLER IMAGING FOR POSTOPERATIVE MONITORING OF PATIENTS AND EARLY DETECTION OF SOME INTRA-ABDOMINAL COMPLICATIONS

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INTRODUCTION: The prognosis and outcome of patients with serious postoperative complications such as peritonitis and bowel obstruction is directly related to early diagnosis and stringent treatment interventions. Current criteria for performing re-laparotomy in complicated clinical cases are non-explicit and are almost based on non-quantitative, subjective arguments, surgeons experience or hospital doctrines. The evaluation of intestinal peristalsis disorders along with other clinical data has its important role for further treatment strategy for that kind of postoperative complications. Recently, ultrasonography has become an important diagnostic meaning in postoperative abdominal complications for its well known advantages. The aim of this study was to determine the role of intestinal ultrasound and doppler examination and to determine the basic imaging criterias for intestinal peristalsis disorders in some abdominal postoperative complications.

MATERIAL AND METHODS: We studied a total number of 37 patients (age range: 18-60 years). An ultrasound scan of the patients was performed using Toshiba-aplio 400 scanner with a 3.75 MHz convection sensor for abdominal and vascular examinations. In the control group we examined 15 volounteers who had no abdominal pathology, and they were passing preventive examinations. Among the other examined 13 were operated patients with gastrointestinal surgical pathology, without complicated postoperative course. Nine examined patients had postoperative complications and subsequently underwent re-laparotomy, the final diagnosis was established during surgery. The clinical and intra-operative findings of patients underwent re-laparotomy suggested a diagnosis of acute intestinal obstruction in 2 patients and peritonitis in 7 patients.

RESULTS: In examined 15 healthy subjects the intestinal loops contained a moderate amount of gas, fecal mass, no swelling and extension of the loops was found. The intestinal wall was visualized in the form of a two-layer structure, an external hypoechoic layer (muscle tissue) and an internal hyperechoic
layer (mucous membrane in contact with the gas in the intestine) was determined. Peristalsis was usually defined in the small intestine in the form of characteristic moving echostructures. Peristaltic contractions were recorded in the form of multi-colored flickering in color duplex studies and also in the form of doppler signals of intestinal wall contraction. The peristaltic wave had a high amplitude and a frequency above 1 kHz, the signal duration was approximately 2-6s. Among operated patients without complicated postoperative course the recovery of normal intestinal peristalsis was observed 3-5 days after surgery. Postoperative intestinal paresis with ultrasound examination was presented in the form of weak intestinal wall contractions. Intestinal loops contained a moderate amount of gas and liquid and strongly marked swelling was absent. In group of patients with developing distributed peritonitis, intestinal loops were markedly inflated with gas and intestinal contents, slight pendulum movement of intestinal contents was observed. There was no contractions of the intestinal wall in the regime of color duplex scanning. We only detected monochrome signal interference associated with the patient’s respiratory movements and gas content in the intestine. Ultrasound examination of patients with developing mechanical intestinal obstruction revealed a marked swelling of intestinal loops with liquid content, an intense pendulum movements. Reinforced intestinal peristalsis at the sites proximal to the site of obstruction was detected, in the form of multi-colored flickering, and high amplitude doppler waves.

**CONCLUSION:** Our data sugestes that ultrasound examination of intestinal peristalsis with additional Duplex-Doppler imaging may have its important impact for early evaluation of some intraabdominal complications. It provided both qualitative and quantitative data about intestinal peristalsis, allowing differentiation between mechanical and paralytic ileus. The visualization of intestinal segments having different degrees of peristaltic activity proved useful in localizing the site of mechanical obstruction.

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**PURULENT-SEPTIC COMPLICATIONS AFTER URGENT SURGERY IN THE ABDOMINAL CAVITY**

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The results of treatment of patients with early relaparotomy for postoperative complications over a 15-year period were analyzed and studied.

Purulent-septic processes of the abdominal cavity were the most common cause of relaparotomy, they accounted for 54.3% of the total number of relaparotomies and, in the first place was diffuse peritonitis (DP) - in 218 cases. The severity of the postoperative course after repeated interventions on the abdominal organs was due to the development of organ failure related to syndrome of endogenous intoxication (SEI). In 131 patients, one (50 patients) and more (81) organs and systems failure developed. To investigate the peculiarities of the development of ESI during the DP, a complex morphological, biochemical and
bacteriological examinations of 54 patients was performed, in which during the relaparotomy small bowel resection or stoma formation was required. Morphological examination of macroscopically unchanged areas of the intestine revealed severe structural dystrophic-degenerative changes, deep disturbances of the microcirculation system with development of edema in all layers of the intestine, development of local thrombohemorrhagic syndrome.

Bacteriological study of various environments of organism (peripheral blood, peritoneal exudate, intestinal and stomach contents in dynamics) revealed that the observed changes correspond to the 4 degrees of disturbance of the microbiological ecosystem of the intestine and the phase of septicemia of abdominal sepsis. A 100% compliance of the microflora of intestinal contents with the spectrum of revealed pathogens from peripheral blood has been established.

Assessment of lipid peroxidation activity in the organism’s environment in dynamics, indicated the presence of hard to correlate oxidative stress in these patients.

For prognostic assessment of the patients’ condition, in addition to the usual clinical studies, the level of intra-abdominal pressure, the presence of bacteremia, the severity of paresis of the gastrointestinal tract, the presence of organ failure were taken into account. Correction of cardio-respiratory, circulatory disorders, water-electrolyte homeostasis disorders, prolonged ventilation, rational antibiotic therapy, selective decontamination of the intestine, are a prerequisite for the treatment of patients with the syndrome of endogenous intoxication in postoperative peritonitis.

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ANALYSIS OF THE CAUSES OF RELAPAROTOMY AFTER ABDOMINAL SURGERY

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Our study is based on the data of 15930 patients who underwent abdominal operations in the clinic during fifteen years. Emergency repeated interventions were required to perform in 464 patients. They accounted for 2.9% of the total number of performed operations and their mortality was 21.1% (98 patients). Multiple relaparotomies were performed in 72 patients, and their mortality increased to 33.3%. 61.6% of relaparotomies were performed after urgent operations, and 38.4% after planned interventions. The most frequent cause of repeated interventions was purulent-septic processes of the abdominal cavity, they accounted for 54.3% of the total number of relaparotomies and, in the first place was diffuse peritonitis - in 218 cases. In 34 patients early relaparotomies were performed due to intra-abdominal abscesses (subhepatic, pericecal, interintestinal, subdiaphragmatic and pelvic). More often observed subhepatic (in 12 patients) and interintestinal (in 8 patients) abscesses. The second most frequent cause of relaparotomy was postoperative bleeding. The source of bleeding in 69.7% of patients was located inside the abdominal cavity, and in 30.3% - in the lumen of the digestive tract. The causes
of bleeding were: inadequate vascular ligation - 61.8%, hypocoagulation due to hyperbilirubinemia and DIC syndrome - 19.6%, iatrogenic damage - 11.3%, and in 7.3% of patients the source of bleeding was not established. Early postoperative bowel obstruction was the third common cause of relaparotomy (23.8%). Adhesive intestinal obstruction was observed in 49 patients, in 11 patients was observed dynamic obstruction refractory to conservative treatment. The development of complications such as thrombosis of mesenteric vessels with intestinal necrosis and postoperative pancreatitis was observed in patients with severe concomitant somatic pathology (atrial fibrillation, cirrhosis, chronic renal failure, etc.). The later the relaparotomy was performed after the onset of complications, and the longer the conservative measures were used against the developing complication, the higher was the mortality rate. Thus, at operations after 48 hours the lethality increased to 37.8%. Proceeding from the above, it is possible to draw the following conclusions: the data of instrumental and laboratory methods of investigation, the presence of a “syndrome of inadequate course of the postoperative period,” an abnormal increase in intra-abdominal pressure - are almost “absolute” indications for emergency relaparotomy, which should be performed by another experienced surgeon, because mortality rate in this case is lower statistically.

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THORACOSCOPY AS A MINIMALLY INVASIVE TREATMENT METHOD OF ESOPHAGEAL ATRESIA

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Key words: esophageal atresia, thoracoscopy, children

Introduction: Esophageal atresia is a congenital anomaly that presents by absence of the middle part of the esophagus and is combined with tracheoesophageal fistula in most of the cases. This disease requires operative treatment in neonatal period. During the last decades according to the development of the medical technologies and treatment this pathology is not considered lethal anymore. A surgical procedure for correction of the anomaly required a right sided thoracotomy approach in most of the cases. Nowadays development of endoscopic surgery due to creation of smaller instruments and better anesthesia technique is possible in neonates. The aim of this study is to show the feasibility and effectiveness of the thoracoscopic treatment of esophageal atresia.

Materials and Methods: since 2017 to 2018, 10 patients with esophageal atresia were treated. There were 7 boys and 3 girls with mean gestational age of 35 ±3 weeks and birth weight of 2800 ± 700 grams. During the evaluation chest X-Ray, abdominal, neuro and cardiac ultrasound was done in all infants. Laboratory studies included all the standard blood and urine exams done in thoracic surgical procedures. Anesthesia was combined with high epidural anesthesia and continuous intravenous norepinephrine was used. All the patients were operated thoracoscopically using a three port technique. After the dissection of the distal part of the esophagus, trachea was sutured with 4.0 polypropylene suture. Two segments were sutured by 5.0 or 6.0 polydioxanone suture, placing 4-6 stitches. A 10-12 Fr drain placed in all cases.

Results: There was no major complication during surgery. Mean operating time was 90 ±18 minutes. Feeding by a nasogastric tube started on the 4th postoperative day. On the 7th postoperative day water soluble contrast medium was given orally under fluoroscopic control and no leakage found. Oral feedings started after the fluoroscopic study showed no leaks. One baby died on the 28th postoperative day because of necrotic enterocolitis. Mean hospital stay was 23 ± 7 days.

Conclusions: Thoracoscopy is minimally invasive, safe, and feasible procedure, for correction of esophageal atresia. Due to small series of patients further studies are required to completely understand the complications rate and long term results in this category of patients.

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THORACOSCOPIC REMOVAL OF MEDIASTINAL MASSES IN CHILDREN

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Key words: mediastinal masses, thoracoscopy, children

Introduction: Mediastinal masses are not a frequent condition in children. Depending on the location they present as congenital anomalies of the chest organs as ganglioneuromas, teratomas, duplication cysts, extralobar sequestrations etc. Historically all cases of mediastinal masses required a thoracotomy approach. During the last two decades thoracoscopic treatment (removal or biopsy) of mediastinal masses in children is considered a feasible and effective method, which is less traumatic, and more precise. The aim of this study is to show the feasibility and effectiveness of the thoracoscopic treatment of mediastinal masses in children.

