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1. Cytoreductive surgery and hypertermic intraperitoneal chemotherapy for treatment of peritoneal carcinomatosis. Experience of Vilnius university hospital Santaros klinikos

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Introduction. Locoregional spread of abdominopelvis malignant tumors frequently results in peritoneal carcinomatosis (PC). In the past PC was lethal condition with a short survival and poor quality of life. In the present prevention of PC is possible and cure of selected patients is a reality. Cytoreductive surgery (CRS) and hypertermic intraperitoneal chemotherapy (HIPEC) has been regarded as the standart treatment for selected patients with PC in many established cancer centers.

Methods. Retrospective analysis of CRS and HIPEC for treatment of patients with PC was performed. All the patients were treated in Vilnius University hospital Santaros klinikos from 2011 till 2017. For continuous variables, the data were expressed as mean±SD. Survival curves for patients were calculated using the Kaplan–Meier method. All statistical analysis was performed using SPSS software, version 18.0 (Chicago, IL, USA). Results: A total of 47 patients (41 female and 6 male) underwent CRS and HIPEC. The mean age was 57 (31–75). PC from ovarian cancer was observed in 21 patients, from colorectal cancer in 15 patients, from appendiceal cancer in 3 patients, from gastric cancer in 1 patient and pseudomyxoma peritonei in 7 patients. Average of peritoneal cancer index (PCI) was 13 (2–33). Complete cytoreduction (CC-0) was achieved in 43 (92%) patients. Mean operative time was 6 (3–10) hours and hospital stay was 19 (7–69) days. Overall complication rate was 48%. There were no hospital mortality. During the observation period 34 (60%) patients are alive. One year overall survival rate was 93%. Mean follow up was 35 (3–78) months. Recurrence/progression of the disease was observed in 63% of patients with mean progression time of 16 months. One year survival rate was 100% of pseudomyxoma peritonei and appendiceal cancer patients, 86% and 85% of colorectal cancer patients and of ovarian cancer patients respectively. In 90 % of ovarian cancer patients recurrence/progression was observed.

Conclusion. CRS and HIPEC is effective treatment method for pseudomyxoma peritonei, appendiceal cancer and colorectal cancer patients with PC.

2. Impact of vacuum-assisted abdominal closure on dynamics of sepsis in patients with complicated intra-abdominal infections

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Background. Complicated intra-abdominal infections (CIAI) are associated with a severe course of sepsis, and in case peritonitis develops, mortality may reach 60%. The aim of the study is an assessment of the first results in the treatment of CIAI and severe sepsis using vacuum-assisted abdominal closure (VAAC).

Materials and Methods. Prospective observational study spanning from January 2011 to December 2017 included 99 consecutive patients with CIAI and peritonitis who developed sepsis and needed ICU treatment. The variables for statistical analysis were the dynamics of the Sequential Organ Failure Assessment (SOFA) score, C-reactive protein (CRP), procalcitonin (PCT) and lactate levels assessed on day 0 (on admission) (D0), and on days 1 and 3 after surgical intervention and the placement of the VAAC system.

Results. In total, data from 99 patients was analysed. The SOFA score on D0, D1 and D3 was 5 (IQR 2–8), 5 (IQR 2–7) and 3 points (IQR 2–7) and on D3 was significantly lower than on D1 and D0, $P < 0.001$. The CRP levels in the same interval of days were 266.2 mg/L (IQR 153.2–330.4), 246.6 (IQR 171.2–331.7) and 106.2 (IQR 76.1–159.9). D3 CRP levels were significantly lower than on D1 and D0, $P < 0.001$; PCT levels were 7.3 ng/mL (IQR 2–37.1), 8.6 (IQR 1.9–38.7) and 5.1 (IQR 1.1–16.0), on D3 was significantly lower than on D0 and D1, $P < 0.001$. Lactate levels were without a significant difference, $P = 0.085$. Sepsis developed in 29 patients, severe sepsis in 22 and severe sepsis and septic shock in 48 patients. The median age in the sepsis and severe sepsis groups was 59 years and 59.5 years, and 69 years in the severe sepsis and septic shock group, $P = 0.017$. No significant difference regarding gender was revealed; however, more males had severe sepsis and septic shock (30/48, 62.5%). The SOFA score differed significantly on admission, with the highest score of 8 (IQR 5–10) in the severe sepsis and septic shock group, $P < 0.001$. CRP levels showed a similar difference between the severe sepsis 313.7 (IQR 191.9–434.7) and the severe sepsis and septic shock 239.5 (101.3–307.6) groups, $P = 0.037$. PCT was significantly lower in the sepsis group, 2.6 (IQR 1.2–6.3) vs. severe sepsis, 8.8 (IQR 4.8–37.8),

$P = 0.012$, or the severe sepsis vs. septic shock group, 2.4 (IQR 1.7–3.6), $P = 0.001$. The median hospital stay did not differ significantly, as well as the median period of the VAAC treatment, and the number of VAAC changes. The ICU stay was significantly shorter in the sepsis group, 9 (IQR 7–15) days vs. severe sepsis, 12.5 (IQR 8.8–17.3), and the severe sepsis and septic shock group, 14.5 (IQR 9–21.8), $P = 0.025$. The mortality rate was 10.3% ($n = 3$) in the sepsis group, 13.6% ($n = 3$) in the severe sepsis, and 33.3% ($n = 16$) in the severe sepsis and septic shock group ($P = 0.04$).

Conclusions. The VAAC therapy is an effective way of severe sepsis management, associated with an improvement in organ function and a statistically significant decrease of inflammatory markers. It results in a lower mortality rate in comparison with the data from the currently available publications.

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Seymour CW, Liu VX, Iwashyna TJ, Brunkhorst FM, Rea TD, Scherag A, et al. Assessment of Clinical Criteria for Sepsis: For the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). *JAMA*. 2016 23; 315: 762–774. PMID: 26903335

3. Vacuum-assisted abdominal closure: 7-year experience in the treatment of complicated intra-abdominal infections

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Background. Vacuum-assisted abdominal closure (VAAC) has been developed as an advanced way of temporary abdominal closure in patients with a complicated intra-abdominal infection (CIAI) and peritonitis.

Purpose. The aim of this study is an evaluation of the prospective data with VAAC in a single institution.

Materials and Methods. In total, 99 consecutive patients with CIAI and peritonitis were treated in our institution using the KCI ABThera VAAC systems during the period from January 2011 to December 2017. The admission variables were the Acute Physiology and Chronic Health Evaluation II (APACHE II) score, the ASA score and the Mannheim Peritonitis Index (MPI), C-reactive protein (CRP), procalcitonin (PCT) and lactate levels, and the calculation of the Sequential Organ Failure Assessment (SOFA) score. The number of the

VAAC system changes, treatment period and the associated complication rate, the length of ICU stay, total hospital stay, and mortality were analysed.

Results. From a total of 99 patients, 60 were males (60.6%) and 39 females (39.4%) with a median age of 64 years (IQR 53–76). The median ASA score on admission was 3 (range 2–5), and the APACHE II score was 14 points (IQR 11–20). The calculated median MPI after surgical intervention was 27 points (IQR 21–32). The preoperative levels of inflammatory markers were as follows: the median CRP, PCT and lactate levels were 266.2 mg/L (IQR 153.2–330.4), 7.325 ng/mL (IQR 2–37.2) and 1.9 mmol/L (1.3–2.6), respectively. The median SOFA score before surgery was 5 (IQR 2.3–8). Of all patients, 44 (46.3%) were operated in the first 48 hours from the onset. Gastrointestinal (GI) perforation was the most frequent reason for using VAAC, reaching 87 (87.9%) cases, and perforation of the lower GI tract distal to ileocecal valve was found in 63 cases vs. perforation of the upper GI tract in 24 cases, $p < 0.001$. The most common causes of the lower GI tract perforation were diverticulitis ($n = 14$), anastomotic dehiscence ($n = 13$), appendicitis with perforation or abscesses ($n = 12$), and perforation of colorectal cancer ($n = 6$). The reasons for the upper GI perforation were necrosis of the small intestine due to strangulating hernia ($n = 6$), duodenal or gastric perforation ($n = 10$), and anastomotic dehiscence ($n = 3$). The median number of VAAC changes was two in the median period of 7 days ranging from 1 to 37 days. Emergent admission and VAAC placement after emergent surgical intervention was performed in 55 cases (57.9%). In 5 patients, the abdomen could not be closed primarily (5.2%), wound infection developed in 4 (4.1%), entero-abdominal fistula developed in 4 (4.1%), and bleeding from the abdominal cavity developed in 2 patients (2.1%), indicating the total complication rate of 15.5%. The median ICU stay was 13 days (IQR 8–19), ranging from 1 to 90 days, and the median hospital stay was 22 days (IQR 17–30), ranging from 1 to 119 days. The mortality rate reached 22.2%.

Conclusions. VAAC is a life-saving method for the management of CIAI and sepsis, especially in patients who develop peritonitis associated with a damage of the lower GI tract barrier.

Reference

Tolonen M(1), Mentula P, Sallinen V, Rasilainen S, Bäcklund M, Leppäniemi A.J Open abdomen with vacuum-assisted wound closure and mesh-mediated fascial traction in patients with complicated diffuse secondary peritonitis: A single-center 8-year experience. *Trauma Acute Care Surg*. 2017; 82: 1100–1105. PMID: 28338592

4. The Polish PIPAC (Pressurized IntraPeritoneal Aerosol Chemotherapy) program. The past, present and future clinical aspects

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Background. The term: peritoneal carcinomatosis – (PC) refers to the metastatic phenomenon of uncontrolled, rapid tumor growth within the peritoneal cavity most often of ovarian, gastro-intestinal alike representative group of other origin including primary types of cancer. Usually PC has a very poor prognosis and it is invariably terminal. Indeed, there is a serious lack of dedicated treatment schemes for patients suffering from advanced-stage PC. Over the past several years, for this group of patients there was no therapeutic option, mainly due to the relatively weak response to intravenous chemotherapy. To the one of the very ambitious clinical solutions targeted onto resolving many of the problems and challenges associated with specialized PC treatment belong in recent years the proposed by scientific team of Prof. Reymond an innovative pressurized intra peritoneal aerosol chemotherapy (PIPAC). The method involves the combination of laparoscopic mini – invasive surgical techniques with a modern way of delivering the drug in the form of appropriately dispersed drops of aerosol under pressure. In this study we have presented the history, current status and potential aspects of future development of Polish PIPAC Program.

Material and methods. In our study we have analyzed the implementation of PIPAC program in our single center institution and first Polish National PIPAC Program development. We have especially focus on the general preparations, main critical and problematic points alike in detail on most important issues related to the whole program development. In our study we have also presented the first clinical outcomes and characteristic of patients group who underwent the first surgeries. In this wor we have also presented the ongoing clinical trial studies alike scientific projects which has been developed and introduced into the clinic. Our data were analyzed since 10.05.2017 till present. We have supported the scientific data also with our preliminary results from the basic science studies and nanotechnology projects.

Results. In our study we have obtained the actual and helpful data according to the new PIPAC center establishment and future development. Additionally we have presented the clinical alike basic studies preliminary results.

Conclusions. The use of an innovative pressurized intra peritoneal aerosol chemotherapy (PIPAC) technique seems to be an interesting and still rapidly developing issues in current oncology and surgical oncology. We hope that data presented in our study could be probably in the nearest future very helpful for other specialistic peritoneal carcinomatosis treatment centers in their own basic alike clical scientific projects development.

5. Pressurized intraperitoneal aerosol chemotherapy – new minimal invasive treatment of advanced peritoneal carcinomatosis. First experience in Lithuania

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Introduction. Peritoneal carcinomatosis (PC) remains a condition with limited treatment options and poor prognosis. Although modern systemic chemotherapy has improved the treatment of systemic metastases (liver, lungs) but it is less effective for peritoneal dissemination probably because of poor peritoneal vascularization impeding proper drug distribution. Pressurized intraperitoneal aerosol chemotherapy (PIPAC) has been introduced as a new minimal invasive treatment for PC. Pressure application allows equal distribution and deeper penetration of the drugs despite lower doses. Minimally invasive access decreases morbidity and allows to repeat procedure several times. PIPAC is very new technic first applied in clinical use for humans in 2011.

Methods. We are the pioneers of PIPAC in Lithuania. First PIPAC was performed in Vilnius University hospital Santaros klinikos in October 2015. Since then 9 patients underwent 19 PIPAC procedures in our clinic. We present our first experience of this new treatment method and present some case reports as well as short deion of existing clinical data.

6. Does retrorectal tumors remain a challenge for surgeon?

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Introduction. Retrorectal tumors are rare lesions with wide range of histological differentiation that often are a diagnostic and clinical challenge. Incidence rate could be expected to be 1 every 40000 patients due to concentration of patients in tertiary centers, however actual occurrence may be higher [1, 2]. Retrorectal tumors originate in retrorectal space, which is defined as space between mesorectum and pelvic wall [3]. Classification of these tumors remain complicated, all primary tumors are classified as congenital, neurogenic, osseous, inflammatory or miscellaneous [4, 5]. Many cases of this pathology are treated in regional hospitals, which result in serious complication, because physicians fail to recognize this pathology. Since these tumors are rare pathology, most literature sources are reports from tertiary centers, giving somewhat abstract guidelines for best diagnostic and surgical approach.

Aim. There are not so much data collected about these tumors and their treatment. By presenting our data, we hope to fill the gap in diagnostic and surgical challenges for treating these tumors and emphasize the importance of reference of patients to tertiary centers.

Materials and methods. A retrospective analysis of prospectively maintained database was performed using Vilnius University Hospital Santaros Clinics patient database. 33 cases were identified. Computed tomography and Magnetic resonance imaging was used to determine the location of the tumor, the relation to other pelvic structures and possible malignant spreading, surgical approach was chosen with accordance of provided data. Surgical histories, operations, histological tumor type, operation length, weight of the specimen, blood loss, length of hospital stay and recurrence were analyzed. All data represented as mean values with standard deviation.