Materials and Methods: since 2010 to 2018, 26 patients with mediastinal masses were treated. There were 19 boys and 7 girls. Ages ranged from 20 days old to 16 years. During the evaluation chest X-Ray, ultrasound, CT scan and MRI were used. Laboratory studies included all the standard blood and urine exams done in thoracic surgical procedures. In cases when the mass was located anteriorly, and a teratoma was suspected, alfa-fetoprotein level was determined. When the tumor suspected to be malignant diagnostic markers were done. All the patients were examined by a pediatric oncologist, and indications for tumor removal or biopsy discussed during the tumor board and hospital surgical team meeting.

All the patients were operated thoracoscopically using a three port technique. Tumor dissection was done using monopolar and bipolar cutting and sealing devices. Vessels were clipped using Hem-o-lok (Teleflex, USA) non absorbable polymer clips. Masses were removed in endoscopic retrieval bags. Chest drain placed in all cases.

Results: In 6 (23%) patients only tumor biopsy was done which revealed Ewing sarcoma in 2 cases, neuroblastoma in 2 cases, mediastinal lymphoma 3 cases and myofibroblastic tumor 1 case. In one of the neuroblastoma cases child had also opsoclonus-myoclonus-ataxia syndrome, and the tumor was completely removed, by the oncologist’s indication. One of the Ewing’s sarcoma cases required a minithoracotomy for proper biopsy, due to absence of space in the left chest cavity, because of the tumor size. Tumor completely removed in 20 cases. No major bleeding occurred. Conversion to open procedure was done in 1 case. Mean hospital stay was 4 days. Chest drain removed on postop day 2 in all cases. 1 patient underwent a redo thoracoscopic procedure because of pleural empyema. One patient operated for a tracheal duplication cyst in infancy, developed and intraluminal cyst, revealed by a control CT scan 6 months after surgery, which was punctured, emptied and fenestrated bronchoscopically. In two patients combined (thoracoscopic and cervical) approach was used for removal of the cervical part of the mass (bronchogenic cyst of the thymus and a lymphangioma). Two patients underwent thymectomy due to huge tumor size and total involvement of the organ. One patient underwent thoracoscopic and laparoscopic approach for a thoraco-abdominal duplication cyst removal (esophagus and stomach).

Conclusions: Thoracoscopy is minimally invasive, safe, and feasible procedure, which gives a chance of precise and complete tumor removal in most of the cases with a very low complications rate. It has excellent cosmetic results and may be considered a procedure of choice for mediastinal masses treatment in pediatric population.

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Surgical management of lung metastasis is a fundamental part of multimodal therapy of the solid tumors. Lung metastasis most frequently originate from renal and urinary cancer, colorectal cancer, testicular cancer, head and neck cancers, sarcomas.

We present a retrospective study on our patient population which were repeatedly resected for lung metastasis from 2011 till 2017. Our own experiences and results are further extended by literary information.

Surgical resection was performed in 19 patients. 14 patients had bilateral lung affliction. In this study population two to five surgeries were performed on average for one lung. The most frequent primary tumor was sarcoma.

Following conditions must be met to indicate a patient for resection of lung metastasis: radical resection of the primary tumor without local recurrence, no other distant metastasis not eligible for surgical treatment, lung metastasis can be surgically removed according to preoperative imagining (CT scan, bronchoscopy), patient ca sustain surgical intervention (spirometry, cardiology examination, etc.) Resection of recurrent lung metastasis must be evaluated by the multidisciplinary board with view to the above stated criteria. Surgical approach includes thoracotomy. Repeated surgical intervention is often more difficult due to adhesions but perioperative mortality and morbidity rates are the same according to literature. The most frequent complications include atelectasis, pneumonia, prolonged air-leak, arrhythmias, bleeding, insufficiency of the bronchial stem and wound infection. The best prognosis according to literature are presented in sarcomas and testicular cancer.

Conclusion:
R0 resection of lung metastasis extends the disease free interval as well as survival rate.

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Our experience in transsternal, transpericardial and contralateral reamputation of bronchial stump in connection with bronchopleural fistula after pneumonectomy


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Bronchopleural fistula (BPF) remains one of the most life-threatening complications of pneumonectomy. According to the reference data, the frequency of BPF occurrences is from 0 to 20%, with only from 0 to 6% of pneumonectomies for lung cancer, as the recent data show. The principles of BPF treatment are not univocal and require further study. Our goal is to present our experience of a surgical treatment of BPF by transsternal, transpericardial and contralateral reamputation of bronchial stump.

Material and Methods

From 1988 to 2017, 1234 cases of pneumonectomy were performed in the Department. BPF developed in 142 cases (11.5%). BPF developed in 15.7% of 737 pneumonectomies carried out up to 2009, which was conditioned by a large number of patients with tuberculosis and destroyed lung. After 2010, 95% of pneumonectomies were done for cancer; the BPF frequency was 5%. Urgent drainage of the pleural cavity was performed after BPF occurred and was diagnosed. 33 patients underwent rethoracostomy, reamputation or resuturing of bronchial stump. 13 patients (39.3%) suffered a BPF relapse. Since 1997, the treatment tactics has been as follows: urgent drainage of the pleural cavity and “open window” thoracostomy as soon as possible. When the fistula did not close by “open window” thoracostomy, 30 cases of transsternal, transpericardial reamputation of bronchial stump were performed for the right-side BPF, and 14 cases of contralateral reamputation for the left-side BPF.

Results

Thirty transsternal transpericardial reamputations of the right main bronchial stump were carried out in standard surgical techniques. The length of the stump does not play any role, because it is incised from the trachea, and the trachea wall is sutured. Only hand suturing was done, mainly by 3-0 and 4-0 polyglactine interrupted sutures. In the initial period, trachea was buttressed with the pericard, but after two relapses, omentoplasty began to be used (19 cases).

In recent years, the tymus has been used together with the surrounding fat, which significantly shortens the duration of the operation. Only one patient out of twenty-five had a BPF relapse (trachea wall necrosis due to unknown reason). Four patients died (13.3%). The reasons were purulent pericarditis – 1, gastrointestinal bleeding -1, acute cardiac insufficiency -2. Contralateral reamputation was performed in 14 cases. The left main bronchial stump is longer; in two cases, mechanical suture was used, a relapse occurred in one case; in other cases, interrupted sutures of 3.0 – 4.0 polyglactine were applied. The stump was not buttressed. One patient (7%) died of lung oedema.

Conclusions

An effective method of BPF surgical treatment after pneumonectomy is the transsternal, transpericardial reamputation in the case of right-side BPF, and contralateral reamputation in the case of left-side BPF. It is advisable to use tymus with mediastinal fat to buttress the wall of trachea for the right-side BPF. According
to us, there is no need to buttress the stump after contralateral reamputation, owing to the presence of a lung. To achieve good results, accurate selection of patients is important to avoid postoperative nonsurgical complications.

**SURGERY FOR BILATERAL CAVITARY PULMONARY TUBERCULOSIS**

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**THE AIM:** to determine the place and the possibility of surgery in the treatment of bilateral cavitary pulmonary tuberculosis.

**MATERIALS AND METHODS:** The results of examination and complex treatment of 128 patients (41/77.4% males) with bilateral cavitary pulmonary tuberculosis were investigated from August 2012 to August 2017. All patients had cavitary tuberculosis with the presence of lung destruction on both sides. The majority of patients had multiple (36.2%) and extensively (44.6%) drug resistance of MTB. 43 (81.1%) patients had a complicated course of tuberculosis, including respiratory failure (41%) and pulmonary hemorrhage (13.3%). All patients were undergoing before surgery the standard complex of examinations and also computed tomography of the chest, fibrobronchoscopy, echocardiography, PFT (including DLCO), perfusion lung scintigraphy.

**RESULTS:** 198 operations were performed. Surgical treatment was carried out consistently in two, or even several steps. In all patients, surgical methods of treatment were used in combination with complex chemotherapy, under the supervision of a TB specialist, with individual selection of the regimen according to DST of MTB and patient’s tolerability to chemotherapy. The choice of surgical approach was based on the prevalence of the TB lesion and the severity of the patients’ condition. In the retrospective analysis of the results of treatment, patients were divided into 3 groups. The first group included patients with localized bilateral TB lesions, when radical pulmonary resection was possible. In the second group included patients with totally destroyed of one lung with a localized lesion (not more than 3 segments) of another lung. The third group included patients with subtotal bilateral cavitary pulmonary tuberculosis.

In the first group, surgical treatment began with a pulmonary resection on the most affected side. After that pulmonary resection or endobronchial valving was performed on the another side. In this group, 38 (29.8%) patients were operated. In the second group, surgical treatment started with endobronchial valving on the side with localized lesion. The second step was pneumonectomy on the contralateral side. Further, in the absence of endobronchial valving treatment effect, the third stage of surgical treatment was performed - extrapleural thoracoplasty. All 45 (35.1%) of these patients were operated. In the third group, in 45 (35.1%) patients due to bilateral subtotal cavitary TB, pulmonary resection was not possible. These patients underwent stage-by-stage palliative collapse surgical interventions in various combinations.

Complications were observed in 9 patients (7%). Two patients had bronchopleural fistula, four patients had prolonged air leak and two patients after extrapleural thoracoplasty had acute respiratory failure. The results of treatment in all patients were a persistent clinical improvement, clinical stabilization, or
improvement of the radiological picture with a reduction in size or closure of cavities. To the discharge from the hospital, bacterial excretion in sputum smears was detected in only 40 patients (3 patients in Group 2 (7%), 37 (82%) in patients of Group 3). In the first group, all patients had conversion of sputum smears in the hospital. The average length of stay in hospital was 57, 2 days.

CONCLUSIONS: In the majority of patients with bilateral cavitary pulmonary tuberculosis, operative treatment is possible, tolerable, safe and expedient, since it makes it possible to achieve stabilization of the TB process with closure of the cavity and conversion of sputum smears. This allows to rehabilitate patients in a shorter period. However, the performance of surgery in these patients can present significant difficulties and requires an individual approach. In this connection, such types of surgery should be carried out only in expert surgical centers.

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SURGICAL TREATMENT OF PLEURAL EMPYEMA BY THORACOSCOPIC
TECHNIQUE


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Key words: pleural empyema, thoracoscopy, empyema thoracis, children,

Introduction: Pleural empyema is one of the most severe complications caused by bacterial pneumonia, which leads to pus or fibrin formation in the pleural cavity. The most frequent bacteria causing pleural empyema is Streptococcus pneumoniae, other frequent ones are Mycoplasma pneumoniae and Stafilococcus aureus and according to literature it is seen in 3,7 % of all community accuired pneumonias. One of every 150 child hospitalized for community accuired pneumonia develops this complication. Lately empyema became a rare condition, but this disease still has its important role in pediatric population.

The aim of this study is to show the feasibility and effectiveness of the thoracoscopic procedures in patients with pleural empyema

Materials and Methods: since 2005 to 2018, 87 patients with a diagnosis of pleural empyema were treated. There were 51 boys and 36 girls. Ages ranged from 10 months to 17 years. Chest X-Ray and ultrasound were used for patient evaluation. Labarotory studies included all the standart blood work done for thoracic surgical patients. CT scan was used when less invasive methods were not informative and for surgery planning. In case of a thoracocentesis or a chest tube placement, evacuated exudate sent for cultures.

Results: All the patients were operated thoracoscopically using a two port technique. Pleural cavity debridement alone done in most of the cases. 13 patients (13,7 %) underwent partial decortication, because of severe adhesive process and impossible visualization of lung parenchyma.
Mean operative time was 75 minutes. No major bleeding or organ damage occurred. No lung resection or lobectomy was done during the first intervention. No conversion to open procedure was done. All patients placed on vacuum aspiration for 1 day after surgery. Mean hospital stay was 6.5 days following procedure. Drain removed on postop day two, except 9 (10.3%) patients that underwent redo surgery, due to failed medical treatment, continuous purulent process, persistent fistula or atelectasis. Second surgery in 6 patients included adhesiolysis and drain placement. In 6 (6.9%) patients lobectomy was done. 1 (1.1%) patient underwent pneumonectomy, after failed medical treatment and left upper lobectomy.

Conclusions: In patients with failed medical treatment, thoracoscopic debridement is a procedure of choice. Thoracoscopic procedure is minimally invasive, safe, feasible, cost effective, reduces the hospital stay in patients with pleural empyema, has excellent cosmetic results and may be considered a gold standard for treatment of pleural empyema in children.

THE ARMENIAN EXPERIENCE OF SEGMENTAL TRACHEAL RESECTION FOR POST-INTUBATION TRACHEAL STENOSIS


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Objectives

The tracheal post-intubation and post-tracheostomy stenosis remains the most common indication for tracheal resection and reconstruction. Our goal is to present the experience and conclusions of surgical treatment of tracheal post-intubation and post-tracheostomy stenosis.

Materials and Methods

From 1996 to 2017 including, out of 141 cases, one hundred patients underwent an operation for post-intubation stenosis, 15 for post-tracheostomy stenosis and 26 for combined stenosis. Two patients with double stenosis (post-tracheostomy and post-intubation stenoses of different levels) and four patients for tracheoesophageal fistulas. The average age of the patients was 37 (11-72), men comprising 72%. The average length of the stenotic segment was 3.3 cm (1-8 cm), and the average duration of translaryngeal intubation was 16 days.

Results

141 patients were operated on, three of which were twice operated for stenosis relapse, and two patients with double stenosis were operated in two stages, i.e. 146 surgeries were performed. 137 patients underwent collotomy: two patients underwent thoracotomy for stenosis just above tracheal bifurcation; in four cases, collotomy and thoracotomy were performed for additional tracheal mobilization, and there were three cases of additional upper partial sternotomy. Four wedge resections were performed for post-tracheostomy stenosis, one tracheal resection and end tracheostomy (8 cm stenosis). Segmental resections with trachea-to-trachea anastomosis were performed in 84 cases. 51 tracheal-cricoid anastomoses were performed for the upper tracheal stenosis, and six tracheal-thyroid anastomoses were performed for subglottic stenoses. 36 trachea-to-trachea anastomosis were performed by “telescopic” techniques due to mismatching of the ends. The average length of the resected segment was 3.5 cm. Starting from 2016,
at trachea-to-trachea anastomosis, the membranous part was mainly sutured by running sutures, and the cartilage part by interrupted sutures chiefly with polyglactine 3-0 and 4-0. At double stenoses, the tracheostomy stenosis and the tracheal defect were first resected, and three weeks later, the post-intubation stenosis was resected.

Twelve patients had concurrent tracheostomy (in case of tension anastomosis). Three patients had stenosis relapse and underwent a second operation with good results. Three patients died in the post-operative period due to non-surgical reasons.

**Conclusions**

The segmental resection of trachea with an end-to-end anastomosis remains the best treatment for tracheal post-intubation and post-tracheostomy stenoses. At trachea-to-trachea anastomoses, the “telescopic” anastomosis does not influence the results. Concurrent tracheostomy provides an uneventful post-operative course for “tension” anastomoses. In the cases of double stenoses, it is advisable first to resect the tracheostomy stenosis and the trachea defect, and then, the post-intubation stenosis, at the second stage.

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SURGICAL TREATMENT OF PULMONARY COMPLICATIONS OF INFLUENZA A (H1N1) INFECTION IN TWO PATIENTS.

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**Introduction.**

The manifestations in patients with H1N1 infection range from mild respiratory illness to fulminant pneumonia. The main cause of hospitalization of patients is diffuse viral pneumonia resulting in severe hypoxemia or ARDS. The most frequent histopathological findings are diffuse alveolar damage, hyalinization, septal edema and necrotizing bronchiolitis.

**Material and methods.**

Two patients were admitted to the Intensive Care Unit of “Armenia” RMC with acute respiratory failure and were later diagnosed with H1N1 viral pneumonia. Antiviral and intensive treatment was conducted but they developed pulmonary complications, and surgical treatment was initiated.

**Case 1:** A 29-year-old female patient presented with cough, fatigue, fever, severe thoracic pain and was diagnosed with bilateral pneumonia. Dense infiltrate in upper lobes, bronchial tree distortion and hydrothorax were revealed. Conservative therapy was administered. Thoracentesis and pleural cavity drainage were performed. As the patient’s condition started to deteriorate, chest CT-scan was performed revealing gangrene of the lower lobe. Therefore, lower lobectomy with decortication of the upper lobe and partial pleurectomy were performed.

**Case 2:** A 46 years old male patient presented with fatigue, dyspnea, productive cough, fever and
was diagnosed with bilateral diffuse bronchopneumonia. The patient underwent conservative therapy and thoracentesis to prevent lung collapse. CT of lungs revealed hydro pneumothorax. Surgical intervention was applied, which revealed ruptured abscesses of the middle and lower lobes into the pleural cavity. Decortication, atypical resection of lower and middle lobes, partial pleurectomy, and drainage of pleural cavity were performed.

**Results.** Both patients received complex treatment: intensive therapy and surgery. After on their condition was improved and patients were discharged from the hospital.

**Conclusions.** It is important to increase the awareness among the medical professionals about the surgical complications of H1N1 infection and high efficacy of surgical management.

**PARASTERNAL TRANSPLEURAL BIOPSY OF THE MEDIASTINUM**


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Parasternal mediastinotomy (anterior mediastinotomy in English references) is the most sensitive method of a biopsy of neoplasms and lymph nodes of the anterior and middle mediastinum. For instance, the sensitivity for parasternal mediastinotomy of lymphomas of anterior mediastinum is 96% versus 78% for neck mediastinoscopy, and the sensitivity of needle biopsy is 50%. According to our experience, classical surgical techniques of parasternal mediastinotomy may cause some problems connected with a narrow surgical field, bleeding that disturbs an adequate biopsy; sometimes the internal thoracic artery and vein are to be ligated, or a neoplasm is not completely palpable, or it is not possible to palpate and visualize the hilum of the lung. Parasternal transpleural biopsy of the mediastinum has also been used since 2002. By a standard parasternal mediastinotomy, the pleural cavity is opened through the bed of rib cartilage, the pleural incision goes on to the mediastinal pleura, and the mediastinum is opened. Our purpose is to present our experience in applying this method.

**MATERIAL AND METHODS**

In the period from 1998 to 2017 including, biopsy of 154 anterior and middle mediastinum was performed. In 85 cases, a classical parasternal mediastinotomy and in 65 cases, parasternal transpleural biopsy were performed. The incision is transverse, at the level of the second and the third ribs and 3.0-6.0 cm long between the parasternal and anterior auxiliary lines. Classical parasternal mediastinotomy was carried out in all cases until 2002. Starting from 2002 the following tactics was applied: when the neoplasm spreads laterally from the mediastinum, and after the incision it is palpated from the intercostal space, a classical mediastinotomy is performed through the intercostal space or through the cartilage bed. When the neoplasm is located within the mediastinum, or it is necessary to perform a deep biopsy of lymph nodes, a transpleural biopsy is carried out in the manner described above.

**RESULTS**

Parasternal mediastinotomy was performed in 85 cases. The intrathoracic vessels were not ligated in advance. Their injury was observed in five (5.9%) cases, and the vessels were ligated. Ten patients had a parietal pleura injury (11.7%). In four cases (4.7%), due to bleeding from the tumor, the amount of the biopsy tissue in the narrow surgical field was insufficient for a full histological examination. The pleural
Parasternal transpleural biopsy was performed in 69 patients with the same incision, and it was laterally widened by 1-2 cm when required. In a relatively broad operative field of surgery, the middle mediastinum, the hilum of the lung and the “aortic window” are palpated and visualized. No complications were observed; in all cases, an amount of biopsy tissue was sufficient for a full histological examination. The pleural cavity was drained in five cases (7.2%) due to a large amount of fluid.

CONCLUSIONS

Unlike the classical parasternal mediastinotomy, a parasternal transpleural biopsy of the mediastinum allows us to create a wider surgical field by the same incision, without ligating the intrathoracic vessels, to palpate and visualize the middle mediastinum, the hilum of the lung and “aortic window”. Surgical complications have not been observed; the extracted tissue was sufficient in all cases for a full-valued histological examination. The pleural cavity was drained only in the case of a large amount of fluid.

THORACIC SURGERY: STATE OF THE ART.

W. Klepetko, MD

Thoracic surgery looks at a remarkable evolution over the last decades. Besides the implication of minimal invasive surgical methods such as VATS surgery, uniportal surgery and robotic surgery, advanced surgical procedures such as carinal resections, surgery for pancoast tumors and complex resections for metastatic thoracic diseases have become a clinical standard. The spectrum of procedures that thoracic surgery offers has however been widened by pulmonary thrombendarterectomy, lung transplantation with ex vivo techniques and complex laryngo-tracheal resections and reconstructions.