Results. Occurrence of retrorectal tumors was higher in women than in men and accounted for 81.8% and 18.2% respectively. Computer tomography or magnetic resonance imaging was main methods for confirming diagnosis and planning surgical treatment. We have used laparotomy, perineal or combined approach for tumor extirpation. Laparotomy approach being most used, followed by perineal extirpation. Operation length was 136.87 ± 73.04 min, ranging from 35 to 300 minutes. Removed specimen weight ranged from 39 g to 853 g, mean 266.22 ± 235.22 . Hospital stay varied from 4

to 21 day, mean 12.06 ± 5.74 . Most common histological type was cystic hamartoma – it was diagnosed in seven patients and accounted for 21.21%. In other 26 patients, histological findings were very heterogeneous Figure 1. 10 patients (30.3%) underwent one previous surgery and one patient has been operated on 5 times before referring to our center. Postoperative complication rate was 18.2% and was present in 6 cases.

Conclusions. Retrorectal tumors are very rare pathology with high histological heterogeneity and problematic diagnostics, which present a challenge to a surgeon. Patients should be referred to tertiary center, which has experience and diagnostic capabilities for best diagnostic and treatment options.

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7. SILS right colectomy: a new standard for right colon cancer?

7. SILS right colectomy: a new standard for right colon cancer?

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Introduction. The first single incision laparoscopic surgery (SILS) right colectomy was performed ten years ago [1]. Since then the method is getting more and more attention from the surgeons. Its efficiency and safety have been discussed in a number of publications [2, 3]. Unfortunately, there is not enough evidence to ensure its superiority comparing to conventional laparoscopic approach, basically due to small study samples [4, 5].

Aim. The goal of this study was to present our experience of SILS right colectomy and to compare it with conventional laparoscopic right colectomy.

Methods. A retrospective study was completed collecting data of all patients who undergone minimally invasive right colon resection between 01/2014 and 12/2017 in Department of Surgery, Vilnius University Hospital “Santaros Klinikos”. The patients with left side pathology and those with non-neoplastic disease were excluded from the study. The patients were divided into two groups: SILS right colectomy group (group A) and conventional laparoscopic right colectomy group (group B).

Results. 44 patients were operated due to right side colon neoplasia: 8 patients (18.2%) in group A and 36 (81.8%) in group B. Patients had a higher body mass index in group B while compared to group A (27.4 ± 3.9 vs 21.62 ± 3.25 , respectively ($p < 0.01$)). The average duration of surgery was shorter in group A (135.6 ± 29.0 min) than in group B (155.0 ± 40.2 min) ($p = 0.21$). Better results were found while comparing mean blood loss between A and B groups (3.8 ± 7.4 ml and 47.6 ± 42.0 ml, respectively) ($p < 0.01$). The mean length of hospital stay after the operation was shorter in group A comparing to group B (6.0 ± 2.0 vs 7.0 ± 1.8 ($p = 0.16$)). There were 3 (8.3%) conversions to open surgery in group B. No postoperative complications occurred in group A while 2 (5.6%) were diagnosed in group B. The mean number of harvested lymph nodes differed between groups A and B (19.0 ± 6.0 and 23.0 ± 10.4 , respectively ($p = 0.18$)). Histological evaluation of the specimens revealed clear margins for all patients.

Conclusions. SILS right colectomy is efficient, safe operation and have advantages in our initial comparison. Therefore, SILS right colectomy could be the first option method for treating right sided colon neoplasia in selected patients.

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8. What is the best timing for preventive ileostomy reversal after TME for rectal cancer?

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Total mesorectal excision (TME) has become the accepted surgical procedure for rectal cancer. The most important complication associated with TME is a symptomatic anastomotic leak. Leaks may be associated with decreased local control and survival and it is still one of the most fatal complications that occur after TME, it may increase morbidity, mortality, prolong the duration of hospital stay, and affect the short- or long-term quality of life. One meta-analysis has shown that a defunctioning stoma significantly reduces the rate of anastomotic leakage and reoperation in patients that receive low anterior resection for rectal cancer. Ileostomy closure is traditionally done 2–3 months after the primary operation to allow adequate recovery after primary surgery, and it is not unusual that the stoma is left in place much longer, and for a few patients it becomes permanent. Many studies have demonstrated high complication rates following loop ileostomy closure. Overall morbidity following this operation was found to be 17.3% with a mortality rate of 0.4%. Early closure might reduce the stoma-related morbidity and the patient’s discomfort. Because anastomotic leakage mostly presents within a period of five to seven days, it is probably justified to state that if there are neither clinical nor radiologic signs of anastomotic leakage after one week, the colonic anastomosis has sufficiently healed and it is safe to do closure. A systemic review by Jason P. Robertson reported that stoma-related complication rates were lower in patients undergoing early closure. Both mortality and ileus/small bowel obstruction rates also compare favorably with traditionally timed closure; however, wound infection rates appear to be increased. Recent trial found that in selected patients without clinical, radiological, or endoscopic signs of a leakage early closure of the temporary ileostomy resulted in a significantly lower mean number of complications compared with late closure, they also found low numbers of severe complications in both groups suggesting that patients should be considered for early closure of an ileostomy if they have no signs of anastomotic leakage in the postoperative period after rectal resection. Study in New Zealand revealed that early closure reduces hospital readmissions and operative costs resulting in significant healthcare savings. In conclusion defunctioning

stoma significantly reduces the rate of anastomotic leakage and reoperation in patients that receive low anterior resection for rectal cancer and in selected patients it is safe to perform early closure.

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9. The treatment of acute iatrogenic colonic perforation: 6 years experience

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Keywords: colonoscopy, iatrogenic colonic perforation

Introduction. Colonoscopy is most effective method for diagnosis of colorectal diseases [1]. Infrequent but severe complications may occur during both diagnostic and therapeutic colonoscopy, including bleeding[2], perforation and sepsis [3]. Usually it occur 0,1–0,3 % [3], and is increasing for polypectomies 0,19–0,29 % [4,5], and with age – 1,9 % [6].

Material and methods. Patients who underwent diagnostic and therapeutic colonoscopy between May 2012 and January 2018 at a single center were reviewed retrospectively. Procedures during which colonic perforation occurred were documented and analysed.

Results. Between May 2012 and January 2018 patients underwent colonoscopy at our center. 11 of these procedures were associated with perforation (0,098%) – diagnostic colonoscopy – 8 of 9884 (0,080%) and therapeutic 3 of 1 336 (0,224%). Was analysed 12 patients, one of them from another hospital. There were some demographic differences: male – 58,3%, female – 41,7%; median age 63±6,5 years. The most frequent location of perforation were the sigmoid colon (75%), the descending colon (25%). Management included surgical treatment was in all 12 patients: laparoscopically – 33,3%. No death occurred.

Conclusion. Although they are rarely encountered, colonic perforation are serious complication of colonoscopy. Age, co-morbidities, the location and size of the perforation should be evaluated.

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10. Transanal total mesorectal excision: first experience in Klaipėda university hospital

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Laparoscopic resection of rectum acknowledged to be not inferior to open surgery[1][2], yet in the cases of low- or mid- third rectum tumours there are anatomical and technical issues: shape of mesorectum, limited view on distal margin of tumour, restricted workspace deep in the pelvis[2]. Especially complicated conditions are in obese men with bulky mesorectum. 2010 Lacy introduces transanal total mesorectal excision (Ta-TME) technique, shortly followed by other authors. This approach achieves longer distal resection margin, better quality of TME, decreased rate of involved CRM [3]. Alongside of claimed advances, concern arose about potentially unnecessary low transection of mid-third rectum tumours and possible dissemination of tumour cells because of transection inside the pelvis [4]. 2015 started COLOR III - international, multicentre, superiority, randomised trial comparing transanal TME and laparoscopic TME as the surgical treatment of mid and low rectal carcinomas. Due to the sample of 1098 patients it will be able to clarify the benefits and drawbacks of transanal approach [5]. Aim of the presentation – introduce to the medical community first experience of the transanal TME in Klaipėda university hospital. Starting in 2017-05-25, we have successfully performed 4 such operations. All of pa-

tients were males, age from 49 to 77 years old. Tumours were located from 6 to 10 cm from the anal verge. Three patients underwent neoadjuvant chemoradiation, one – short-term preoperative radiation. Duration of operations varied from 9:35 to 7 hours. One patient developed early anastomotic leakage, requiring reoperation, one patient – late leakage, which resolved with transanal drainage. Two patients had postoperative ileus. One – the last – patient went uneventfully. In our opinion, transanal TME is feasible and usable operation. With gain of experience and knowledge, we expect significant decrease of operation time and rate of complications. Presentation includes short video containing principal moments from our operation and photos of removed specimen.

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11. The changes of disease free and overall survival of resectable rectal adenocarcinoma between 2010 and 2015

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Introduction. Management of rectal cancer (RC) has undergone many changes in recent decades. A multidisci-

plinary approach to this complex disease is essential, ensuring high-quality treatment and outcomes [1]. Better access to the diagnostic and treatment modalities probably enable to improve treatment outcomes.

Aim of the study. To compare treatment results of rectal cancer in single centre setting between 2010 and 2015 and identify responsible factors.

Material and methods. A Retrospective comparative study included patients with newly diagnosed RC who were operated at department of surgery, Hospital of LUHS between 2010 and 2015 because of rectal cancer. Patients', diagnostic, and treatment data were analysed, Postoperative morbidity was measured according to the Clavien-Dindo classification. Survival data was received from the Lithuanian Cancer Registry. Continuous variables were expressed as mean and SD. Student t test and one-way ANOVA was used for parametric data and Mann-Whitney test for non-parametric. A multivariate Logistic regression analysis to identify independent factors for increased survival. Association between categorical variables was verified using Pearson chi-square. The level of significance was set at 0.05.

Results. Study included 179 patients: 80 from 2010 (Male N = 47 (58.8%), female N = 33 (41.2%)) and 99 from 2015 (49 male (49.5%), 50 female (50.5%)). Mean sample age was 67,1±10,7 years. There was no significant difference regarding age, gender, median ASA (3 in both groups), but mean hospital stay was 2 days shorter (8 vs 10 days) in 2015 (p = 0.002). There were only 8 patients (4%) admitted to hospital on an emergency basis. Pelvis MRI and abdominal CT were performed more often in 2015: from 37.5% to 77.8% (p < 0.001) and from 52.5% to 97% in 2015, respectively. CRM evaluation increased from 13.8% to 36.4% (p = 0.001). There was no significant difference regarding other diagnostic methods. Neoadjuvant Therapy increased from 20% in 2010 to 44.9% in 2015 (p = 0.01). Operating approach or method distribution did not differ between groups. Overall postoperative Clavien-Dindo complication rate was higher in 2015 (13.8% vs. 20.2%, p = 0.596) but in-hospital mortality was lower (1 pts vs. 0 pts.). Compared radiological TNM vs pathological TNM with one-way ANOVA showed significant difference staging conjunction 2010 (p = 0.002) and 2015 (p = 0.001). 2-years OS has increased from 76.3% to 86% (p = 0.046), and median DFS from 27(0-35) to 28(0-35) in months/from 72.5% to 83.5% (p = 0,077). Multivariate logistic regression analysis determined that availability and performance of MRI was associated with an increased overall survival (OR = 1.529 (95% CI 0.916–2.554), p = 0.020).

Conclusions. The increased quantity of preoperative imaging has led to a better RC staging while higher availability

and performance of pelvic MRI can affect better 2-years overall survival rate.

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12. Does salvage total mesorectal excision following transanal endoscopic microsurgery lead to worse short- and long-term results comparing to primary total mesorectal excision: case-matched analysis

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Keywords. Rectal cancer, total mesorectal excision, transanal endoscopic microsurgery, salvage TME

Introduction. Transanal endoscopic microsurgery (TEM), is a minimally invasive surgical procedure, that lets clearly

see magnified stereoscopic view of rectum and allows local excision of early stage rectal cancer and can be used as an alternative treatment to radical surgery. In case of unfavourable histological features patients can undergo salvage total mesorectal excision (TME). AIM. We aimed to compare intraoperative, short-term results and possible complications of salvage TME following TEM and primary TME procedures.

Materials and methods. We conducted a prospective study from retrospectively gathered data, that covered information of patients who had been treated for early rectal cancer from 2010 to 2017 at National Cancer Institute. Early salvage TME (sTME) was performed in nine patients. These patients were compared with 18 patients who underwent primary TME (pTME), matched according to gender, age, cancer stage and operative procedure. Data were obtained from the patients' charts and reviewed prospectively. We recorded the demographics, tumour specifications, treatment, operative timing, postoperative results complications, and oncological outcome. Both groups were compared using Fisher's exact test and student's T test.

Results. Total of 130 patients underwent TEM at our institution during study period, nine (6.92%) of those patients had to undergo sTME. The average age of patients was 62.7±7.07 years, 44.4% of patients were male and 55.6% female. The average tumour size in sTME group was 2.8±1.05 cm (range, 1.5–5) and 2.61±1.36 cm (range, 1–5) in pTME group (p = 0.696). The average number of harvested lymphnodes was 12.44 in sTME and 12.5 in pTME group (p = 0.986). Comparing postoperative complications on both groups statistically significant results were not found (p = 0.55). Operative time of pTME was significantly shorter on average of 43 minutes compared to sTME (p<0.0267). Mean hospital stay was 13.2±9.68 days in sTME and 9.11±2.44 days in pTME group (p = 0.097).

Conclusions. Transanal endoscopic microsurgery is a relatively safe method for treating patients with early rectal cancer, in cases of benign tumour even though sTME after TEM is a challenging procedure and a previous TEM represents a risk factor for an increased rate intraoperative bowel perforation, it is not associated with increased morbidity or increased mortality. These conclusions may be biased by the small numbers and the retrospective design of the study and should therefore be considered with caution.

13. Risk factors for colorectal anastomotic leak: 5 year single center experience

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Background. Anastomotic leak is severe complication of colorectal surgery with rates of about 11% [1]. Risk factors and incidence rate of anastomotic leakage vary considerably among clinical studies because of the lack of a standardized estimation.

The aim of this observational study is to evaluate main risk factors for anastomotic leakage in patients with colorectal cancer.