Better understanding of the pulmonary pathophysiology and the experience from lung volume reduction and transplantation in functionally very limited patients, allows to offer surgical therapy to many more patients.

POSSIBILITIES OF ENDOBRONCHIAL SONOGRAPHY IN THORACIC SURGERY

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Introduction: the more than 20 years ago, the first paper according to endobronchial ultrasound (EBUS) was published. Despite a large history, the role of EBUS is controversial till now.

Material: our material is consecutive patients from 2010 to 2017, were submitted to EBUS. The first study was done on April 17, 2010. In total during this period the procedure was performed by 386 patients. Based on the indications for the performance of endobronchial sonography, all procedures can be grouped into 3 main groups: 1) the study was performed to verify the cause of the increase in lymph nodes of the
mediastinum (237); 2) the procedure was performed for the study of mediastinal lymph nodes in patients with proven or suspected lung cancer (129); 3) all other the species are reduced to a different subdivision, which includes studies in which only visualization was performed without performing biopsy, biopsy of peribronchial formations, and others (20).

**Results:** overall adequacy for all studies was 73.55%, the overall sensitivity was 85%, there were no complications

The group 1: total sensitivity - 72%, the most common diagnosis is sarcoidosis 1-2, tuberculosis is the third most common diagnosis, the probability of excluding tuberculosis and lung cancer according to EBUS data is above 90%

The group 2 – the sensitivity is 90%, the number of false-negative results is 10%

The group 3 – the sensitivity - 95 %.

**Conclusion:** EBUS – is the method of first choice in cases of verification of mediastinal lymphadenopathy and lung cancer staging with good results. In some cases negative results of EBUS should be checked by other invasive methods.

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**THORACOSCOPIC THYMECTOMY, HOW I DO IT?**

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**Key words:** Thymus, Thymoma, Myasthenia gravis, thoracoscopy

**Introduction:** Thymoma is a rare disease. The treatment of choice is the minimal invasive thymectomy for tumors less than 6cm.

**Material and methods:** Between 2008-18 we have operated as a single surgeon on more than 50 patients with thymoma thoracoscopically. One third of them have had myasthenia gravis. The largest Thymoma was 11 cm large.

**Results:** All surgeries were done in supine position either from right or left thoracic wall in the mid axillary line using an endoscopic ultrasound instrument. The average time of surgery was 200 minutes. A conversion with blood transfusion was in 2 patients necessary because of laceration of the left innominate vein. In one case the thymoma was adherent to the left innominate vein so we decided to convert.

**Conclusion:** We want to show a 12-15 minutes video of the thoracoscopic thymectomy of a 45 y old male with thymoma with the size of 9 x7 cm
MAXILLARY SINUS TUMOUR: A SINGLE CENTRE EXPERIENCE FROM NORTH-EAST INDIA

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1Dr. B Borooah Cancer Institute, India

Key words: maxillary sinus

Objective: The aim of the study is to evaluate the age, sex, histopathology, symptoms, treatment, recurrence rate and to find the ways for early detection of maxillary sinus tumour.

Materials and Methods: It is the retrospective study done in 53 patients at Dr. B Borooah Cancer Institute for maxillary sinus tumour from 2010 to 2015. Minimum follow up was 2 years. We excluded those patients who were lost to follow up before initiating any treatment.

Results: The mean age of presentation was 52.96 years (minimum 25 yrs and maximum 87 yrs.) with male predominance (54.7%). Out of the total patients, 50 patients (94.3%) were tobacco chewers while 15 (28.3%) of them consumed both tobacco and alcohol. The most common presenting symptom was nasal obstruction (32.10%) followed by loosening of teeth (20.08%). The most common histopathological diagnosis was squamous cell carcinoma (75.5%). Most of the patients presented with stage 4 disease (86.8%). Total 18 patients (34.0%) were treated by surgery followed by adjuvant radiation or chemoradiation, out of which 10 surgeries were performed at our institute. Others presented after undergoing surgery outside and received adjuvant treatment here. Rest of the patients were managed: 12 with radiation, 4 with chemotherapy, 12 with chemoradiation and 5 with palliative care. The recurrence rate was 35.8%.

Conclusion: Treating maxillary sinus cancer is challenging because of the proximity of critical structures. Combined modality therapy consisting of surgery and radiotherapy with or without chemotherapy is generally used for treatment. The education and awareness can help in detecting early lesions with improved survival especially in developing countries.

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THE BENEFIT OF SPLENECTOMY FOR UPPER THIRD ADVANCED GASTRIC CARCINOMA

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Key words: gastric cancer, splenectomy, survival rates

Abstract

In contemporary surgery surgical resection still remains the only potential curative therapy in gastric cancer patients. Splenectomy is often performed to facilitate the extended lymphadenectomy.

The aim of this study is to clarify the benefit of splenectomy and significance of the splenic hilus lymph node metastasis as a prognostic factor.

Patients and methods: between 2007-2009 we reviewed 119 patients with the proximal gastric cancer who underwent total gastrectomy - 27 patients (group A), total gastrectomy with splenectomy or splenopancreatectomy – 92 patients (group B). Clinicopathological characteristics and survival rates were compared between group A and B. Furthermore, 13 patients with splenic hilus lymph node metastasis and 106 patients without it in group B were also compared. Univariate analysis with the Student’s t-test and the chi-squared test were performed, and survival was calculated according to the Kaplan-Meier method.

Results: there were no significant differences in 5-year survival rate between group A (48,1%) and group B (47,8%). Splenic hilus lymph node metastasis significantly decreased 5–year survival rate of the patients underwent total gastrectomy with splenectomy or splenopancreatectomy (19,5% vs 52,8%, p=0,0002).

Conclusion: Splenectomy associated with total gastrectomy could not improve survival of patients with upper third advanced gastric carcinoma

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INFLUENCE OF PARAORTAL LIMPH NODE DISSECTION ON SURVIVAL RATE OF PATIENTS AFTER THE GASTRECTOMY

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Key words: gastric cancer, extended paraaortal lymphadenectomy, survival rates

Abstract

The aim of our study was to compare the long-term results of gastrectomy in gastric cancer with different volumes of extended D2 and paraaortal D3 lymphadenectomy.
Material and methods. The basis of this study is a prospective analysis of the results of treatment of 143 patients with adenocarcinoma of the stomach aged 30-75 years, (91 (63.6%) - patients older than 60 years) operated in the volume of gastrectomy from mid-laparotomy access for the period 2007-2011. in the department of abdominal oncology of National Center of Oncology after V.A.Fanardzhian, Republic of Armenia.

The study group (n = 39) consisted of patients whose D2 lymphodissection was supplemented with para-aortic lymph node dissection (LD), the volume of which was specified by the 1998 JGCA classification (D3 - dissection of all lymph nodes of N1, N2 and N3 levels). The control group included 104 patients operated on in the volume of the D2 gastrectomy.

Results of the study. In our material, in the general group of patients gastrectomy with LD D3 (n = 39) did not lead to a significant improvement in 5-year survival compared to gastrectomy with LD D2 (104) at all observation times (Fig. 1) (p> 0.05). There were no significant differences in the 3-year total (D2-49% vs D3-61.5%) and relapse-free survival («D2» -30.7% vs «D3» -35.8%). There were no significant differences in 5-year survival in the presence of metastatic lesions of N + lymph nodes in the «D2» and «D3» groups (57.6% for D2 and 58.9% of D3). The 5-year survival was 2.8% with «D2» and 2.5% «D3» (p> 0.05), respectively; in the absence of metastatic lesion of the lymph nodes N0 (42.3% with «D2» and 41% in the «D3» groups) - 5-year survival was 25.0% «D2» and 28.2% «D3» (p> 0.05), depending on the tumor invasion ‘serosa’ of the stomach «T3» (34.6% for «D2» and 66.6% for «D3»). - a 5-year survival rate of 5.7% «D2» and 7.6% of «D3» patients respectively (p> 0.05).

Conclusion: our investigation has shown, that paraaortal D3 lymph node dissection in comparison with extended D2 followed radical gastrectomy is not capable to authentically improve survival rate of patients with gastric cancer.

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THE FIRST CLINICAL EXPERIENCE WITH IMAGE-GUIDED HIGH DOSE RATE BRACHYTHERAPY – THE NEW OPTION FOR THE TREATMENT OF UNRESECTABLE COLORECTAL LIVER METASTASES

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Key words: High Dose Rate Brachytherapy

Background. High Dose Rate Brachytherapy (HDRBT) is one of new treatment options for unresectable colorectal liver metastases, wich allows to achieve high one-year local tumor control (up to 90%). Comparing with other treatment modalities, HDRBT has no limitations with regard to the
size of the liver tumors. It can also be used in the vicinity of large blood vessels and other sensitive structures. Additionally, the therapeutic effect of HDRBT dose not depend on the movement of the patient or respiratory excursion.

**Material and methods.** Our initial clinical experience includes 12 patients with colorectal liver metastases treated by computed tomography (CT)-guided HDRBT on the afterloading system (GammaMed, Varian, Charlottesville, VA) used a Iridium-192 source of $10\text{Ci}$. All cases were morphologically verified. The number of metastases varied from 1 to 5, and size - from 2 to 8 cm. The treatment planning was performed using planning employed BrachyVision (Varian Medical Systems, Palo Alto, CA). The single dose radiation (20Gy) was delivered using 2 - 8 catheters with exposure times in the range of 42 to 112 min. (median - 45 min). CT studies were conducted with bolus contrast enhancement. The criteria Recist 1.1 and Choi were used to assess response of the treatment.

**Results.** After the procedure I-II degree of gastrointestinal toxicity were observed in 6 patients. One patient after removal of the catheter developed intrapleural bleeding, which required thoracoscopy and the drena of the pleural cavity. All patients achieved regression of liver metastases. One patient was operated in 3 months after HDRBT and the complete morphological response was confirmed.

**Conclusion.** HDRBT of the colorectal liver metastases is safe, well tolerated by patients and easily reproducible.

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**INFECTED OVARIAN TERATOMA WITH SIGMOID COLON PERFORATION**


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**Introduction**
Teratomas are germ cell tumors commonly composed of multiple cell types derived from one or more of the 3 germ layers. Teratomas range from benign, well-differentiated (mature) cystic lesions to those that are solid and malignant (immature). Additionally, teratomas may be monodermal and highly specialized. Mature cystic teratoma may be complicated by torsion, rupture, and malignant change, but is rarely complicated by infection.

**Case report:**
A 77-year-old woman with no significant past medical history was presented to the emergency room with abdominal pain, nausea, vomiting, fatigue, dry mouth, distention of the abdomen, no bowel movement. Her temperature upon admission to the emergency department was 38.8°С, with a heart rate of 108, blood pressure of 140/80, respiratory rate of 24. On physical examination, her abdomen was diffusely tender, there was rebound tenderness.

Computed tomography (CT) scan of abdomen demonstrated infiltration in the right iliac region, cavity with destruction 3.2-3.5cm In the center of destruction was a right ovarian cyst with calcification and free
air. Free liquid in the abdominal cavity. Preliminary diagnosis was acute abdomen, diffuse peritonitis. The patient was brought to the operating room.

Under general anesthesia was performed medial laparotomy. During the operation was defined approximately 800ml free liquid (pus). In the right iliac region was a conglomerate which consisted of right infected ovarian cyst with destruction, sigmoid colon. We found out that between ovarian cyst and sigmoid colon there was a fistula, because of ovarian cyst destruction. We removed the right ovary with cyst, we stitched the perforation of sigmoid colon and created protective sigmostomy. The postoperative period was unremarkable, the wound was healed with primary intention, abdominal drainage tubes were removed during a 10 day period. The patient was discharged on the 15th postoperative day. She was advised to visit surgical clinic in 3 months for sigmostomy repair.

Pathohistological examination- Dermoid cyst(teratoma) with 2 tooth and infiltration.

Conclusion:
Our review of the literature as described suggests that infection of a mature teratoma is a relatively uncommon event. Besides that concomitant sigmoid colon perforation has not been described in available literature. We suggest women to visit gynecologists regularly, which will help to diagnose and treat teratomas earlier. In the case of complication urgent surgery is the only method of treatment.

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THE ASSOCIATION OF TRANSCRIPTIONAL ONCOGENES SIGNATURE,
CELLULAR BEHAVIOR AND STROMAL SCORE MAY PREDICT OUTCOME OF
PMP PATIENTS AND MAY GUIDE TREATMENT OPTIONS AND FOLLOW UP.

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Key words: peritoneal carcinomatosis

Objectives
Good prognosis is reported in treatment of PMP by (CRS)+HIPEC, but some patients recur. Aim of the study was to evaluate if transcriptional classification, Stromal Score (SS) and the cellular features of PMP may play a role in patients’ outcome.

Methods
From a database of 130 PMP patients treated by CRS plus HIPEC 38 relapse of disease were recorded.
Overall and disease-free survival (OS and DFS) according to pathological classifications and tumour markers levels were calculated. From this cohort, 103 samples were taken on 45 patients (35 PMP and 10 CRC as control). Microarray-based mRNA expression profiling using Levine’s clusters, analysis of Stromal Score and of cellular features were performed and linked to prognosis. Three oncogenes clusters, according to Levine’s findings; three different Stromal Score (low, intermediate and high SS), two different cellularity (high and low) were found.

**Results**

The analysis was done only on HIPEC patients CC-0/1. This work is a validation of Levine’s works. The 3 clusters identified shown an expression related with patient’s outcome. The outcome is linked also to SS and cellularity if merged with Levine’s Clusters. Levine’ Cluster 1+ Intermediate SS is linked to better prognosis, Cluster 2 and 3 with high and low cellularity show a bad prognosis (p<0.02). The relevant “new” aspect is that we demonstrated that High SS is responsible for bad prognosis even when cellularity is low (impact of stroma); high cellularity is responsible for bad prognosis even when SS is low (impact of cellularity).

**Conclusion**

Build a nomogram based on Oncogene Expression, SS and cellularity of PMP patients may help to predict outcome of PMP patients and in the next future may play a role in the treatment strategy of patients.

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SURGICAL AND ONCOLOGIC OUTCOMES OF EXTENDED GASTRECTOMY FOR T4B GASTRIC CANCER

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**Key words:** gastric cancer

**Background:** T4b stage gastric cancer (GC) is often diagnosed in countries with high incidence of GC, where no organized screening programs are utilized. Extended gastrectomy with resection of invaded structure(s) is the mainstay of treatment for T4b GC. However, its outcomes remain unclear. This study examined the role of extended gastrectomy for T4b GC.

**Methods:** Patients referred to gastrectomy for GC at “Kanaker-Zeytun” MC and “ArtMed” MRC (both in Yerevan, Armenia) from May 2004 to December 2017 were included. Perioperative results of extended gastrectomy for T4b GC were compared to those of standard gastrectomy (for T1-T4a GC). Oncologic outcomes were assessed in patients with T4b gastric adenocarcinoma.

**Results:** A total number of 688 gastrectomies were performed including 87 (12.6%) extended resections for T4b GC. Pancreas, colon and liver were resected in 19, 16 and 12 patients, respectively. Extended gastrectomy was associated with larger tumor size (8.8 vs 5.8 cm), increased operative time (208 vs 171 min, p<0.01) and blood loss (400 vs 150 ml, p<0.01). Morbidity, mortality and hospital stay...
were similar. Pancreas, colon and liver resection resulted in comparable oncologic and surgical results except blood loss, which was less for colon resection (p=0.048).

Median and 3-year survival for non-metastatic T4b GC were 14 months and 18%, respectively. Obesity, type of gastrectomy and nodal stage were associated survival in the univariable analysis. In the multivariable model, only nodal stage was an independent predictor of survival.

**Discussion:** Extended gastrectomy for T4b GC is feasible and safe resulting in acceptable surgical outcomes regardless of the organ involved. However, prognosis in these patients is poor, thus neoadjuvant therapy should be considered.

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**SINGLE- VS DOUBLE-LAYER ANASTOMOSIS SUTURE AFTER SUBTOTAL GASTRECTOMY FOR GASTRIC CANCER**

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**Key words:** gastrectomy

**Background:** Anastomosis is one of the most crucial steps during gastrectomy. The main types and configurations for anastomoses are well established, while the ideal number of suture layers is controversial. This retrospective propensity score-matched study focused on a comparison of single-layer and double-layer anastomoses following subtotal gastrectomy for gastric cancer (GC).

**Methods:** Patients operated for GC at “Kanaker-Zeytun” MC and “ArtMed” MRC (both in Yerevan, Armenia) between June 2004 and December 2017 were included in this study. Subtotal gastrectomy was followed by Billroth I or Billroth II reconstruction. Patient demographics, clinical characteristics and perioperative data were examined. Patients were matched in a 1:1 ratio using propensity scores based on the following variables: age, gender, body mass index, total number of comorbidities, hemoglobin, total protein and anastomosis type.

**Results:** A total number of 328 gastrectomies were completed by single-layer anastomosis and 60 by double-layer anastomosis during the study period. In an unmatched analysis, single-layer suture more often accompanied Billroth I anastomosis (49.1 vs 11.7%, p<0.01). The former also resulted in less blood loss (50 vs 100 ml, p<0.01), shorter operative time (155 vs 167, p<0.01) and hospital stay (10 vs 11 days, p=0.01) compared with the double-layer anastomosis. After propensity score matching, the groups were comparable in terms of intra- and postoperative outcomes.

**Discussion:** Single-layer anastomosis suture is not associated with higher perioperative risk compared with double-layer anastomosis during subtotal gastrectomy for GC. Thus, single-layer suture technique is appropriate and can be considered in these patients.

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SOLITARY FIBROUS TUMOR OF THE ANTERIOR ABDOMINAL WALL: CASE REPORT AND REVIEW OF THE LITERATURE

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ABSTRACT

BACKGROUND: Solitary fibrous tumor (SFT) is a rare mesenchymal neoplasm affecting soft tissues with a not well defined biological behavior. SFT occurs mostly in the pleura and the thorax, while extra-thoracic localization is uncommon and abdominal localization is very rare. Histologically, SFT is a well defined mass with splindle-cell proliferation in collagenous matrix with staghorn vascular network and CD34 reactive.

CASE REPORT: A 64 years-old man with a history of recurrent gastric cancer treated with total gastrectomy, was admitted with ultrasonographic and contrast enhanced CT-scan findings of a well demarcated oval mass of 4.8 x2.7 cm with microcysts, vascularized in the arterial phase and with wash out in the tardive phase, located in the peritoneal side of right rectus abdominis muscle. The patient underwent minilaparotomy and en-bloc excision of the lesion. Histologically the tumor was characterized by a hemangiopericitoma like growth pattern and the immunostaining was positive to CD34, CD99, BCL-2 and Vimentin. The final diagnosis was SFT with a proliferation index (Ki-67/MIB-1) <3%. In our case, chemotherapy was not indicated. At the 6-month follow-up, the patient is in good clinical conditions with no recurrence or metastasis.

CONCLUSIONS: We reported a rare case of primitive SFT located in peritoneal side of the of right rectus abdominis muscle treated surgically, in a patient previously affected by gastric adenocarcinoma. In this case, SFT showed a benign behaviour during a short term follow-up. Dimensional pattern, histopathological features and curative surgery remain the most important indicators of clinical outcome.

MULTIMODAL TREATMENT OF UPPER GASTROINTESTINAL TUMORS WITH NEOADJUVANT CHEMORADIOThERAPY: RESULTS OF PHASE 2 STUDIES.

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Key words: Multimodal treatment

The prognosis of surgical treatment of locally advanced upper GI cancers remains dissapointing. Neoadjuvant chemoradiotherapy (NCRT) seems to be one of the most promising treatment modalities. For the first time in Russia and CIS we have conducted phase 2 clinical trials testing the effectiveness of...
NCRT followed by radical surgery in patients with locally advanced esophageal, esophagogastric junction and gastric cancers. The studies included more than 70 patients. Radiation therapy in total dose of 45 Gy (1 + 1.5 Gy) or 46 Gy / 23 fractions was used. Concurrent chemotherapy included modified CAPOX scheme (gastric cancer) and carboplatin/paclitaxel (esophageal cancer). Surgery was performed 6-8 weeks after completion of NCRT. The toxicity was acceptable and manageable, the 1-2 degree of gastrointestinal and hematological toxicity predominated. Postoperative complications occurred in 16% of patients, no cases of anastomotic leak and postoperative mortality were registered. The therapeutic pathomorphosis was grade 1a/1b in 50% of patients with gastric cancer and grade 1a in 40% patients with esophageal cancer. Survival analysis showed that “responders” had significantly better median survival than “non-responders”. In order to search for predictors of NCRT effectiveness and prognosis, the following markers were studied: HER2/neu, Ki-67, p53, CyclinD1, e-cadherin, AURKA and TP53 genes. We have found significant decrease of Ki-67 expression after NCRT which may be an early predictor of its effectiveness. In conclusion, the proposed method of NCRT is safe, leads to a marked clinical and morphological response of the tumor and increase survival, at least in “responders”. To objectify the data obtained a multicenter randomized trial is planned.