Methods. A retrospective analysis of prospectively maintained database was performed including the patients who underwent colorectal resection due to colorectal tumors from 2013 to 2017. All patients undergoing primary anastomosis were included. Univariate statistical analysis of anastomosis leak risk factors was performed. The factors analyzed were: age, sex, comorbidities (diabetes mellitus, renal failure, heart rhythm disorders, heart failure, obesity), location of the tumor, duration of surgery, anastomose formation technique (manually constructed or stapled), type of surgery (laparotomy, laparoscopy, conversion), TNM stage, neoadjuvant therapy.

Results. 534 patients were included to the study. Anastomotic leakage occurred in 38 cases (7.1%). Statistically significant anastomosis leakage risk factors in our study were: renal failure (n = 2, 5.3%, p = 0.047), arrhythmia (n = 7, 18.7%, p = 0.035), obesity (n = 9, 23.7%, p = 0.006), manual anastomosis forming technique (n = 14, 36.8%, p = 0.009), N1-N2 dissemination in lymph nodes according to TNM staging (n = 10, 26.3%, p = 0.023).

Conclusions. The results of this study shows an increased risk for anastomotic leakage for patients with renal failure, cardiac rhythm disorders, obesity and metastasis in lymph nodes. Manual anastomosis formation technique was associated with an increased risk as well. All in all, when planning

for primary anastomosis after surgical resection of the colorectal tumor, these factors should be considered.

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14. Laparoscopic colostomy reversal after Hartmann procedure

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Introduction. From 2009 open to laparoscopic reversal of Hartmann's colostomy was implemented in Republican Vilnius university hospital General surgery center.. The aim of the study was to investigate if this change was beneficial for the patients.

Material and methods. The medical records of all patients who underwent reversal of a colostomy after a primary Hartmann's procedure during the period May 2009 to December 2017 were reviewed retrospectively in a case control study.

Results. 25 patients were included. Fifteen had laparoscopic and 10 open procedure. Both groups matched with regard to age, sex, American Society of Anaesthetists (ASA) score, body mass index and indication for Hartmann's operation. A significantly longer mean operation time was found for laparoscopic than for open surgery (285 versus 158 min., p < 0.001), but with less blood loss (100 versus 600 ml, p < 0.001), faster return of bowel function (3 versus 4 days, p < 0.01) and shorter postoperative hospitalization (4 versus 6 days, p < 0.01). One laparoscopic operation was converted (6,7%). There was no difference in postoperative complications between the groups (10% versus 14%). There were no intraoperative complications, anastomotic leaks and postoperative mortality.

Conclusion. In comparison to open surgery, laparoscopic Hartmann's reversal is safe procedure with the same complications rate, faster recovery, shorter hospital stay and less blood loss despite a longer knife time. We propose to use it as standard surgery for experienced laparoscopic surgeons.

15. Patients selection for transanal total mesorectal excision (taTME) operations

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Background. Total mesorectal excision is the golden standard for rectal cancer treatment [1]. Transanal total mesorectal excision (taTME) is a novel approach, pioneered for challenges in obese, narrow, usually males, pelvic dissection for middle or low rectal cancer surgery [2, 3]. After gaining experience using all available transanal ports in the market we are presenting our data and sharing experience of this advanced operation method.

Methods. A prospective series of all taTME operations were conducted from January 2015 to January 2018 in Vilnius University Hospital “Santaros klinikos”. All operations were performed by the same two surgical teams in standard technique described elsewhere.

Results. In total we have performed 20 taTME operations. There were 14 males and 6 female patients operated. Age ranged from 39 to 83 years with mean body mass index of 29.1 4.6 kg/m² (ranged from 22.2 to 41.3). The distance of the tumour from the anal verge ranged from 5 to 12 cm. The mean operation time was 259 54 min (ranged from 175 to 355) with operative blood loss from 0 to 400 ml. The mean of harvested lymphnodes was 19.6 8.3. There was one conversion due to proximal bowel segment necrosis, but no intraoperative complications. Thirty-day morbidity was low: we have diagnosed the proximal bowel site segmental necrosis in fourth postoperative day for one patient (Clavien-Dindo IIIb), the patient underwent colostomy formation. One patient was diagnosed with acute myocardial infarction at first postoperative day (Clavien-Dindo IIIa), the patient underwent coronary stenting. No patient died within the first 30 days post-surgery (Clavien-Dindo V). Both the circumferential resection margin and distal resection margin were negative in all cases.

Conclusions. TaTME is a safe, feasible and reproducible technique, with good quality of oncological resection. Advised to start taTME operations from female patient with middle, locally unspread and no neoadjuvant radiotherapy rectal cancer.

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16. Biomechanical and morphological peculiarities of the rectum in patients with obstructed defecation syndrome

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The morphological and biomechanical peculiarities of the rectum observed in obstructed defecation syndrome (ODS) are not completely understood [1]. In our study the biomechanical properties and morphological features of the rectum in patients with ODS in correlation with the status of the enteric nervous system (ENS) were evaluated. Uniaxial tensile tests on the rectum samples of patients with ODS and controls were performed; collagenous constituents were assessed by Reticulin and Masson's trichrome stainings; the expressions of α -smooth muscle actin (α -SMA), S100 and CD117 labeling of interstitial cells of Cajal (ICCs) were investigated by immunohistochemistry [2]. In both groups, the ultimate stress in the posterior rectal wall was statistically significantly higher compared to the anterior one. The ultimate strain was higher in ODS compared to controls. The tangential modulus of elasticity was significantly higher in the control group than in the ODS one, both in the anterior and posterior walls. A significantly higher density of collagen demonstrated throughout the wall was evidenced in controls compared to ODS. The mucosal muscular compartment was significantly thicker but more disorganized in the patients group. The enteric S100-positive glial cells were significantly reduced in number in the anterior wall, but elevated in the posterior wall of the rectum in ODS simultaneously demonstrating the higher numbers

of ICCs within the entire muscular layer and myenteric. The biomechanical and morphological results show that the rectal wall in patients with ODS is more deformable and less rigid compared to controls. The results of biomechanical properties and morphological changes in the human rectum are essential when choosing the method of ODS treatment.

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17. Does the etiology influence the primary outcomes of acute pancreatitis?

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Introduction. The influence of etiological factors on the course and outcomes of acute pancreatitis (AP) is not fully understood yet. Dominant (>80%) etiological factors of AP are gallstones and alcohol abuse. Aim: In the present prospective study we aimed to compare the course and outcomes in alcoholic and biliary severe AP patients (SAP).

Methods. The study population consisted of 217 patients with alcoholic or biliary AP. The severity of disease and clinical status was assessed on the day of admission and reassessed using the same prognostic tools every 7 days, or when the deterioration of clinical condition occurred. The contrast enhanced computer tomography (CECT) scan was performed on day 5 to 9 after the onset of disease to demonstrate the presence of pancreatic necrosis. All patients were managed according to the standard AP management protocol following the recent international guidelines. Prospectively maintained database of microbiology laboratory was used to analyze the incidence of infection and isolated pathogens.

Results. Total in-hospital stay was longer in alcoholic SAP group (14 (1–68)) in comparison with biliary SAP group (8.4 (1–59), $P = 0.02$). Rate of complications such as multiple organ dysfunction syndrome (MODS), pulmonary or renal dysfunction was similar between both groups. Cardiac dysfunction was more often diagnosed in biliary SAP group (6 (16.2%) vs 1 (2.3%), $P = 0.02$). There was no significant difference in mortality rate in both groups. There was no sig-

nificant difference between alcoholic and biliary SAP groups in frequency and timing of ultrasound-guided fine needle aspiration and ultrasound-guided drainage. Open necrosectomy was more frequently performed in alcoholic SAP group (22 (50%) vs 9 (24.3%), $P = 0.03$). CECT had shown that there were 24 (58.5%) patients of alcoholic SAP group and 16 (51.6%) patients of biliary SAP group with pancreatic necrosis exceeding 30%. Bacterial culture analysis revealed that the overall number of bacterial strands isolated in the alcoholic SAP group patients was higher when compared with the biliary SAP group (168 vs 68). There was no statistically significant difference in the prevalence of antibiotic resistant strands of bacteria in either of the treatment groups.

Conclusion. The results of this study show more favorable course of disease in biliary SAP patients.

18. Liver resection vs transplantation for hepatocellular carcinoma. Single center experience

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Introduction. Hepatocellular carcinoma (HCC) is the fifth most common cancer in men and the ninth in women (1). It accounts for 80–90 % of primary liver cancer and usually develops between 35 and 65 years of age (2). Hepatitis B infection is the main risk factor in Asia and Africa (2). However, in Western countries, hepatitis C is the main cause of hepatic cirrhosis which often leads to hepatocellular carcinoma. There are many evidence that show superiority of liver transplantation for HCC, resulting in better overall survival and disease free survival, especially in early cases, compared to liver resection [3, 4, 5].

The aim of this article is to conclude single center experience in HCC treatment analyzing advantages and disadvantages of liver resection and transplantation. Patients and Methods A retrospective analysis was performed using Vilnius University Hospital Santaros Klinikos patient database. 136 patients with HCC treated either with liver resection or liver transplantation from 2000 January to 2017 September. Bioethical approval was obtained for this study from hospitals bioethical committee.

Results. Both patient groups, liver resection (LR) and liver transplant (LTx), were comparable. Patients in the transplant group were younger, compared to LR group, 52.71 and 63.55 years respectively. HCC was significantly more frequent in males than in females, though in LR group ratio was 2: 1 and in LTx group male ratio was ten-fold higher, 76/37 and 21/2 respectively. In both groups hepatitis C viral infection was most common predisposing factor for HCC, 65.48% in LR group and 56.52% in LTx group. All patients in LTx group had liver cirrhosis present during time of treatment, whereas in LR group cirrhosis was present in 55.75%. In the LR group (76.12%) patients had Child A cirrhosis. AFP scores were significantly different between groups and were higher in LR group. Perioperative data was comparable between the groups, were LTx was significantly longer compared to LR, 481.25±89.99 and 148.85±62.25 respectively. In addition, blood loss was significantly higher in LTx group compared to LR, 1834.78±1707.9 and 757.78±987.34 respectively, though blood unit transfer count was not significant between groups. In postoperative analysis LR group presented with significantly less overall complications compared to LTx, 26.55% vs 60.86%. In both groups mild complications were similar, however LTx group was prominent in severe complication rate, Clavien-Dindo III and IV, resulting in 47.82% rate. Mortality rate was significantly higher in LTx group compared to LR, 8.69% vs 0.88% respectively. Despite better postoperative data in LR group, long term outcomes are not satisfying. Overall 5-year survival was only 11.9% with 54.17% total recurrence and average disease free survival of 12.65 months. In comparison in LTx group 5-year overall survival was 67% with only one case of recurrence.

Conclusion. Despite high recurrence rate and low overall survival in patients undergoing LR with HCC, it is still main choice of surgery for early, localized disease. Mainly due to availability, low cost and shortage of donor liver. Nevertheless, LTx remains best curative treatment option for HCC with best survival results.

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19. Factors influencing survival after pancreatoduodenectomy for ductal adenocarcinoma depend on patients' age

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Background. It is supposed that a prolonged lifetime will be associated with increased incidence of PDAC among the elderly. Some studies show a tendency toward decreased survival in the elderly patients following pancreatoduodenectomy for PDAC. The aim of this study was to evaluate factors, influencing survival following pancreatoduodenectomy for PDAC in different age groups.

Methods. Data of 251 patients after pancreatoduodenectomy for PDAC between 1999 and 2012 were analyzed. The Kaplan-Meier method and log-rank test were used to calculate survival and to compare differences between groups. The Cox proportional hazard model was applied to identify independent prognosticators.

Results. The overall median survival was 14.9 months. Postoperative morbidity was 25.5% with a 5.1% mortality rate. No significant differences in the overall morbidity (22.4 vs. 29.6%) or mortality (2.8 vs. 8.3%) rates were observed between different patients' age groups (<70 years and >70 years). Multivariate analysis revealed R1 resection (HR 1.76) and poor tumor differentiation (G3-G4) (HR 1.48) were independent negative factors for survival in patients <70 years. Lymph-node metastases (N1) – HR 4.89 and perineural invasion – HR 2.73 were independent prognosticators in the elderly.

Conclusions. Our study highlighted different factors influencing long-term survival after pancreatoduodenectomy: R1 resection and poor tumor differentiation (G3-G4) were independent negative factors for survival in patients <70 years, while perineural invasion and lymph-node metastases result in worse survival among the elderly.

20. Percutaneous transhepatic biliary drainage – first step in the palliative treatment of malignant biliary obstruction?

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Introduction. Percutaneous transhepatic biliary drainage acts as an alternative way to achieve biliary decompression in patients with obstructive jaundice, when endoscopic drainage is unavailable [1]. This procedure can reduce high serum bilirubin levels, this way achieving better liver function, reducing side effects of jaundice and hyperbilirubinaemia and allowing patients to receive further treatment [2].

Aim of the study. To evaluate the clinical outcomes and possible benefit of an ultrasound guided percutaneous transhepatic biliary drainage as the first step in the palliative treatment of malignant biliary obstruction. Methods: Retrospective review of patients undergoing percutaneous transhepatic biliary drainage from 2014 to 2015 at the Department of Surgery, Hospital of the Lithuanian University of Health Sciences was performed. Patients were reviewed for demographic features, laboratory tests, complications, outcomes (reduction in serum bilirubin level), hospital stay and mortality rate.

Results. During the study period 99 patients (43.4% males (n = 40)) with median age of 68.67±11.02 (range 44–95) received 124 successful biliary drainage procedures for malignant obstructive jaundice. Prior the percutaneous drainage procedure 58 patients (58.6%) were unsuccessfully treated by endoscopic retrograde cholangiopancreatography (ERCP). Forty patients (40.4%) were diagnosed with periampullary tumours, thirty patients (30.3%) had proximal/hilar cholangiocarcinoma and 29 (29.3%) patients had biliary obstruction due to liver metastasis. Acute cholangitis before drainage procedure was present in 52 (52.5%) patients. After drainage procedure total serum bilirubin value decreased in 87 (87.9%) patients (from 293.72±131.9 µmol to 193.11±117.49 µmol, p<0.05). Reduction in the levels of Gamma-glutamyl transferase and Alkaline phosphatase was observed in 94 (94.9%) patients. Seventy patients (70.7%) underwent additional interval procedures. In 62 (88.6%) cases percutaneous transhepatic biliary stenting was performed. The mean hospital stay was 25,49±17,97 days (after

percutaneous drainage – 19,95±17,28 days). Thirty-four (34.3%) patients developed drainage related complications, with drainage catheter dislocation being most common (70.6% (n = 24)). Hospital mortality rate reached 27.3% (n = 27) with no drainage-related deaths.