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**TAMOXIFEN: A NOVEL TREATMENT OPTION IN OESOPHAGEAL CANCER**

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**Key words:** Oesophageal cancer

**Introduction**

Tamoxifen has been the gold-standard treatment for oestrogen receptor (ER) positive breast cancer for over 30 years. Tamoxifen works via ERs and has either agonist or antagonistic effects dependant on the target tissue. Oesophageal cancer cell lines and oesophageal cancer tissue express ERs and we hypothesis that tamoxifen inhibits oesophageal cancer cell growth in-vitro.

**Methods**

The expression of ERα and ERβ at the mRNA and protein level was demonstrated in OE33, oesophageal AC cell lines using reverse transcription polymerase chain reaction and western blotting, respectively. The effect of tamoxifen at five different concentrations (1 – 10,000nM) on cell proliferation was assessed using 5-bromo-2’-deoxyuridine (colorimetric) assay. Changes in the expression of the following proliferation-associated proteins with tamoxifen treatment were investigated by western blotting: Ki67, PCNA, Cyclin D and E-cadherin.
Results
Tamoxifen significantly inhibited OE33 proliferation in a dose-dependent manner. Importantly, a tamoxifen dose of 100nM, the concentration achievable in-vivo with standard dose tamoxifen administration, significantly inhibited OE33 cell proliferation (p=<0.0001). There was no significant change in the expression of Ki67, PCNA, Cyclin D or E-cadherin with tamoxifen treatment.

Discussion
This in-vitro study on oesophageal cancer cell lines demonstrates tamoxifen inhibits cell growth in a dose-dependent manner. The mechanism of action of tamoxifen is complex and can be either ER-mediated or ER-independent. The mechanism of action of tamoxifen in oesophageal cancer is still undetermined and warrants further investigation, as does the effect of tamoxifen on oesophageal cancer growth in-vivo.

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OESTROGEN RECEPTORS: A POTENTIAL THERAPEUTIC PATHWAY IN OESOPHAGEAL CANCER

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Key words: oesophageal cancer

Introduction
Oestrogen and its receptors play a pivotal role in the development of many cancers, such as breast cancer, where oestrogen receptor (ER) expression has both prognostic and therapeutic implications. Oesophageal cancer is a male dominant disease, with a male: female ratio of 5:1 to 10:1. We hypothesise that ERs are expressed in oesophageal cancer cells and may contribute to the gender bias.

Methods
The expression of ERα and ERβ at the mRNA and protein level was determined in female (OE33) and male (OE19) oesophageal AC cell lines using Reverse transcription polymerase chain reaction and western blotting, respectively. The breast cancer cell line, MCF7, was a positive control. ERα and ERβ expression in oesophageal cancer biopsy tissue obtained at gastroscopy was determined by immunohistochemistry.

Results
The mean ERα mRNA expression in MCF7, OE19 and OE33 was 24.2(SD±1.0), 4.9(SD±2.4) and 7.1(SD±0.6), respectively, and the mean ERβ mRNA expression in MCF7, OE19 and OE33 cell lines was 3.7(SD±0.9), 0.7(SD±0.3), and 4.2(SD±0.3), respectively. The ERα and ERβ mRNA expression was significantly different between cell lines (p=<0.0001). The mean ERα protein density in MCF7, OE19 and OE33 cell lines was 1.2(SD±0.2), 0.1(SD±0.01), and 0.3(SD±0.2), respectively, and the mean ERβ
protein expression was 0.4(SD±0.2), 0.1(SD±0.03), and 1.0(SD±0.2), respectively. The mean ERβ Allred score was 6.8 (SD±1.3) in oesophageal cancer biopsies (n=18). None of the oesophageal cancer biopsy specimens demonstrated ERα protein expression at immunohistochemistry.

**Conclusions**

ERβ is the dominant ER subtype expressed in oesophageal cancer cell lines and human cancer tissue. Further studies to define the role of the ERβ subtype in oesophageal cancer are needed.

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**SEGMENTAL RESECTION OF DUODENAL ADENOCARCINOMA: CASE REPORT**

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**Background**

Primary malignant tumor of the duodenum is a very rare cancer and is observed with the same frequency in men and women. A palpable abdominal mass is found in less than 5% of the patients. The diagnosis is made with many diagnostic methods such as Barium studies of the upper intestinal tract which had been have been replaced by fiber optic endoscopy. Barium examination show in most cases an irregular stricture of the duodenum, but can be normal or misleading. Fiber optic endoscopy allows a precise location of the tumor and endoscopic biopsies which confirm the diagnosis [15-18]. The Preoperative staging is not easy and No study has evaluated the best method of preoperative staging of malignant lesions of the duodenum. Some authors use ultrasonography for the diagnosis of liver metastases; the accuracy of CT scan, MRI and angiography have not been studied. These investigations are not performed routinely, most of the patients being operated on as only for a palliative procedure.

Endoscopic ultrasonography has been reported to be useful for the preoperative staging of ampullary and pancreatic carcinomas. No study reports its accuracy in the preoperative evaluation of malignant duodenal tumors. Five to 40% of the patients have distant metastases or peritoneal seeding at the time of diagnosis [6]. The treatment of such cases is not yet very clear with guidelines and due to the low incidence of the disease there is no randomized study comparing different types of treatment. Complete surgical resection is the only hope for cure. Two types of surgical resection are available: pancreateoduodenectomy associated with various types of lymphadenectomies or segmental resections [7,8]. Pancreateoduodenectomy has been advocated as the surgical procedure of choice because it offers the possibility of regional lymph node resection. Nonetheless good long-term results have been observed with segmental resection, particularly for tumors of the distal part of the duodenum [9]. When local extension or metastatic disease precludes curative resection, palliative procedures such as gastrojejunal anastomosis can be performed.
Laser photo coagulation has been proposed for patients unfit for surgery with good palliation on hemorrhage and obstructive symptoms.

**Case presentation**

50-year-old women presented with an acute attack of vomiting. Endoscopy done and the cause was found to be a sub mucosal tumor located in the third part III of the duodenum, 5 cm distal of the papilla of Vater. An emergency laparotomy after admission and correction of fluid and electrolyte was done. Ligation of tumor-feeding vessels with primary, definitive surgical therapy was performed by partial resection of the duodenum with a duodenojejunostomy. Feeding jejunostomy was done also to supply enteral feeding postoperative. Histology revealed an Adenocarcinoma with a diameter of 2.5 cm after that the patient recover smoothly and went home after 10 days to be followed on outpatient basis [6-8].

**Conclusion**

Tumors of the duodenum are a rare cause of upper gastrointestinal obstruction. Partial resection of the duodenum is a warranted alternative to a duodenopancreatectomy, as this procedure has a lower operative morbidity, while providing comparable oncological results [9-12].

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**INFLUENCE OF PARAORTAL LIMPH NODE DISSECTION ON SURVIVAL RATE OF PATIENTS AFTER THE GASTRECTOMY**

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**Key words**- gastric cancer, lextended paraaortalymphadenectomy, survival rates

**Abstract**

The aim of our study was to compare the long-term results of gastrectomy in gastric cancer with different volumes of extended D2 and paraaortal D3 lymphadenectomy.

**Material and methods.** The basis of this study is a prospective analysis of the results of treatment of 143 patients with adenocarcinoma of the stomach aged 30-75 years, (91 (63.6%) - patients older than 60 years) operated in the volume of gastrectomy from mid-laparotomy access for the period 2007-2011 . in the department of abdominal oncology of National Center of Oncology after V.A.Fanardzhian, Republic of Armenia.

The study group (n = 39) consisted of patients whose D2 lymphodissection was supplemented with paraaortic lymph node dissection (LD), the volume of which was specified by the 1998 JGCA classification (D3 - dissection of all lymph nodes of N1, N2 and N3 levels). The control group included 104 patients operated on in the volume of the D2 gastrectomy.

Results of the study. In our material, in the general group of patients gastrectomy with LD D3 (n = 39) did not lead to a significant improvement in 5-year survival compared to gastrectomy with LD D2 (104) at all observation times (Fig. 1) (p> 0.05 ). There were no significant differences in the 3-year total (D2-49% vsD3-61.5%) and relapse-free survival («D2» -30.7% vs «D3» -35.8%). There were no significant differences in 5-year survival in the presence of metastatic lesions of N + lymph nodes in the «D2» and «D3» groups (57.6% for D2 and 58.9% of D3). The 5-year survival was 2.8% with «D2» and 2.5% « D3
«(p> 0.05), respectively; in the absence of metastatic lesion of the lymph nodes N0 (42.3% with «D2» and 41% in the «D3» groups) - 5-year survival was 25.0% «D2» and 28.2% «D3» (p> 0.05), depending on the tumor invasion ‘serosa’ of the stomach «T3» (34.6% for «D2» and 66.6% for «D3») - a 5-year survival rate of 5.7% «D2» and 7.6% of «D3» patients respectively (p> 0.05).

Conclusion: our investigation has shown, that paraaortal D3 lymph node dissection in comparison with extended D2 followed radical gastrectomy is not capable to authentically improve survival rate of patients with gastric cancer

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LYMPHODISSECTION VOLUME OPTIMISATION IN SURGICAL TREATMENT OF GASTRIC CANCER

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Key words- gastric cancer, extended lymphadenectomy, survival rates

Abstract
Comparative assesment of results of surgical treatment of gastric cancer (2006-2011rr) has been done in this work.

Patients were divided in two groups: I group includes 186 surgeries with D1 lymph node dissection and II group-317 surgeries with D2/3 extended lymph node dissection without pancreato-splenectomy. Totally 503 radical surgeries were performed.

Postoperative complications were observed in 31 patients (16.6 %) of first group and in 61 patients of second group (19.2 %). The mortality was 9.1 % (17 patients) in the I group, and 9.7% (31 patients) in the II group. In D1 group the rate of lymph node metastasis were 35 %, whereas in D2/D3 group - 51.1 % (p≤0.0001). The three-year survival rate in D1group - 48.3±3.7, in D2/3 group - 69.7±2.6 (p=0.006). The 3 years diseases free survival was 41.9±3.6 in D1group and 64.9±2.7 in D2/3 group. The 5-years survival was 12.4±2.4 in D1group and 32.2±2.6 in D2/3 group(p<0.05).

Conclusion: Gastric cancer surgery with extended lymphadenectomy provides locoregional control, improves the short term general and diseases-free, and 5-years survival rate without deterioration of direct postoperative results of treatment.

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Introduction
Cytoreductive surgery (CRS) and HIPEC became a standard treatment of peritoneal carcinomatosis in various primary malignancies. It provides either long term survival advantage or at least prolonged palliation. The incidence of peritoneal dissemination is inhomogeneous, from rare diseases (peritoneal mesothelioma) to very frequent ones (ovarian cancer carcinomatosis). If the availability of cytoreductive surgery is limited, there is a burning question of patient selection criteria.

Czech republic (CZ) is a small country with 10 mil population. There is only 1 center providing a consistent treatment of peritoneal carcinomatosis. 3 new centers started 2 years ago. The analysis of 15 years experience provides a basis for formulation of demands and organization of national development programme.

Methodology
CRS+HIPEC was provided at 1 center besides a routine abdominal and thoracic surgery. For administrative reasons there was a limited number of 30 interventions annually. CRS was provided to patients referred from any clinic in CZ. CRS + HIPEC was conditioned by common inclusion criteria (diagnosis, disease limited to peritoneal cavity, performance status etc.). Peritoneal pseudoamyxoma and peritoneal mesothelioma were preferent diagnoses.

As complete cytoreduction as achievable was followed by HIPEC using the semiopen coliseum method.

The CRS availability assessment was based on the incidence data of National Cancer Registry of the Czech Republic and matched to a benefit of treatment represented by survival data.

Results
Single institution results of a period 1999-2014 have been analysed. There were 260 interventions in 210 patients with peritoneal carcinomatosis of various origins – colorectal (CRCA)(51), peritoneal pseudoamyxoma (PMP) (45), ovarian (33), peritoneal mesothelioma (24), primary peritoneal carcinoma (PPCA) (20), gastric (15) and others (22). A curative effect has been achieved for PMP and mesothelioma (median survival 3-6 years), prolonged survival for CRCA, ovarian and PMP (median survival 27, 28, 36 months respectively), no significant effect for gastric (fig 1).

Related to the incidence of peritoneal carcinomatosis in CZ in particular primaries cytoreductive surgery was provided in about 30% of PMP, less than 10% of mesothelioma, 3% of PPCA, 0.2% of CRCA and 0.6% of ovarian (table 1). The regional availability of CRS was inhomogeneous, 90% of cases were referred from 5 comprehensive university centers.

Discussion, conclusions
1 center in 10 mil population is not able to meet the demand for CRS in all patients who could gain any benefit.

The unmet need of CRS requires to introduce selection criteria. It seems reasonable to prefer patients who may achieve curative effect and who have not any other option of treatment i.e. patients with PMP.
and mesothelioma. Fortunately these diagnoses are rare; a favourable but not satisfactory availability rate may be achieved even in a single center. On the other hand the availability of CRS for CRCA and ovarian remains crucially limited despite the treatment brings a significant benefit.

There are clear requirements for the national CRS + HIPEC programme:
1/ Select PMP and mesothelioma patients (make CRS + HIPEC available for all)
2/ Extend (availability) to CRCA and ovarian cancer.

QUALITY ASSURANCE OF SURGERY IN OESOPHAGO Gastric Oncology Trials and Trial Protocols

J W Butterworth, P Boshier, S Mavroveli, Vidal-Diez A, Sato M, G B Hanna

Introduction
In clinical trials where surgery forms the primary curative modality, the overall quality of this intervention may directly influence outcomes. Although standardisation of surgical techniques and credentialing of surgeons have been found to reduce adjusted in-hospital mortality, the impact of surgical quality assurance on long-term survival is yet to be assessed in oesophagogastric oncology trials. Furthermore no study has yet assessed Surgical Quality Assurance (SQA) measures proposed in trial protocols and how these may affect trial clinical outcomes.

Method
Oesophagogastric oncology randomised controlled trials (RCTs) involving a surgical intervention with curative intent published from 2000 to 2018 were identified through an online search of Embase, Medline and PubMed. Inclusion criteria: Oesophagogastric oncology RCT with surgery in at least one arm containing 100 participants assessing 5-year survival. Protocols were identified through searching reference lists, online trial registry searching and through emailing author contacts when no trial registry or published protocol available. Trials and protocols were rated using Surgical Quality Assurance scoring system developed through previous literature review giving scores out of a total of 17.5 by two independent researchers. RCTs were scored for risk of bias using Higgin’s Cochrane tool. Protocols were assessed using SPIRIT criteria giving scores out of 33. SPSS (IBM) was used to assess statistical correlation between scores and 5 survival.

Results
From an initial 2589 articles screened 29 RCTs were identified including 18 with patients with gastric cancer, 2 with gastric and oesophageal, and 9 with oesophageal cancer. Risk of bias was unclear in 19 trials (67%), low in 3 (10%) and high in 7 (23%) trials. The median SQA score of all trials was 1.0. 12 RCTs (41.3%) had trial protocols identified, 10 via an online registry, 1 published and 1 procured form authors on request. SQA score of RCTs with protocols was significantly higher than those trials without publicly available protocols identified (U= 50, p=0.033). Of the RCT protocols only 2 (16.7%) mentioned SQA strategies giving a lower mean SQA score of 0.45. The SPIRIT score of trial protocols was also low at 18.54 (56.1%). Of 28 RCTs recording 5-year overall survival, those with SQA scores above the median (1.0) had higher mean overall 5-year survival at 60.4%, compared to trials with SQA score equal to the median or less at 42.5%.
Conclusion
Large RCTs in oesophagogastric oncology with surgical interventions rarely published protocols, and few documented robust SQA measures within trial manuscripts or protocols. Those trials with above median SQA measures implemented have higher 5-year survival rates compared to those below. Stakeholders designing future trials should strive to integrate SQA initiatives within trial design and publish their protocols in endeavour to improve quality of surgical interventions, which may lead to improved survival.

QUALITY ASSURANCE OF SURGERY IN OESOPHAGOGASTRIC ONCOLOGY TRIALS AND TRIAL PROTOCOLS

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Key words: Oesophagogastric, oncology, Randomised controlled trials, Quality Assurance, Surgery, Protocol

Introduction
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Method
Oesophagogastric oncology randomised controlled trials (RCTs) involving a surgical intervention with curative intent published from 2000 to 2018 were identified through an online search of Embase, Medline and PubMed. Protocols were identified and assessed along with trial manuscripts using a SQA scoring system. SPSS (IBM) was used for statistical analysis.

Results
From 2589 articles screened 29 RCTs were identified including 5388 patients with gastro-oesophageal cancer. 12 RCTs (41.3%) had trial protocols identified, 10 via an online registry, 1 published and 1 procured form authors on request. SQA score of RCTs with protocols was significantly higher than those trials without publicly available protocols identified (U= 50, p=0.033). Of 28 RCTs recording 5-year overall survival, those with SQA scores above the median (1.0) had higher mean overall 5-year survival at 60.4%, compared to trials with SQA score equal to the median or less at 42.5%.

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Peritoneal carcinomatosis (PC) is a clinical presentation both of different primary tumors (synchronous or metachronous) such as colon-rectum, ovarian, appendix, stomach, pancreas, liver and primitive peritoneal neoplasms such as diffuse peritoneal mesothelioma and primary peritoneal adenocarcinomas. Historically, PC was considered an end-stage pathology and treated by palliative intent with debulking surgery and/or systemic chemotherapy, usually with poor results. However, in the last decades, the treatment of this peculiar cancer spread recorded a growth both in interest and technical improvements, drawing new outlines in the management of PC with curative intent. The most important therapeutic treatment is represented by Cytoreductive surgery and Hypertermic IntraPeritoneal Chemotherapy (Crs + HIPEC)

Cytoreductive Surgery (CRS) + HIPEC (Hyperthermic IntraPeritoneal Chemotherapy)

CRS and HIPEC have evolved over three decades and this association is now a standard of care for the treatment of peritoneal metastases from appendicetal cancers, selected colorectal cancer and peritoneal mesothelioma. Moreover, promising results for HIPEC in recurrent ovarian cancer have been published as a result of continued research in the management of peritoneal cancer spread. Multiple variables having an effect on outcome have been identified. There is a universal opinion regarding the surgery: all data show that the more complete the cytoreduction is, the greater the benefits that will occur from this combined treatment.

CRS + HIPEC achieved encouraging results with median overall survival rates higher than 190 months in pseudomixoma peritonei, higher than 30 months in patients with colorectal carcinomatosis, than 30 months in ovarian cancer and a 5-year survival rate of 30% in patients with gastric peritoneal carcinomatosis. Morbidity and mortality rate reported in literature range from 20 to 60% and 2 to 9%, respectively.

Conclusions

Some concerns related to this procedure may be summarized as follows:
- the procedure is aggressive, so patients amenable for CRS+HIPEC are strictly selected.
- the results are directly related to: completeness of cytoreduction, disease extension, tertiary centers’ availability and experience, timing of the procedure and primary tumor histology.

Consequently, CRS+HIPEC is reported to be a treatment option for a selected subgroup of patients, but not the majority of patients affected by PC are suitable for this promising therapeutic option. The acquired experience of our équipe and the available data on more and more consistent patient series allowed to detect tumors for which such treatment is now the “gold standard” (eg Pseudomixoma Peritonei) and, on the other hand, to exclude subgroups of patients who can benefit most from other treatments.
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The details of our casuistry (October 1995- August 2018) is explained in the following Tables

- **1501 Operations for “Peritoneal Carcinomatosis”**
  - 315 Explorative Laparotomy/Laparoscopy
  - 481 Debulking/Cytoreduction (Peritonectomy) without HIPEC.
  - 33 Cytoreduction with EPIC
  - 481 HIPEC
  - 191 PIPAC
- **481 HIPEC in 448 Patients**
  - 107 Ovarian Cancers
  - 177 Pseudomyxoma Peritonei
  - 92 Colo-Rectal Cancers
  - 67 Mesotheliomas
  - 18 Sarcomas
- 02 Desmoplastic Tumor
- 06 Gastric Cancer
- 11 Other Neoplasm

Total Morbidity 154 pts/481 (32%)
-Major Morbidity 81pts/481 (16,8%)
(considering grade 3b - 5 of Clavien-Dindo Classification of Surgical Complications)
Overall Mortality 9/481 (1.87%)

(PMP = 0%)

Conclusions
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- the procedure is aggressive, so patients amenable for CRS+HIPEC are strictly selected.
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CYSTOPROSTATECTOMY, STUDER ORTHOTOPIC NEOBLADDER


RA Ministry of Health National center of oncology named after V.A.Fanarjian, city Yerevan

Introduction. Patients who underwent radical cystectomy because of muscle invasive bladder cancer in whom urethra was intact Studer orthotopic neobladder nowadays is the best way of derivation of urine. It is characterized by the most satisfactory functional results and provide the highest quality of life.