Conclusions. Percutaneous transhepatic biliary drainage is safe and effective method to reduce malignant obstructive jaundice, when other, less invasive drainage methods are unavailable or ineffective and acts as a necessary step in further palliative treatment of these diseases.

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21. Laparoscopic distal resection of the pancreas. Can be all resections of body and tail of the pancreas called the same?

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Introduction. Distal resection of the pancreas is a routine procedure in high-volume centers. However, volume of this procedure can vary. This variation plays a very important role in laparoscopic approach of pancreatic surgery and can be a real challenge if the anatomical situation is underestimated.

Aim. To present our experience in minimally invasive treatment of the pancreatic tumors and to discuss different approaches to different anatomical situations.

Material and methods. We performed a retrospective analysis of patients, who underwent laparoscopic pancreas resection for pancreatic cancer in our hospital since 2014 to 2017. According extension of operation, patients were divided into two groups: distal pancreatectomy and left hemipancreatectomy for the cases which required preparation of the portal vein. Demographic characteristics, operative and postoperative data were compared between both groups.

Results. Out of 22 patients, distal pancreatectomy was performed for 12 (54.5%) and left hemipancreatectomy for

10 (45.5%) patients. The average patients age was 62.7 ± 17.2 years, body mass index (BMI) – 30.3 ± 5.1 (23.4–39.5) kg/m², and tumor size – 31.1 ± 11.6 mm. For 1 (8.3%) laparoscopic distal pancreatectomy and 2 (20.0%) laparoscopic left hemipancreatectomy patients surgical conversion to laparotomy was performed. The average operation time was 205 (195–245) min for distal pancreatectomy and 412.5 (280–520) min for left hemipancreatectomy group ($p=0.001$), blood loss 125 (20–250) ml and 250 (50–1800) ml accordingly ($p = 0.138$). Totally postoperative fistula occurred in 7 (43.8%) cases; out of them, 5 (71.4%) patients were from left hemipancreatectomy group. The routine histological investigation of the surgically removed pancreas specimen has established malignancy in 12 (54.5%) cases. R0 resection rate was 91.7% and the average number of resected lymph nodes – 5.2 (1–14). All patients tolerated the surgery well and were discharged from the hospital after 12.6 (5–30) days. The early follow-up period showed no recurrent disease in all cases.

Conclusions. Laparoscopic left hemipancreatectomy is more complicated than distal pancreatectomy. Extension and technique selection of distal resection of the pancreas depends on the Yonsei criteria and tumor relation to the portal vein.

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22. Infection profile in severe acute necrotizing pancreatitis

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Introduction. Infectious complications critically affect the outcome in patients with severe acute necrotizing pancreatitis (SAP). The management of septic complications is a controversial issue, and recent guidelines do not recommend antibiotic prophylaxis [1]. However, there is a uniform agreement that invasive or surgical intervention is generally indicated.

Aim. To evaluate the incidence, profile, and management of infectious complications in necrotizing SAP.

Methods. An analysis of prospectively collected data in a patient group who developed pancreatic infection during their clinical course of necrotizing SAP. All patients received antibiotic prophylaxis with *Fluoroquinolones* in combination with *Metronidazole* or *Imipenem/Cilastin*. Patients were allocated in two groups according to the time of invasive treatment: early intervention performing percutaneous drainage of large symptomatic collections, followed by surgical intervention within two weeks from admission (EI), and late intervention, performed after two weeks of treatment (LI). Bacteriological cultures were collected during invasive manipulations or surgical interventions. Infection source, isolated microflora and main outcomes were analysed.

Results. During the period from January 2004 to February 2017 a total of 203 patients were treated with necrotizing SAP. In 88 (43%) patients the extent of pancreatic necrosis exceeded 50%. In 84 (65%) cases infection of pancreatic necrosis was proved. Gram-negative bacteria were found in 52 (62%) cultures and Gram-positive in 32 (38%) cultures. The most commonly isolated Gram-negative microorganism was *Escherichia coli*, (31 cultures). Enterococcus spp. was isolated in 59 cultures and was the most commonly isolated Gram-positive microorganisms. 106 (52%) patients underwent surgical source control, 41 patients (39%) in the EI group and 65 patients in the LI group (61%), respectively. The median hospital stay was not different between the groups and reached 48 ± 12.3 in the EI and 54 ± 8.7 in the LI group ($p = 0.112$). A shorter ICU stay was observed in the LI group 16.8 ± 7.9 vs. 31.3 ± 15.8 in the EI group, $p = 0.066$. Higher mortality characterized the EI group – 12.2% (5 patients) vs. 6.2% (4 patients) in the LI group ($p=0.083$).

Conclusion. More than half of patients with pancreatic necrosis demanded surgical source control. Later intervention resulted in a shorter ICU stay and lower mortality.

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23. Preoperative endoscopic biliary drainage may negatively impact survival following pancreatoduodenectomy for ampullary cancer

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Background / Aims. Ampullary carcinoma is a rare tumour with a high resectability rate. There is an increasing body of evidence indicating not only tumour-related factors, but also jaundice influence survival following curative resection. Several modalities for preoperative biliary drainage are available; however, routine preoperative endoscopic biliary drainage (PEBD) is not recommended. There is no sufficient data regarding the impact of PEBD on long-term outcomes.

The aim of our study was to identify predictive factors of survival with special regard to PEBD in patients undergoing curative resection for ampullary carcinoma.

Patients and Methods. Data from 64 consecutive patients with adenocarcinoma of the papilla of Vater who have been operated on was analysed. Overall survival was defined from the date of surgery to the date of death, or censored at the last patient contact. Survival analysis was determined by means of the Kaplan–Meier method. The significance of the demographic, clinical and histopathologic factors was ascertained by the log-rank test. A Cox proportional hazard model was used to determine independent prognostic factors of survival.

Results. Twenty patients (31.2%) underwent PEBD. Univariate analysis revealed tumour-related factors, age over 70, and PEBD to negatively influence survival. Five of them (excluding T stage) were identified as the independent prognosticators, while PEBD appeared to be the most decisive factor. Median survival for patients who underwent PEBD

was 25.3 months as compared to 112.9 months for those who did not. In conclusion, PEBD negatively affected long-term outcomes in our patients with resected ampullary carcinoma.

24. Laparoscopic liver operations in VUH Santaros Klinikos

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Introduction. The number of reported laparoscopic liver resections has been rapidly increasing in the last decade worldwide [1], [2]. As a result of increasing interest towards laparoscopic liver surgery, Morioka Consensus Conference in 2014 as well as recent Southampton Consensus Guidelines in 2017 are the major international steps for further development and use of laparoscopic approach for liver resections [3], [4]. Laparoscopic liver cyst fenestration is another type of laparoscopic liver surgery, particularly used in clinical practice for the treatment of large benign symptomatic liver cysts.

Materials and methods. Data of VUH Santaros Klinikos patients, who underwent laparoscopic liver resection or laparoscopic liver cyst fenestration during period since 2007 01 to 2018 01, were retrospectively analyzed. Microsoft Excell 2013 software was used to evaluate deive statistics of medical data. Results: Since 2007 01 to 2018 01, totally 29 laparoscopies with intension to perform laparoscopic liver resection and 16 laparoscopies with intension to perform laparoscopic liver cyst fenestration were performed in VUH Santaros Klinikos. Out of 29, in 20 cases (69%) totally laparoscopic atypical, anatomic segmental liver resections or left lateral sectionectomies were performed, with overall 31% conversion rate to open surgery. Average operation time of fully laparoscopic liver resection was 131 min±75,8 min. During the postoperative period no major complications > Clavien Dindo II were observed. Out of 16 laparoscopies for symptomatic liver cysts, in 14 cases (87,5%) laparoscopic liver cyst fenestrations were performed, with average operation time 60 min±24,5 min and average maximal cyst diameter 104,9 mm±38,6 mm. In 2 cases (12,5%) laparoscopic cyst aspiration and sclerotherapy were performed instead of fenestration due to unfavourable localization of cysts. In 2 out of 14 (14,3%) cases of laparoscopic cyst fenestration, major postoperative complications > Clavien Dindo II were observed, including postoperative suppurated subhepatic bilioma and acute artery embolism in leg.

Conclusions. VUH Santaros Klinikos has moderate experience of minor laparoscopic liver resections and laparoscopic liver cyst fenestrations with relatively low rate of postoperative complications. Conversion to open surgery is considered as a safe and acceptable choice in case of technical problems or intraoperative complications during laparoscopic liver surgery. Non-inferiority of laparoscopic liver resections still must be proved in the undergoing randomized trials [5].

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25. How severe is moderately severe acute pancreatitis?

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Introduction. In 2012 the Atlanta classification was revised by adding a third category defined as “moderately severe”. However, there is little data on the outcomes and clinical course of “moderately severe” pancreatitis. No studies have focused on complications, mortality and outcomes of patients with moderately severe acute pancreatitis (AP).

Aim. To explore the outcomes and the appropriate treatment for patients with moderately severe AP in a prospective cohort of patients.

Methods. Statistical analysis was performed on data from the prospectively collected database of 103 AP patients admitted to the Department of Surgery, Hospital of Lithuanian University of Health Sciences in 2008–2013. All patients

were confirmed to have the diagnosis of AP during the first 24 h following admission. The severity of pancreatitis was assessed by MODS and APACHE II scale. Clinical course was re-evaluated after 24, 48 and 72 h. All patients were categorized into 3 groups based on Atlanta 2012 classification: Mild, moderately severe, and severe. Outcomes and management in moderately severe group were also compared to mild and severe cases according to Atlanta 1992 and 2012 classification.

Results. Fifty-three-point four percent of patients had edematous while 46.6 % were diagnosed with necrotic AP. The most common cause of AP was alcohol (42.7%) followed by alimentary (26.2%), biliary (26.2%) and idiopathic (4.9%). Under Atlanta 1992 classification, 56 (54.4%) cases were classified as “mild” and 47 (45.6%) as “severe”. Using the revised classification (Atlanta 2012), the patient stratification was different: 49 (47.6%) mild, 27 (26.2%) moderately severe and 27 (26.2%) severe AP cases. The two severe groups (Atlanta 1992 and Revised Atlanta 2012) did not show statistically significant differences in clinical parameters, including ICU stay, need for interventional treatment, infected pancreatic necrosis or mortality rates. The moderately severe group of 27 patients (according to Atlanta 2012) had significantly better outcomes when compared to those 47 patients classified as severe form of AP (according to Atlanta 1992) with lower incidence of necrosis and sepsis, lower APACHE II ($P = 0.002$) and MODS ($P = 0.001$) scores, shorter ICU stay, decreased need for interventional and surgical treatment.

Conclusion. The revised (2012) Atlanta classification proved to be superior to the former classic (1992) Atlanta classification. The results of this study support the use of Atlanta 2012 classification in clinical setting and suggest that “moderately” severe AP cases could be treated as “mild” AP once temporary organ failure is controlled, and should result in significant health costs savings without compromising the patient’s outcomes.

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26. Primary and prophylactic management of patients with BRCA1 gene mutation – experience from single breast unit in Latvia

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In a meta-analysis of 10 studies, the mean cumulative cancer risk for BRCA1 gene mutation carriers at age 70 years for breast cancer was 57% and for ovarian cancer 40% [1]. Following treatment of unilateral breast cancer, these patients have up to 47% incidence of contralateral breast cancer [2]. Prophylactic contralateral mastectomy (CPM) reduces this risk. Bilateral salpingo-oophorectomy (BSO) is the most effective prevention mode for ovarian cancer in BRCA1 mutation carriers [3]. According to this evidence, along with the management of primary breast cancer, surgeons should consider prophylactic surgeries in most BRCA gene mutation carriers. In this study we present data and experience from single institution.

Aims. Study the local management and outcomes of BRCA1 mutant patients with primary breast cancer. Identify the proportion of patients undergoing CPM as well as BSO. Calculate 3-year recurrence.

Materials, Methods. A total of 35 patients with primary breast cancer and a mutation in BRCA1 gene were included in study group. All subjects were treated in a single institution in the period from year 2010 to year 2017. Clinical information database was analysed and multivariate correlations calculated using “Wizard for OsX”. 3 year recurrence was estimated from the group of patients treated before year 2015. Information regarding recurrence was obtained from the national disease register (PREDA).

Results. The mean age of the group at the start of treatment was 44.3 (+/- 3.7, 95% CI) years. At presentation, total of 10 patients had clinical Stage I disease, 11 had Stage IIA, 8 had stage IIB, 3 had stage IIIA and two women had stage IIIC disease. For primary breast cancer treatment, 26 (74.3%) women received mastectomy and 9 (25.7%) had breast conserving surgery. 24 (68.6%) patients commenced treatment with neoadjuvant chemotherapy, of which 13 (54.2%) eventually developed complete pathologic response (CPR). No statistically significant correlation was established between CPR and stage of disease (OR 1.03, $p = 0.72$) or patients age (OR = 0.62, $P = 0.66$). Neoadjuvant chemotherapy strongly correlated with mastectomy surgery (OR = 61.2, $p < 0.001$) as well as CPM (OR = 13.5, $p = 0.004$). Total of 20 (57.1%)

of 35 patients had CPM and 14 (40%) had BSO, all within 12 months from primary diagnosis. There was no statistically significant correlation between patients who received CPM and BSO (OR 1.15, $p = 0.48$). Total of 17 patients were included in subgroup (year 2010–2014) from which 3-year recurrence was calculated. Three patients (17.6%) from this group developed recurrence— two had distant metastasis and one had regional recurrence (this patient refused adjuvant radiotherapy).

Conclusions. Neoadjuvant chemotherapy should be encouraged in most BRCA1 mutation carriers with primary breast cancer as CPR was seen in more than half of cases. It allows more time to carry out/complete genetic testing and planning for primary and prophylactic surgeries, potentially decreasing the extent of axillary surgery. Around half of patients with BRCA1 gene mutation, and primary breast cancer treated in our institution undergo CPM and/or BSO. The 3 year recurrence holds comfortably around 11.5%, if we exclude patients who did not comply with treatment.

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27. Microcalcifications in the breasts and DCIS – what is the role of surgery in this Pandora’s box?

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Introduction. The incidence of non-invasive carcinoma (in most cases DCIS (ductal carcinoma in situ)) has dramatically increased over the past few decades with the advent of widespread mammography screening. DCIS is typically asymptomatic, nonpalpable, and incidentally discovered, due to the presence of calcifications found via mammogram. Review of various literature sources showed that 12,7%–41,2% of cases where microcalcification clusters are found they are malignant, thus the next logical step would be to perform a biopsy. DCIS accounts for over 20% of all newly diagnosed

cases of breast cancer in some countries. But are malignant microcalcification clusters a definite sign of DCIS? The goal of our study was to explore all the various results that histology of such clusters shows.

Method. We retrospectively analyzed the data of 205 female patients in Klaipėdos Respublikinė hospital from 2010 to 2017. The results came from stereotactic biopsies of microcalcification clusters and wire guided surgeries. None of the patients had any signs of solid tumor that would be palpable or visible in ultrasound or mammograms.

Results. In the bulk of cases (68,3%), histological analysis showed that benign alterations were prevalent in the microcalcification clusters; 18,5% of cases – DCIS (ductal carcinoma in situ); 9,3% – IDC (invasive ductal carcinoma); 3,9% – DIN2 DIN3 (ductal intraepithelial neoplasia with grade 2 and 3 together). There were a total of 125 stereotactic biopsies of microcalcification clusters and 80 wire guided surgeries. Separating the results by method: Histological analysis in stereotactic biopsy: benign alterations – 85,6%; DCIS – 9,6%; DIN2 DIN3 – 3,2%; IDC – 1,6%. Histological analysis in wire guided surgeries: benign alterations – 53%; DCIS – 13,5%; IDC – 27%; DIN2 DIN3 – 6,5%. When the biopsy shows DCIS and a wire guided resection is performed in 50% of the cases histological analysis showed that IDC was also present.

Conclusion. The microcalcification clusters found by mammograms are not a definite sign of DCIS or other malignant alterations. To prevent unnecessary breast resections it is highly recommended to perform a stereotactic biopsy first. DCIS tends to be accompanied by IDC.

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28. Mirror, mirror, on the wall, make my breast at once restored. Immediate versus delayed breast reconstruction

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Mastectomy is a rising trend worldwide. Although the main indication for breast reconstruction remains cancer, increase in prophylactic mastectomy due to the advanced genetic testing and cancer risk reduction is assessed. The option of the reconstructive operation technique depends on several factors as tissue availability, indications for adjuvant radiation therapy, reimbursement issues, hospital setting and experience of the surgeon and either autologous tissue (flap) or implants / tissue expanders as well as the combination of both could be selected. Although the optimum timing of the reconstructive operation remains an object of discussion, proportion of women undergoing mastectomy with immediate breast reconstruction increased from 28.5% in 2005 to 42% in 2011. Immediate breast reconstruction is established to have better aesthetic outcome, be cost-effective and help breast cancer survivors avoid the psychosocial distress associated with the anxiety, depression because of changed body image as well as diminished sexual well-being and satisfaction in comparison with the delayed operation. One of the most important factors that influences the timing of the reconstructive operation is the necessity of adjuvant radiotherapy. Radiation caused local edema, erythema and desquamation often lead to significant tissue fibrosis and contracture which have adverse effect to the aesthetic outcome. A retrospective analysis of patients operated for breast cancer in Klaipėda University Hospital Oncology Chemotherapy Clinic Breast Surgery Department from 2011 to 2017 was performed. Although mastectomy rates remain stable, immediate breast reconstruction rates are increasing. A paradigm shift from autologous to implant-based breast reconstructions during the past years as reported in literature in our hospital has been also observed. Several studies have shown immediate reconstruction to be associated with a lower complication risk (both medical and surgical) when compared to delayed reconstruction. However, immediate implant-based reconstruction is often reported to be associated with higher complication rate due to the substantial dead space and hypovascularized field in which implant is placed and the longer operation time. Complication rate of both reconstruction cohorts in our hospital was analyzed and

no significant difference in comparison to the published data was observed. In conclusion, immediate implant-based reconstruction rates compared with autologous reconstruction are increasing and benefit from lower costs, better psychosocial and quality of life and superior cosmetic outcome. Though proper patient selection and operation technique in order to lower postoperative complication rates is obligatory.

29. Neoadjuvant treatment in breast cancer patients: diagnostic and surgical questions and challenges

J. Heil

The probability of breast cancer patients achieving a pathological complete remission (pCR) after neoadjuvant chemotherapy (NACT) is rising; especially in triple negative and HER-2-positive tumor subgroups. Even nodal positive disease convert to node negative disease. Thus, the question arises what kind of surgery of the breast and axilla is necessary diagnostic or therapeutic procedure. It is unknown if surgery improves the outcome of patients with no detectable residual tumor cells after NACT. However, we can only study the possibility of waving surgery of the breast and potentially even radiotherapy if a reliable diagnosis of a pCR after NACT is possible without surgery. In case of axillary surgery it is unclear how to stage disease after NACT. By using imaging methods, we don't reach the necessary sensitivity and specificity to reliably detect those patients with a pCR. Therefore, further studies are called for in order to find out the best method of evaluating tumor response to NACT. Current studies on imaging-guided, minimal invasive biopsies are achieving the first results on diagnosing a pCR after NACT. As those studies evaluate the accuracy of diagnosing a pCR before surgery, they are the basis for future studies on the necessity of surgery as a treatment in this particular patient subgroup.

30. Gastrointestinal stromal tumors (GIST) in tertiary care facilities in Estonia 2009–2013

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Background. Gastrointestinal stromal tumors (GISTs) are rare tumours, with an estimated yearly incidence of around 1/100 000 [1], but represent the most common mesenchymal tumors arising from the gastrointestinal tract [2]. The aim of this study is to evaluate the incidence, diagnostics and treatment methods of primary GISTs in tertiary care hospitals in Estonia. Secondary objective was to detect possible shortcomings in diagnostics and therapy compared to international published data.

Material and methods. Retrospectively all patients with primary diagnosis of GIST during the period from January 1, 2009 through December 31, 2013 were identified from pathology databases of North Estonia Medical Centre Foundation and Tartu University Hospital. Analyse of data from pathohistological findings, KIT and PDGFRA mutation testing, surgical and medical treatment was performed.

Results. 78 primary cases were identified, sex ratio being 35 males (44.9%) and 43 females (55.1%), with the mean age of 66 years (range 32–92). In 59 cases the disease was local and in 19 primarily metastatic. From 59 locoregional disease 93.2% cases were radically operated. According to risk distribution groups, there were 12 high risk cases (20.3% of all localized cases), where adjuvant therapy would have been indicated. PDGFRA and KIT testing was not performed. From these 12 high-risk cases only 25% received adjuvant therapy with imatinib. Out of 19 primary metastatic cases 73.4% started first-line medical therapy with imatinib, one patient received second-line therapy with sunitinib.

Conclusion. Broader implementation of imatinib in adjuvant and sunitinib/regorafenib in palliative setting for metastatic GIST should be achieved in Estonia. There is a need to implement PDGFRA and KIT mutation testings both in adjuvant and metastatic disease.

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31. Soft tissue cancer management: Isolated limb infusion for sarcoma

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Introduction. Sarcoma is a heterogeneous group of malignancies, there are 80 different subtypes of bone and soft tissue sarcoma. Formerly, a „one-size-fits-all“ approach was used for all sarcoma subtypes, biological and genetic advancements have revealed that sarcoma are different diseases and respond differently to treatments [1]. Locally advanced soft-tissue malignant neoplasms, including soft-tissue sarcomas of the extremities, can pose significant treatment challenges [3]. A negative margin resection has been advised for all sarcoma subtypes as the only potentially definite treatment modality. In patients with soft tissue sarcomas facing amputation of an arm or leg for a nonresectable disease, regional chemotherapy with isolated limb infusion (ILI) can provide prolonged limb salvage without compromising overall disease control [2].

Aim. The main goal of this work is to present data on isolated limb infusion for nonresectable locally advanced only soft tissue sarcoma.

Methods. We identified 6 patients with soft tissue sarcomas who underwent 8 ILIs with melphalan and actinomycin from January 1, 2012 through December 31, 2016. The procedure was performed in a lower extremity on all patients. The 3-month overall response rate was 63%, the overall limb salvage rate during follow-up period was 100%. The distant metastatic-free survival was longer for responders than non-responders.

Conclusions. Isolated limb infusion provides an effective alternative therapy for regional disease control and limb preservation in patients with limb-threatening soft-tissue malignant neoplasms. Although the patient cohort is small, the short-term response rates are encouraging and the median overall survival shows benefits over other treatment modalities.

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32. Pelvic function recovery after inguinal hernia surgery

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Background. Inguinal hernia repair is one of the most commonly performed surgical procedures [1]. Although, tension-free Lichtenstein repair remains the golden standard, laparoscopic operations has subsequently been reported to result in better postoperative outcomes. However, there is a lack of data concerning pelvic function recovery after these surgical procedures [2].

Aim of the study. To evaluate and compare pelvic function recovery after laparoscopic and open inguinal hernia repair. **Methods:** The prospective clinical study included 33 patients hospitalised for inguinal hernia repair surgery. Patients were randomized into two groups: Group I (Lichtenstein) and Group II (laparoscopic (TAPP/TEP)) were compared in terms of intra-operative and post-operative complications, post-operative recovery time and pelvic function analysis. Operation method was chosen by the operating surgeon. Leg strength by dynamometer, mobility by goniometer and FMS Y Balance test were used to evaluate pelvic function. All tests were performed before operation, on the first postoperative day and 1, 2 and 4 weeks after surgery.

Results. No intra-operative and post-operative complications were recorded. All patients were discharged on the first postoperative day. Results are shown below in table.

Conclusion. Pelvic function recovery is faster after laparoscopic surgical method in comparison with open “tension free” inguinal hernia repair 2 and 4 weeks after operation.

	Mean leg adduction strength		Mean leg flexion angle		FMS Y Balance test anterior reach	
	Lichtenstein	Laparoscopic	Lichtenstein	Laparoscopic	Lichtenstein	Laparoscopic
Before hernia repair	18.1±3.4	17.5±2.6	89.5±38	83.2±18	61.2±10.3	69.1±13.7
1 day after	14.5±2.5	14.0±3.2	80.1±27	76.4±21	56.2±11.2	64.4±7.9
1 week after	14.8±3.8	14.9±4.1	85±18	80.6±28	56.4±11.9	76±28.5*
2 weeks after	16.2±3.3	17.1±5.4*	87±32	90.3±25	62.8±12.1*	72.3±7.8
4 weeks after	18.8±2.8*	17.8±4.2	92.6±17	85.8±16	57.4±9.0	71.9±5.4

* statistically significant difference between the groups ($p < 0.05$).

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33. Venous thromboembolism prophylaxis in obese patients

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Background. Obesity is associated with a higher risk of coronary artery diseases, diabetes mellitus, hypertension, stroke and venous thromboembolism (VTE) [1]. A meta-analysis of obese patients who underwent for surgery identified that incidence of first spontaneous VTE among obese patients was more than twice compared with patients with normal BMI [2]. The incidence of VTE after bariatric surgery varies from 0.3% to 3.3% [3]. The incidence of VTE after minor bariatric procedures like laparoscopic adjustable gastric banding is significantly lower compared with laparoscopic or open gastric bypass. Open bariatric procedures had higher risk of VTE compared with laparoscopic [4]. The aim of this study was to analyze prophylaxis implements of VTE and formulate recommendations for obese patients undergoing bariatric and nobariatric surgery.

Materials and Methods. A systematic literature search was performed. Patients were selected as obese patients undergoing bariatric surgery or obese patients undergoing nonbariatric surgery. Patients were stratified according to low risk of venous thromboembolism and high risk of venous thromboembolism (age >55 years, BMI >55 kgm, history of venous thromboembolism, venous disease, sleep apnoea, hypercoagulability or pulmonary hypertension). Prophylaxis of venous thromboembolism was analysed depending

on the type of modality: compression devices of the lower extremities, pharmacological prophylaxis and inferior vena cava filters.

Results. Two prospective studies compared mechanical devices and pharmacological prophylaxis vs. a mechanical device alone without significant differences. A few randomised controlled studies and most of the prospective nonrandomised studies showed that low-dose low molecular weight heparin was acceptable for obese patients with a lower risk of venous thromboembolism, but a higher dose of low molecular weight heparin should be proposed for obese patients with a higher risk of venous thromboembolism. Extended prophylaxis for 10 to 15 days was well tolerated for obese patients with a high risk of venous thromboembolism in the postdischarge period. The safety and efficacy of inferior vena cava filters in bariatric surgical patients is highly heterogeneous. There were no randomised trials that analysed prophylaxis of venous thromboembolism in obese patients undergoing nonbariatric surgery. Higher doses of anticoagulants could be proposed for obese patients with a BMI more than 40 kgm.

Conclusions. The lack of good quality randomised trials with a low risk of bias did not allow us to propose strong recommendations.