Materials and methods. In National center of oncology in urological department we investigate 214 patients from 2012 to 2017 with early and late complication’s structure, who had muscle invasive bladder cancer in stage T2a-T4aN0-1M0 und underwent radical cystectomy with Studer orthotopic neobladder or radical cystectomy without orthotopic neobladder reconstruction.

Conclusion. Research data show an acceptable level (appropriate to international data) of early and late postoperative complications.

Studer ileal neobladder is remarkable with low percentage of complications. The main reason for prolonged stay in hospital, especially in a high age group is associated with other organ system complications. The method ensures the normal functioning of the sphincter system, which is one of the main conditions for the prevention of urinary incontinence. Radical cystectomy with orthotopic ileocystoplasty continues to be the preferred method of treating patients with muscle-invasive bladder cancer, as long as there are no guideline which will provide adequate comparable survival data of organ-preserving treatments.

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ANTEGRADE RADICAL RETROPUBIC PROSTATECTOMY

Shahsuvaryan V.H., Badeyan V.V., Araqelyan V.M., Tsarukyan K.H., Ghazaryan V.R., Melkonyan N.R.

National Center of Oncology named after V.A.Fanarjyan, Yerevan, Armenia

Introduction. In 1959 E.W. Campbell was the first who described the technique of antegrade radical retropubic prostatectomy (ARRP), which implies the mobilization of the prostate starting from the neck of the urinary bladder. He suggested the hypothesis that during the surgery the early ligation of lymphatic vessels would prevent the dissemination of the tumour cells by that way.

In 1988 E.D. Kursh and B.R. Bonder used this technique as an alternative method to radical nerve-sparing surgery.

Materials and methods. From 2013-2018 July, 103 ARRPs were done at the urological department of National Center of Oncology named after V.A.Fanarjyan. The age of patients were from 58-73. The disease stages by TNM classification were from T1aN0M0 to T2cN0M0. For all patients the histological finding was prostatic adenocarcinoma, Gleason score <=7, maximal PSA score was 22ng/ml.

Results. This method allows to save the neurovascular bundle with huge confidence (P.C.Walch). The usage of the antegrade method facilitates the identification of the lateral vascular bundle after separating the neck of bladder from the prostate which helps to decrease the damage of the parasympathetic nerves.

The blood loss was till 300ml. the duration of surgery was 100-120min.. There was no urine incontinence.

The other advantage was the late ligation of the dorsal venous complex which is done only just after resection of urethra. When the dorsal venous complex is cut at the early stages of surgery (for example during retrograde prostatectomy), may cause an evident venous bleeding, which is technically difficult to quit in the presence of prostate, while in the absence of prostate (ARRP) it is not so difficult.

Conclusion. The results of antegrade prostatectomy in comparison with results of retrograde method are the same with abovementioned advantages.

PALLIATIVE SURGERY OF PRIMARY INORGANIC, HUGE RETROPERITONEAL TUMOR: CASE REPORT

Azmaiparashvili G., Megreladze A. and Tomadze G.

Surgery Department N 2, Tbilisi State Medical University, Emergency Surgery and Traumatology Center, Tbilisi, Georgia

Background: retroperitoneal tumors (RT) are rare. 10-20% of sarcomas are of retroperitoneal origin. They are malignant in 70-80%, and benign in 10-20% of cases. Sarcomas comprise a third of RT.

According to the classification currently used RT are devided as: 1. Primary unattached tumors; 2. Tumors arising from the organs in the retroperitoneal space and 3. Primary or metastatic tumors involving
the retroperitoneal lymph nodes.

**Case report:** A case of primary inorganic RT has been presented: patient was 81 years old female, admitted to the clinic in 31.01.2018 with complains on enlarged abdomen, dull abdominal pain, lymphostasis of both legs as well as bilateral tibial trophic ulcers. She has been ill for 2 years now. The tumor has gradually gained the gigantic sizes. No signs of intestinal obstruction. RT was diagnosed by US and CT.

4 years ago diagnosed skin multiple basal cell carcinoma of the face. 35 yeas ago – hysterectomy due to fibroma of the uterus.

After laparotomy giant RT has been found (40X45 cm). Content of cyst was 5 liter, hemorrhagical. After aspiration of content necrotic internal layer of the cyst with variceal vessels was found. Radical removal of the cyst was impossible because of complexity of the tumor content and danger of severe bleeding. Resection of cystic walls had been made and drains were left in the residual cavity. From 2nd postoperative day remarkable decrease of lymphostatis and leg edema was noted. Patient was discharged on 12th postoperative day without complications. The wound was healed primarily. Discharge from drains was observed therefore the drains from the residual cyst were removed after 3 month.

Histology of the specimen revealed: the material contains a fibrilized hyalinised connective tissue wall with a well-vascular tissue surrounding the large proportions of hyperbolic nuclei and a solid proliferation of oval-shaped atypical cells, extravasates and hemosiderosis cells.

The patient was consulted after 5 months. General condition was satisfactory, no major complains, no recurrence of cyst, all trophic ulcers on the legs were healed.

Thus, the case is rare and interesting, since describing palliative surgical treatment (partial resection) of complicated RT. Removal of RT decreased pressure on lymphatic ducts and therefore influenced positively on lymphostasis of both legs with subsequence tibial ulcer healing.

According to the literature five-year local recurrence-free survival after complete resection of RT is between 55% and 78%, and five-year overall survival between 39% and 68%. This is because they are generally large and arise in an anatomically complex and surgically inaccessible site with surrounding vital structures limiting wide margins.

**Conclusion:** Due to the low response rate to chemotherapy, the best remaining treatment option of RT is surgery with wide resection margins, but often this is difficult because of invasion to adjacent visceral organs and vascular structures.

In selected patients with unresectable RT palliative surgery (incomplete resection leaving unresectable tumor) can provide prolongation of survival and successful symptom palliation and therefore can be offered for symptom control and quality of life improvement.

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**Locally advanced pancreatic cancer. Possibility of performing cryodestruction**

**Ionkin D.A., Stepanova Yu.A., Zhavoronkova O.I., Karelskaya N.A., Chzhao A.V.**

_A.V. Vishnevsky National Medical Research Center of Surgery_

**The purpose:** improving the life quality, and increase life expectancy (in combination of chemotherapeutic treatment) in patients with locally advanced pancreatic cancer (LAPC).

**Materials and methods.** Since January 2012, open cryodestruction has been performed in 36 patients with LAPC (male-14(38.9%), female–22(61.1%). The mean age was 58±6.8 years. Tumor size was 2.5-10 cm. Local destruction was supplemented by bypass anastomoses in 18(50%) cases.

Ultrasonography, CT and/or MRI performed to all patients before surgery. Ultrasonography carried out at intraoperative period too.

“CRYO-MT” and “CRYO-01” were used, as well as porous-sponge applicators made of titanium nickelide. The target temperature: -186ºС. Exposure time: 3-5 min. All patients subsequently underwent adjuvant chemotherapy, supplemented with regional chemoembolization in 10 cases.

**Results.** Stages of US-control and diagnostic characteristics of tissue changes after cryo-effect are defined: 1. navigation; 2. ”iceball” formation; 3. thawing; 4. after applicator removal.

There were no lethal outcomes during the intervention and in the nearest postoperative period. Complications: intraperitoneal bleeding was - 2(5.5%); acute pancreatitis - 5 (13.8%); suppuration in the manipulation zone - in 2(5.5%); ascite - 9(25%). After cryodestruction: the complete disappearance of the pain syndrome - 42.2%, a significant decrease in its intensity - 41.6%. Survival in Kaplan-Meier: 6 months–92%, 12–84%, 24–48%, 36–14%. Median–18.2.

**Conclusion:** Cryodestruction in patients with LAPC improves the quality of life due to pain relief and increases survival rate in combination with chemotherapy. Ultrasound is an important diagnostic modality in the stages of diagnosis and treatment of such patients.

**#54098 Cryodestruction in locally advanced pancreatic cancer**

Y.A. Stepanova, D.A. Ionkin, O.I. Zhavoronkova, N.A. Karelskaya, A.V. Chzhao

Moscow/RU

Pancreas Malignant Lesions

**INTERVENTIONAL RADIOLOGY - IR2:** Non-randomized controlled trial

**Oral presentation**

**Purpose**

Improving the life quality, and increase life expectancy (in combination of chemotherapeutic treatment) in patients with locally advanced pancreatic cancer (LAPC).
Material and methods

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Conclusion

Cryodestruction in patients with LAPC improves the quality of life due to pain relief and increases survival rate in combination with chemotherapy. Ultrasound is an important diagnostic modality in the stages of diagnosis and treatment of such patients. There were no lethal outcomes during the intervention and in the nearest postoperative period. Complications: intraperitoneal bleeding was - 2(5.5%); acute pancreatitis - 5 (13.8%); suppurative in the manipulation zone - in 2(5.5%); ascite - 9(25%). After cryodestruction: the complete disappearance of the pain syndrome - 42.2%, a significant decrease in its intensity - 41.6%. Survival in Kaplan-Meier: 6 months–92%, 12–84%, 24–48%, 36–14%. Median–18.2. t intraoperative period too. “CRYO-MT” and “CRYO-01” were used, as well as porous-sponge applicators made of titanium nickelide. The target temperature: -186°C. Exposure time: 3-5 min. All patients subsequently underwent adjuvant chemotherapy, supplemented with regional chemoembolization in 10 cases.

#Pancreas #CT #Ultrasound #MR #Ablation procedures #Cancer
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<td>Թորակալ վիրաբուժություն</td>
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XXII ANNUAL MEETING OF THE EUROPEAN SOCIETY OF SURGERY – ESS
IV CONGRESS OF ARMENIAN ASSOCIATION OF SURGEONS
III EUROPEAN MEETING OF RESIDENTS AND PHD IN SURGERY

Երևան, Հայաստան

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