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34. Efficacy of fecal incontinence treatment by percutaneous tibial nerve stimulation (PTNS)

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Fecal incontinence (FI) is one of the most serious and hard improvable condition. It causes mental, psychological problems, such as social isolation and significantly decrease the quality of life. People having aforementioned pathology is embarrassed, do not want to inform about fecal continence problems their bosoms and even relatives. This condition affects 2% to 17% of adults living in the community[1] There are some principals to manage FI. One of them – surgery is not effective in cases of intact or little damaged sphincter muscles. The bigger part of patients with FI have intact sphincter muscles. After failing of conservative and behavioural interventions, invasive interventions should be started[2]. Sacral neuromodulation (SNS) is used for patients with fecal incontinence who had failed conservative therapy [3]. It is proved the efficacy of SNS and about 30–40 % of patients achieved complete continence. However SNS is expensive and it doesn't covered by health insurance in Lithuania. Percutaneous posterior tibial nerve stimulation (PTNS) is one of non-invasive neuromodulation methods used for faecal incontinence treatment. PTNS is not so effective as SNS, but benefit of PTNS is feasible [4, 5]. This method has been using for five years in Lithuania. It is cheap, convenient for patient and effective.

The aim of our study is to determine the influence of PTNS on the faecal continence and quality of life. During this study we assessed the continence function and quality of life changes before and after the treatment.

Methods. Data of 34 patient with faecal incontinence and anatomically intact sphincter muscles were analysed in this study. Before treatment incontinence severity was evaluated by Wexner scale, specific quality of live (QOL) questionnaire SF 36, anal manometry and endorectal ultrasound examination were performed prospectively. Treatment lasts 20 PTNS sessions (1 month) by applying 200 μ s, 10 mA, 10 Hz current to both n. tibialis posterior through the electrodes placed above the medial malleolus. Wilcoxon test for dependent samples was used to determine the statistically significant differences.

Results. 34 patients were recruited to the study in 36 month period. Data of 22 (64,7%) patients who answered the questionnaire after treatment was analysed. Internal sphincter pressure at rest before the PTNS is 42.36 ± 18.60 mmHg and after – 44.44 ± 14.33 mmHg ($p = 0,5$). The Wexner score improved after treatment from $13,8 \pm 3,5$ to $10,9 \pm 5$ ($p = 0,08$). The Lifestyle alteration question from the Wexner questioner value improved from $2,9 \pm 1,7$ to $2,11 \pm 1,5$ ($p = 0,013$), The improvement of general QOL after treatment was discovered either from $53,03 \pm 20$ to $58,9 \pm 23,3$ ($p = 0,17$), a lifestyle domain questions value from $14,54 \pm 5,1$ to $22,9 \pm 7,6$ ($p = 0,045$), a depression/self-perception domain – from $12,2 \pm 3,9$ to $13,9 \pm 4,8$ ($p = 0,18$).

Conclusion. PTNS is quite effective and acceptable method of faecal incontinence treatment with significant effects on patient's lifestyle. The bigger numbers of participant are needed to get statistically reliable results of other parts of tests values.

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35. Long term results of ligation of intersphincteric fistula tract (LIFT) in the anal fistulas treatment

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Aim of the study. LIFT – Ligation of Intersphincteric Fistula Tract – is a new method for surgical treatment of extrasphincter fistula that was proposed in 2006 by Thai surgeon A. Rojanasakul. Aim of our study was to assess immediate and long-term results of LIFT method based on both our own experience and literature.

Materials and methods. 47 patients underwent surgical intervention since June, 2014, to March, 2018. 29 males, 18 females, mean age was 43±14 years (range: 38 to 74 years). 34 patients had anterior transsphincter fistula, 4 patients had anterior extrasphincter fistula, 9 patients had posterior transsphincter fistula. LIFT method used was not different from that of the author's technique. The patient's position on the operation table was lithotomic. After the fistula staining a probe was introduced into the fistula tract. Incision at intersphincteric groove was made above the fistula tract. Internal sphincter was dissected from the external sphincter through intersphincteric plane to find intersphincteric fistula tract and to transect and ligate it. Fistula tract was curetted through the external opening.

Results. Maximal follow-up period was 45 months, minimal follow-up period was 3 months. Postoperative fistula recurrence during follow-up was diagnosed in 6 patients (12.7%). Good result was determined in 87.3%. In case of recurrence more commonly intrasphincteric fistula of small length occur, thus, creating a possibility to use other surgical approaches for those patients. Recurrence occurred as perianal surgical site infection and intrasphincter fistula formation. All patients were re-operated with intraluminal fistula dissection.

Patients received antibiotic therapy for 2–3 days of postoperative period. Patients did not required opioids postoperatively. Patients were discharged on Day 3–4 postoperatively for out-patient follow-up. All the patients who underwent surgery had no sphincter dysfunction according to manometry and Wexner scoring. In the literature sources number of authors reported an experience of more than 500 operations achieved good outcome in 72% to 100% of cases. The recurrence rate during long-term (>30 weeks) follow up was 5.6% to 26%.

Conclusion. Literature data analysis of surgical interventions results using LIFT method for the last decade together with our results suggest high efficacy and safety of this method in transsphincter and extrasphincter fistulae treatment. Surgery success depends on proper patient's eligibility.

36. TAMIS: is there a real advantage? The Baltic view

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Background. Total mesorectal excision is the golden standard for rectal cancer treatment [1]. Transanal total mesorectal excision (taTME) is a novel approach, pioneered for challenges in obese, narrow, usually males, pelvic dissection for middle or low rectal cancer surgery [2, 3]. After gaining experience using all available transanal ports in the market, being pioneers both in Lithuania and in Baltic countries we are presenting our data and sharing experience of this advanced operation method.

Methods. A prospective series of all taTME operations were conducted from January 2015 to January 2018 in Vilnius University Hospital "Santaros klinikos". All operations were performed by the same two surgical teams in standard technique described elsewhere.

Results. In total we have performed 20 taTME operations. There were 14 males and 6 female patients operated. Age ranged from 39 to 83 years with mean body mass index of 29.1±4.6 kg/m² (ranged from 22.2 to 41.3). The distance of the tumour from the anal verge ranged from 5 to 12 cm. The mean operation time was 259±54 min (ranged from 175 to 355) with operative blood loss from 0 to 400 ml. The mean of harvested lymphnodes was 19.6±8.3. There was one conversion due to proximal bowel segment necrosis, but no intraoperative complications. Thirty-day morbidity was low: we have diagnosed the proximal bowel site segmental necrosis in fourth postoperative day for one patient (Clavien-Dindo IIIb), the patient underwent colostomy formation. One patient was diagnosed with acute myocardial infarction at first postoperative day (Clavien-Dindo IIIa), the patient underwent coronary stenting. No patient died within the first 30 days post-surgery (Clavien-Dindo V). Both the circumferential resection margin and distal resection margin were negative in all cases.

Conclusions. TaTME is a safe, feasible and reproducible technique, with good quality of oncological resection. *Advised to start taTME operations from female patient with middle, locally unspread and no neoadjuvant radiotherapy rectal cancer.* Real advantages of this method can be faced operating obese, narrow, usually males pelvis with low rectal cancer.

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37. Surgical treatment of congenital intramuscular vascular malformations

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Background. Congenital vascular malformations are rare developmental abnormalities of the vascular system that include a broad range of arterial, venous, capillary, lymphatic and combined lesions. Extracranial vascular malformations can affect any part of the body, but are most commonly found in head and neck, trunk, extremity and visceral locations. Due to functional muscle involvement, intramuscular vascular malformations (IMVM) are especially challenging to treat. Surgical treatment has often been considered unfavorable due to lesion location, extent of involvement and poor outcome.

The aim of our study was to evaluate surgical treatment results of IMVMs and provide an update on outcomes.

Methods. A retrospective analysis of 72 patients with IMVMs was performed. Based on lesion hemodynamic characteristics, malformations were classified into high-flow or low-flow groups. Localized or infiltrative forms were defined based on lesion extent and involvement with the surrounding tissues. Surgical techniques included muscle oversewing, extirpation of the muscle with entire malformation or com-

bination of both. A positive result was defined as cure, improvement or remission, a good result – cure or improvement.

Results. 14 high-flow and 58 low-flow IMVMs in patients aged 1–70 years (mean 21.8 years) were treated surgically. 9 (64.3%) arteriovenous high-flow malformations underwent prior embolization. 32 lesions were localized, 40 – infiltrative and located in: head/neck 6, upper extremities 15, trunk 11, gluteus 4, lower extremities 36. Majority of the lesions were treated with combination of oversewing/ extirpation 65 (90.3%), 3 (4.2%) with oversewing, 4 (5.5%) with extirpation only. Cure was achieved in 33 (45.8%), good result in 59 (81.9%), positive in 69 (95.8%) patients. The best results were achieved in gluteus and calf compared to other locations: cure 76.9% and 39.0% respectively ($p = 0.013$). There was no difference between high-flow and low-flow lesions: cure in 50.0% and 44.8%, good result in 92.9% and 79.3% respectively ($p > 0.005$). Significant difference was observed between localized and infiltrative forms: cure in 84.4% and 15.0%, good result in 100% and 67.5% respectively ($p < 0.001$). In 32 (80.0%) infiltrative IMVMs multi-stage operation was need for complete lesion excision. None of the patients reported functional impairment post-operatively.

Conclusion. Here we report a case series of surgical treatment results for IMVMs located in various anatomical regions. We recommend that IMVMs including high-flow lesions can be treated with radical surgical muscle excision. Excellent outcomes can be achieved in localized IMVMs of gluteus and calf muscle groups. Surgical resection of IMVMs is a safe and effective treatment strategy that might require several procedures and requires great surgical expertise.

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38. The association of preoperative intrasac abdominal aortic aneurysm thrombus with outcome following EVAR

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Introduction. Despite being a minimal invasive vascular intervention with mostly equivalent mortality outcomes, endovascular aneurysm repair (EVAR) is associated with a three to four times higher rate of re-intervention than open surgery [1]. This aspect is especially important as life expectancy is increasing worldwide. Sac growth with no visible endoleak remains unpredictable occurrence after EVAR, necessitating regular surveillance imaging, including computed tomography angiography (CTA) [2–4].

Aim of the study This study was designed to investigate the value of aneurysm sac volume measurement versus diameter measurements for follow-up after EVAR. The association of preprocedural intraluminal thrombus volume with aneurysm sac growth following EVAR was assessed as well.

Methods. CT scans from 28 abdominal aortic aneurysms (AAA) treated with EVAR from January 2007 to July 2015 at the Vilnius University Hospital Santaros Clinics were retrospectively analyzed. Preoperative and postoperative maximum aneurysm sac diameter and volume, intrasac thrombus volume were evaluated. Sac diameter was measured orthogonally in outer-to-outer fashion. Volumetry was measured along the covered part of stentgraft. All abdominal aortic and intrasac thrombus volumes were calculated with Vitrea® software.

Results. A mean follow-up time was 635,3 days. Aortic diametric and volumetric changes during the follow-up period were estimated. Maximum diameter increased in 10 (35,7%) of 28 cases. Volumetry detected aneurysm growth in 10 (35,7%) of 28 scans. There was no statistically significant difference between the means of measurements. On the contrary, there was a great correlation between maximum aneurysm diameters and volume measurements ($r = 0.757$, $p < 0.0001$). In all 28 cases intrastent-graft lumen volume increased by the mean of 5,26 milliliters, however, as mentioned before, the sac of AAA increased only in 35,7% cases. The increase of intrastent-graft lumen volume is not statistically significant to the growth of AAA. The mean increase of

intrasac thrombus volume was 26,27 milliliters in cases with growing AAA sac. No evident endoleaks were registered in that group. In stable or shrinking AAA sac group intrasac thrombus volume decreased by the mean of 55,42 milliliters. Statistically significant difference between those groups ($p < 0.0001$) was found. The means of preoperative proportion of thrombus in AAA sac were 0,61 and 0,51 in cases with growing AAA sac and in stable or shrinking AAA sac group, respectively. There was no statistically significant difference between those groups ($p = 0,165$).

Conclusion. There is a high correlation between volumetric and diametric measurements of aneurysm using CTA for follow-up of EVAR. Based on a daily clinical routine setting, measurements of maximum aneurysm diameters on CTA images are an accurate, reliable and robust method for follow-up after EVAR. Aortic intrasac thrombus growth may have predictive value for the need of additional interventions. The preoperative proportion of thrombus in AAA sac is not statistically significantly associated with the growth of AAA sac following EVAR. However, clinical studies reported that intraluminal thrombus correlates with matrix metalloproteinase levels, elastin degradation, and smooth muscle cells apoptosis [5]. The proteolytic weakening of the AAA wall may be the predominant intrasac thrombus effect for the growth of AAA sac. These statements require further investigation.

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39. A bleeding uretero-arterial fistula: open repair after unsuccessful endovascular treatment

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Introduction. Uretero-arterial fistula (UAF) poses major challenges in management and diagnosis due to the rarity of this condition and associated high morbidity/mortality rates [1–4]. Prior abdominal surgery, pelvic radiation, indwelling ureteral stents are known risk factors for secondary UAF [5]. Patients can present with a life-threatening frank haematuria that warrants prompt surgical treatment.

Methods. We describe a case of a uretero-arterial fistula associated with previous aortobi-iliac grafting, ureteric stenting and right nephrectomy complicated by surgical site infection. This case illustrates a very complex pathology, with a challenging diagnosis and multiple treatment options.

Results. A 72 year-old woman was referred to Vilnius Vascular Unit for open UAF repair. The patient had a history of open abdominal aortic aneurysm repair using a bifurcated graft 25 years ago. The right ureter was injured during the operation and a rigid indwelling ureteric stent was inserted. Six month prior to referral, she underwent a right nephrectomy due to a chronic pyelonephritis, complicated by surgical site infection, which was still present at the time of admission. For several weeks she had multiple bouts of intermittent haematuria which were managed conservatively and cystoscopy revealed no evident bleeding source. Initial CTA demonstrated bilateral iliac aneurysms, but no signs of UAF. A further CTA revealed a UAF between the right ureteral stump and the right common iliac artery (CIA) para-anastomotic aneurysm. After unsuccessful attempts to embolise the UAF using both glue and coils, the patient was referred to Vilnius Vascular Unit for open repair. Left axillo-bifemoral bypass reconstruction was performed followed by UAF repair and bifurcated graft explantation. Extensive local debridement was performed adjacent to the infected right iliac limb of bifurcated aortic graft. Due to the juxtarenal aortic graft anastomosis, the cuff of previous aortic graft was preserved to maintain renal perfusion and the aortic stump was overlaid with the greater omentum. Postoperative broad spectrum antibiotic cover was given for three weeks. The patient was discharged 22 days later with no reported complications. Follow-up after 2 years showed

no recurrence of haematuria, good function of the remaining kidney and patent axillo-bifemoral bypass with no signs of infection around the prosthetic aortic stump.

Conclusions. Uretero-arterial fistula is a uncommon condition in everyday clinical practice. Dominating symptom is a massive and/or recurrent haematuria. The rarity of this condition may lead to delayed or missed diagnosis which can result in life-threatening consequences. A multidisciplinary approach involving urologists, vascular surgeon and radiologist are crucial to both the diagnosis and management of this rare entity.

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40. Treatment of aorto-bifemoral bypass graft infection with cadaveric vascular material

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Objective. Treatment of infected prosthetic aorto-bifemoral bypass remains a challenge for vascular surgeons even today. The best results can be achieved with surgical prosthetic graft excision and in situ reconstruction, with additional careful debridement and concomitant antibacterial therapy. One of the biggest concerns is the choice of suitable material to avoid ongoing or re-infection.

Methods. Five male patients (aged 51 to 78 years) were operated on for aorto-bifemoral bypass graft infection. Previously, the diagnoses were confirmed with CT angiography, which showed the presence of fluid surrounding all five bypasses. Clinically, two of the patients had a pseudoaneurysm of a distal anastomosis and three had a fistula in the groin. However, ultimately only one of them turned out to be a cul-

ture positive case (*St.aureus*). The younger patients (aged 51 and 54 years) had developed graft infection within 1–2 years from the primary aorto-bifemoral bypass. Earlier, both of them had undergone a “redo” vascular reconstruction 1 year after the first operation when the presence of fluid around the graft was already established. The older patients (aged 69, 75 and 78 years) had had their primary bypass 7 to 17 years before the appearance of the signs of inflammation. During the operation for infection, all prosthetic material was removed and replaced with a cadaveric aortoiliac allograft extended distally with cadaveric allovein when needed. Pre-prepared cadaveric allografts were stored for up to 10 days (maximum) in a 0.9% saline solution containing extra heparin and antibiotics.

Results. Two patients had complications in the early postoperative period. One had haemorrhage from a distal anastomosis followed by thrombosis of the left branch of the allograft, which was corrected with thrombectomy. The other had haemorrhage from the proximal anastomosis followed by aortoduodenal fistula, which required ligation of the infrarenal aorta and axillo-bifemoral bypass. Thirty-day survival rate was 100% and 6-month survival rate was 60%; limb salvage was 100%.

Conclusion. We consider cadaveric aortoiliac allograft suitable material for treatment of prosthetic aorto-bifemoral bypass.

41. 3-D modeling (rapid prototyping) of the aorta for experimental endovascular navigation

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Objective. The Endovascular Treatment of complex aneurysms is possible with increasing clinical expertise and advances in Medical Technology. Implementation of 3D-navigation in EVAR should reduce contrast medium and radiation dose of the procedure (Nav-CARS EVAR). To advance the realistic experience the aorta model should be mounted inside a human shaped body [1] [2].

Methods. Accuracy, feasibility and basic system integration of 3-D navigation was assessed in an experimental setting. We attempted to simulate the clinical setting as re-

alistically as possible. We produced patient-specific vascular models of the aorta by rapid prototyping, in collaboration with the Fraunhofer Research Institution for Marine Biotechnology (EMB) and HumanX. The EMB lab has the most advanced 3Dprinting techniques. HumanX supported us with constructing expertise.

Results. There are 3 stages to the model production. The first stage is segmentation of the CT- angiogram of a patient with abdominal aortic aneurysm. The patient-specific aortic model is then manufactured by rapid prototyping using the ‘poly jet technology’ (3D-printing). In this technique, multiple layers of a photopolymer (acrylic resin) are successively added and the desired model shape is cured by UV light. Finally, the postprocessing stage, involves the removal of the support material from the aortic model in multiple steps (manually, sodium hydroxide, water quench). All is mounted into a human shaped body and is fully perfusable.

Conclusion. Rapid Prototyping of the abdominal aorta allows experimental investigations on the 3D navigation of EVAR. The experience of system integration and measurements for accuracy are essential to further development of endovascular 3D navigation.

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42. Roux-en – Y gastric bypass for morbid obesity – long-term results

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Background. Short-term data on laparoscopic Roux-en-Y gastric bypass (LRYGB) indicate sustained weight loss and improvement in co-morbidities [1,2]. Although LRYGB is the “gold standard” for weight loss surgery, reports with data beyond 12-year are limited [3–5]. We report the 12-year follow-up results of our observational study of LRYGB.

Aims. The aim of the study was to evaluate long-term weight loss, co-morbidity remission and other results among the patients undergoing LRYGB.

Methods. We conducted a 12-year follow up of 73 patients, who underwent laparoscopic roux-en-Y gastric bypass in 2005 in Hospital of Lithuanian University of Health Sciences Kaunas Clinics. Demographics, comorbidities, complications, and percentage of excess body mass index loss (MIL) were analyzed.

Results are expressed as median (range) or mean±standard deviation (SD). Results Sixty women and 13 men with the median age of 39.9±10.07 years and average preoperative BMI of 44.05±6.47 kg/m² underwent LRYGB. Follow-up rate was 66% after 12 years, respectively. Average MIL after 1 year was 71.43±21.88, 75.96±36.85 after 5 years, and 60.83 ± 24.43 after 12 years. However, 91.7% of the respondents indicated weight increase, with the mean time of 4.86±2.83 years after the operation. Permanent hunger was defined as a problem for 52.8% of the patients. The remission rate of type 2 diabetes mellitus and hypertension were 11.1% and 27.8%, respectively. Dumping symptoms 12 years after LRYGB was in 47% of patients, GERD was 13.9%. Other postoperative abdominal complaints were distributed respectively: 19.4% had abdominal pain, 55.6% had dyspepsia complaints, 38.9% – diarrhea and 16.7% – obstipation.

Conclusions. Follow-up outcome data showed a postoperative weight increase at an average of 5 years. Most of the patients admitted incorrectly diet, especially snacking among the meals. LRYGB results in a significant improvement and remission of obesity-related co-morbidities after 12-years follow-up. Although, more data are needed to determine the exact factors that may affect postoperative weight regain.

Keywords. Gastric bypass; Long-term; Weight loss; Comorbidity

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43. Is there a need to create structured resident training guidelines for open aortic repair in today's world of EVAR?

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Background. The rapid adoption of non-invasive surgical procedures is creating a training challenge for surgical residents. Residents get frequent opportunities to perform Endovascular Aortic Repairs (EVAR) however, hands-on experience performing “bread and butter” open repairs such as infrarenal tube and bifurcated graft replacement is nowadays limited. In today's hospital environment the vast majority of open Abdominal Aortic Aneurysm (AAA) procedures can be characterized as complex, involving rupture and infection. Consequently, these procedures are most often performed by experienced vascular Surgeons relegating Residents to the role of observer. There is ample evidence that such phantom training decreases the learning curve in all operative disciplines. Our purpose was to evaluate the need for new structured resident training as well as national and vascular society guidelines for open aortic tube or bifurcated graft placement in light of the impact of EVAR.

Methods. Based on the current national guidelines of vascular resident training program in Lithuania and Germany, we evaluated the number of aortic procedures needed for the examination of Vascular Surgery.

Results. In Germany the current logbook requires a total of 50 operations in aortic, iliac, visceral and thoracic vascular diseases, while in Lithuania 30 accordingly. There is no differentiation between endovascular and open aortic procedures and no differentiation of the target vessel. There is only a requirement that 25 (general) endovascular procedures have to be fulfilled from resident candidates. The German Society of Vascular and Endovascular Surgery offers certificates for “Endovascular Surgeon” and “Endovascular Specialist”. A certificate for open aortic procedures, however, is currently not available.

Conclusion. The current resident's logbook in both countries for vascular specialist training in aortic disease does not adequately reflect the need for open aortic procedures. Furthermore, the German Society of Vascular and Endovas-

cular Surgery overlooks the need for certificates in open aortic procedures while offering two in EVAR. This imbalance in training priorities and certification needs to be addressed. The current national guidelines and Societies' training certificates in these two countries show that the emphasis on EVAR has overshadowed AAA. It is our opinion that there is a need for updated structured resident training guidelines that rebalance the amount of open aortic procedures needed for surgical resident training in the future.

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44. The application of a complex treatment for the hematoma after the repeated thigh blood vessel reconstruction surgery

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Aim. The review of a clinical case. A successfully applied complex treatment while treating developed complications in the upper one-third of the right hip after a repeated blood vessel reconstruction surgery: hematoma and necrosis. The patient was threatened to face the amputation of the right leg.

Method. An 87 year old woman, generalized atherosclerosis. As a result of the complications of this disease, the endovascular procedures of carotid and coronary arteries, an open right leg blood vessel surgery with the help of artificial blood vessels (2007) were accomplished. In 2017 the patient had a repeated surgery due to an obturated artificial blood vessel. As a result of developed hematoma and necrosis in the upper one-third of the right thigh, the patient was hospitalized. Necrectomy was implemented. After the implemented necrectomy, the size of the wound was 15x18x6 cm that was heavily exuding. An applied treatment: systemic antibiotic therapy, vacuum therapy applied for 1 month, and later a 2 month treatment was prolonged ambulatorily with the help of silver-containing Hydrofiber dressing covered with secondary foam dressing.

Results / Discussion. While treating with the help of systemic antibiotics, applying vacuum therapy, using silver-containing Hydrofiber dressing and covering with secondary foam dressing, the positive wound dynamics was being ob-

served: the size and exudation of the wound were decreasing, the back of the wound became covered with a healthy granulated surface and the wound completely healed.

Conclusion. Even in the case of a complicated clinical situation, the lower limb was saved and the leg amputation was avoided with the help of an application of a modern complex treatment.

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45. Metabolomic profile of patients with abdominal aortic aneurysm

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Introduction. Abdominal aortic aneurysm (AAA) is characterized by structural deterioration of aortic wall, leading to permanent and localized aortic dilation. Surrogate biomarkers of AAA progression could be helpful to precisely indicate the need for elective treatment, and to better understand the pathophysiology (1). Metabolomics is a suitable approach to find biomarkers for different diseases. However, data about metabolomics and AAA are limited (2–5).

The aim of the study was to describe the profile of low molecular weight metabolites in AAA patients, and to compare patients with slow and fast growing AAAs.

Methods. Blood samples were collected from two groups of male patients with previously diagnosed AAA according to its annual progression: AAA with fast annual growth rate (mean 3.4 mm; range 1.3–9.4; n = 40) and with slow annual growth rate (mean 0.2 mm; range -2.6–1.1; n = 40), and from age- and gender-matched controls (i.e. with non-aneurysmal aorta (n = 80). Targeted analysis of 180 metabolites in plasma was carried out using the AbsoluteIDQ p180 kit (Biocrates Life Sciences AG, Innsbruck, Austria). The samples were measured on a QTRAP 4500 (ABSciex, USA) coupled to a 1260 series HPLC (Agilent, USA). The concentrations of the metabolites were calculated in the vendor's software using isotopic internal standards' intensities as the reference. The Mann-Whitney U test was performed to find statistically significantly differing metabolites between the groups and Bonferroni correction was applied to correct for multiple comparison.

Results. 31 metabolites and ratios were found to differ between the AAA patients (combined fast and slow growth rate) and the controls, and 27 metabolites including ratios differed between the AAA patients with slow growth rate and the controls ($p < 0.05$). Interestingly, there were no significant changes in the metabolites distinguishing the AAA patients with fast growth rate from the controls.

Conclusion. The current study describes novel alterations in several low molecular weight metabolites in patients with AAA. The metabolomic approach may reveal possible shifts in carbohydrate, lipid and amino acid metabolism, detecting links between an altered metabolomic profile and development and progression of AAA.

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46. An unusual location of extrasosseous ewing sarcoma: a case report

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Introduction. Ewing sarcoma (ES) is a malignant tumour. It may occur at any age, but most common it is seen in children and teenagers [1]. ES can occur anywhere in the body [1, 2]. However ES rarely develops in soft tissue [3, 4]. Extrasosseous ES composes 16–31% of all ES [2, 5]. It is associated with rapid growth and distant metastases [1, 4, 6].

Materials and Methods. Case report.

Results. 56-year-old female was admitted to the Emergency Room because of severe pain in the right lower quadrant lasting for one day. She had abdominal trauma six months ago. After the trauma each night she felt intermittent mild-moderate pain in the right lower quadrant and groin, irradiating to the right leg. Physical examination revealed tenderness in the lower right side of the abdomen. Blood laboratory findings were within normal limits. A CT scan of the abdomen demonstrated a 7,6×11 cm heterogeneous mass in the right iliac fossa displacing the uterus, urinary bladder, rectum with suspected retroperitoneal hematoma. No extravasation was observed. The patient was admitted to the Department of Surgery for further treatment. Then laparotomy was performed. A 8×10 cm mass in the right iliac fossa displacing the uterus, urinary bladder, caecum and rectum was found. Retroperitoneum was opened and the mass composed of old blood clots was removed. Histologic examination revealed blood clots admixed with high grade of malignancy mesenchymal tumour fragments, mostly compatible to malignant GIST according to immunohistochemical reactions. The patient's postoperative course was complicated by severe anaemia, which was successfully managed conservatively. Patient's recovery was otherwise uneventful. The patient was discussed at MDT conference. It was decided to start neoadjuvant treatment with imatinib mesylate. After two months of the treatment control pelvic – abdominal MRI scan demonstrated a heterogeneous, well-circumscribed 5.6×3.7 cm mass in the right iliac fossa. The treatment was extended (in total the patient received treatment with imatinib for five months). Then the patient underwent surgical treatment. During the laparot-

omy a well-circumscribed, capsulated 5.7×5.6 cm tumour was found in the right iliac fossa. The tumour was lightly attached to the urinary bladder and to the right external iliac artery and vein. The tumour was completely removed without injury of adjacent structures. Histologic examination showed a tumour composed of small to medium-sized atypical cells with light nuclei and eosinophilic nucleoli, ill-defined, scant, lightly eosinophilic cytoplasm. Tumour cells were with multiple mitoses, arranged in solid and alveolar pattern with small necrotic areas. On immunohistochemical investigation tumour cells showed a strong positive reaction with CD117, CD99, BCL-2, slightly positive reaction with Synaptophysin and negative reactions for CD31, CD34, EMA, S100P, smooth muscle actin, CD10. EWSR1 (22q12) gene translocation was found. According to these findings, EES diagnosis was made. The patient's postoperative course was uneventful. The patient was referred for further outpatient oncological treatment.

Conclusion. The diagnosis of ES sometimes is complicated and delayed. Prompt detailed examination and imaging studies should be performed to people with long lasting pain without trauma and other non specific symptoms, especially followed by a palpable mass. The treatment of EES is multimodal.

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47. Paratesticular atypical lipomatous tumour (well-differentiated liposarcoma). Case report

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Tumours of soft tissues are rare and paratesticular liposarcoma occurs very rarely compared with other sites of soft tissue tumours. In this case report we present a patient with a paratesticular atypical lipomatous tumour, which is also known as well-differentiated liposarcoma. A 59-year-old male visited a general surgeon in December 2015. The main complaint was the enlargement of the scrotum in the past four months, particularly on the right side with minimal scrotal pain. The patient had previously been healthy, did not take any medications and did not report any urological diseases. The lump was thick, painless and quite movable. Both testicles were palpable and of normal size. On examination, a lump, the size of approximately two fists, was found on the right side of scrotum; the right testis was separate from the lump. An ultrasound examination of scrotal organs described a tumorous mass of non-homogenous structure that filled the right scrotal. In order to specify the diagnosis, a computer tomography exam was performed, which showed a normal bilateral structure of the testes; an encapsulated mass sized 7.6 cm×6.5 cm was seen behind the right testis, containing components of fat tissue and cloudy lightly contrasting soft tissue. The finding suggested primarily a fat-containing tumour. Thoracic and abdominal organs appeared normal. Deion of surgery – under general anaesthesia, an incision was made on the raphe scroti. The right testis and the mass were luxated out and gradually freed. Examination revealed a stone-hard mass the size of approximately one and a half fists. The right testis was closely joined with the mass. The decision was made to perform a right orchiectomy and funicectomy with the removal of the mass. The funiculus was freed on the level of the external opening of the inguinal canal, penetrated and ligated with non-absorbable sutures. The specimen was removed. A latex drainage was left in the scrotum. The wound was closed in layers with absorbable sutures. Wound dressing was applied. Histological report Macroscopically – lobulated mass 10×10×6.5 cm in size, cross-sectional surface yellowish-grey. Measurements of testis 5.5×3×2 cm. Tumour is well confined, visually there is no invasion. Histologically well confined, paratesticular (located between the parietal and visceral lamina of tunica vaginalis) fibromatous tumour, surrounded by collagen bundles; in fibromyxoid stroma there are

multivacuolated lipoblasts, adipocytes with hyperchromatic nuclei and little atypism, hyperchromatic fusocellular stromal cells; no mitoses; 1% of cells express proliferative activity in ki67 immunochemical analysis. The tumour is focally well vascularised, some lymphocytes and plasma cells can be seen; no necrosis. No lymphovascular or perineural invasion. Testis and epididymis normal. Summary: morphologically paratesticular atypical lipomatous tumour, WHO G1. Resection margins clear. No complications during postoperative period. Latex drain removed on the second postoperative day, patient allowed into outpatient care. First follow-up visit on 20.01.16, sutures are absorbed, wound has healed. Patient has no complaints. According to the decision of the oncological multidisciplinary team, a medical oncologist will be consulted to decide the need for adjuvant chemotherapy.

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48. Immediate facial nerve reconstruction in parotid gland cancer surgery

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Introduction. Surgical treatment of parotid gland cancer frequently requires facial nerve amputation to achieve radical tumor resection [1]. Any branch or entire facial nerve starting from its exit from the stylomastoid foramen to the periphery

of the gland might be sacrificed which leads to complete or partial facial palsy. Facial paralysis together with cancer diagnosis has serious consequences on patient's life, both psychologically and physically, usually causing depression and anxiety [2, 3].

Aim of the paper We would like to introduce new surgical strategies which are used in our clinic for immediate facial nerve reconstruction in parotid gland cancer surgery.

Methods. In 2017 three patients diagnosed with malignant parotid gland tumors underwent radical parotidectomy with intentional resection of the facial nerve to obtain radical tumor resection and immediate facial nerve reconstruction at the Head&Neck and Skin Surgery Department of the National Cancer Institute (Vilnius, Lithuania). The facial nerve was reconstructed using an interpositional thoracodorsal or sural nerve graft or by directly anastomosing distal facial nerve branches with masseteric nerve. All patients underwent radiotherapy after surgical treatment.

Results. Facial static symmetry and mimic muscles movement was achieved in all patients. Almost complete facial symmetry at rest was achieved in two patients.

Conclusions. These immediate facial nerve reconstruction techniques results in good facial static symmetry at rest and facial movement causing significant improvement in patients' quality of life and psychosocial interactions.

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49. Paraganglioma mimicking medullary thyroid carcinoma: a case report and literature review

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Thyroid paragangliomas are rare tumors that arise from the inferior laryngeal paraganglia. Most patients are female and present with an asymptomatic thyroid nodule. Histologically,

the tumor is composed of cells arranged in a well-defined nest (Zellballen) pattern surrounded by a thin fibrovascular stroma. It is a diagnostic pitfall and is occasionally misdiagnosed as follicular neoplasm, medullary thyroid carcinoma, intrathyroid parathyroid proliferation, and especially secondary neuroendocrine tumors [1]. We present a clinical case of paraganglioma, which was unexpectedly detected after immunohistochemistry testing of removed thyroid tissue. A 21 – years old female patient was presented to our clinic complaining of neck deformity, which occurred 2 years ago. An ultrasound examination was performed, above the isthmus of thyroid, a hypoechoic, well-vascularized, 19x10 mm in diameter structure, similar to the thyroid tissue has been detected. The SPECT test was performed to clarify the diagnosis, normal thyroid function and the pyramidal lobe of thyroid were diagnosed. Surgical treatment was recommended to the patient, as the formation in the neck was increasing in size during the time. A resection of the pyramidal thyroid gland and isthmus was performed. Removed thyroid tissue was sent for urgent histological examination. The medullary thyroid carcinoma was diagnosed, and it was decided to perform thyroidectomy and bilateral central lymphadenectomy. Two weeks later, the final conclusion of the histological examination was obtained: 12 mm in diameter, moderate degree of differentiation (4 points by Grading system for adrenal pheochromocytoma and paraganglioma), encapsulated paraganglioma with intravascular invasion into the capsule. The diagnosis of paraganglioma of the thyroid is difficult to confirm using only fine needle aspiration, ultrasound or CT. Diagnosis is usually confirmed post surgically with immunohistology of the resected mass [2]. Thyroid paragangliomas are known to be associated with germline mutations in succinate dehydrogenase (SDH) or SDH subunit genes such as SDHB, SDHC, and SDHD. Immunohistochemistry for paragangliomas is typically positive for neurospecific enolase, chromogranin A, synaptophysin, and S-100. To differentiate thyroid paragangliomas from other thyroid tumors is important because the management is distinctive, especially in carriers of mutations of SDHB, SDHC, and SDHD genes; serial complete imaging of autonomic nervous system is recommended for regular surveillance [3]. Paraganglioma in the thyroid has been depicted as a benign progression in previous reports, although one reported that thyroid paraganglioma was malignant because it invaded the thyroid cartilage and penetrated through trachea wall into the tracheal mucosa. Its infiltrative growth mode seemed malignant, but others suspected it originated from cervical soft tissue rather than the thyroid [4]. Surgical management of paraganglioma of the thyroid and other head and neck tumors is essential [3].

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50. Gastric cancer epidemiology in Lithuania and experience of Vilnius University Hospital Santaros Clinics

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Purpose. although the incidence of gastric cancer is continuously decreasing, approximately 75% of cases die of the disease, representing the third leading cause of death due to cancer worldwide [1]. Need to mention, that gastric cancer incidence has remarkable international variation [2, 3]. Although the stage at diagnosis is the most critical factor for prognosis and for defining treatment strategies, its distribution is also different according to regions [4]. During past 5-years treatment of gastric cancer has dramatically changed, mainly due to introduction of new chemotherapeutic regimens and better surgical techniques together with perioperative care.

Aim. to evaluate epidemiology of gastric cancer in Lithuania. Together, report the changes of diagnostic and treatment that was established during last 5 years in Vilnius University Hospital Santaros Clinics.

Methods. epidemiological statistics of gastric cancer was provided by lithuanian national cancer register. A retrospective analysis of all patients with gastric cancer treated in Vilnius University Hospital Santaros Clinics for last 5 years was performed.

Results. Annually 947 new cases of gastric cancer are diagnosed and it is the second leading cause of death due to cancer in Lithuania. With a 5-year survival reaching 23%. From 2013 until 2018 in Vilnius University Hospital Santaros Clinics totaly 402 patients with gastric cancer were

treated. For tumors under T1b a endoscopic submucosal dissection was performed. Patients (n = 308) with stage II and III disease underwent surgical resections – total or subtotal gastrectomies. Patients with stage IV disease received palliative therapies with neo-adjuvant or adjuvant chemotherapy and surgical procedures for gastric or biliary bypasses. In 2015 new chemotherapeutic regimens and diagnostic laparoscopy with lavage for staging have been introduced Vilnius University Hospital Santaros Clinics. Thus, surgical resection rates for curative intent have decreased from 82 to 48 gastric resections in 2014 and 2015, respectively. Totaly 30 diagnostic laparoscopies have been performed. After them 12 (40%) patients were restaged for stage IV disease and were treated with neo-adjuvant chemotherapy prior surgery. Positive response rate for 26% of patients after neoadjuvant chemotherapy was confirmed histopathologically.

Conclusions. gastric cancer remains major health care problem in Lithuania. Staging of gastric cancer became more accurate and chemotherapeutical treatment showed satisfactory rates of response. Nevertheless, new diagnostic and chemotherapeutical approaches are needed for improvement of gastric cancer treatment and overall survival.

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51. Rare case of visceral myopathy

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Introduction. Visceral myopathy is a rare and often misdiagnosed disease [1]. It affects peristalsis of the bowels and

causes pseudo-obstruction [1]. There is no specific treatment for chronic intestinal pseudo-obstruction caused by visceral myopathy [2]. Surgical treatment is an option in patients who do not respond to conservative treatment [3]. In such cases decompressive surgery might be used to relieve the symptoms [3]. Surgical resection in non-localised disease has disappointing results, since the bowel affection is progressive and extends proximal to the resected line [3].

Materials and methods. Case report.

Results. A 30-year-old woman presented to our hospital with a 10-year history of abdominal distension, constipation and intermittent abdominal pain. She used laxatives and enemas. Her past medical history was significant for pancreatic surgery. Five years ago she underwent segmental pancreatic resection because of solid pseudopapillary neoplasm. Her family history was negative for gastrointestinal, neurologic or other familial diseases. The patient few times was hospitalised because of partial bowel obstruction which was managed conservatively. Abdominal radiographs revealed diffused dilated loops of small and large bowel. Colon transit time was measured by using radio paque marker test. All markers remained in bowels five days after the ingestion of them. Colonic hypomotility was diagnosed. As the patient was incapacitated by symptoms and did not respond to conservative treatment, she underwent surgical treatment. Subtotal colectomy was performed. Histopathological examination revealed abnormal layering of colonic muscularis propria. Both inner and outer muscular layers were very thin, inadequate. However, the symptoms of pseudo-obstruction persisted and the patient underwent another surgery. Sigmoid resection with preventive ileostomy was done. Histopathological examination showed the same abnormal changes of colonic muscular layer. Few months later preventive ileostomy was closed and ileorectostomy was performed. However, patient's recovery was complicated by adhesive postoperative small bowel obstruction. Relaparotomy and adhesiolysis was done. After the last surgery the patient still complained abdominal distension, constipation. Colonoscopy disclosed anastomotic stricture, approximately 5 mm in diameter. Endoscopic dilation was done. The patient complained the same symptoms few weeks after the procedure. Endoscopy was performed and it showed an anastomotic stricture again. Endoscopic dilation was done. This procedure was repeated with stent placement few more times due to recurrence of anastomotic stricture. Moreover, the patient still complains constipation. Constipations are associated with abdominal distension and pain, and just laxatives and enemas bring some relief for the patient.

Conclusion. The diagnosis of visceral myopathy is complicated. It is important to consider visceral myopathy diagnosis

in patients with long lasting abdominal distension, constipation and intermittent abdominal pain. Moreover, aggressive surgical treatment of patients with visceral myopathy caused chronic intestinal pseudo-obstruction might be associated with poor results.

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52. Various surgery techniques for therapeutic splenectomy – 25 years single surgeon experience

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Background. Since early 1990's, when it was inaugurally introduced, laparoscopic splenectomy for various reasons has been performed with excellent results. Nowadays laparoscopic splenectomy is the approach of choice for both benign and malignant diseases of the spleen.

Method. A deive retrospective study of patients who had splenectomy in our center in 1993 – 2018. The entire study population (363 patients) was grouped into 4 groups: oncological diseases, autoimmune thrombocytopenia, hemolytic anemia and hypersplenism. The primary endpoints were short – term outcomes and secondary – analysis of operative technique.

Results. The study group consisted of 215 women and 148 men. Age 16–85 (mean 43,2 /– 20,9), spleen size was measured – splenomeqaly in 3%, massive splenomeqaly – in 1% cases. The most common indications for splenectomy was oncological diseases (125 cases) and autoimmune thrombocytopenia (124). Other cases – hemolytic anemia in 94, hypersplenism – 20 cases. The surgery technique changed in our analysis: 1993–1998 years – open surgery, 1998–2006 – open surgery hand assisted laparoscopic splenectomy, 2006–2013 –

laparoscopic surgery and from 2013 – single port laparoscopic splenectomy. Additional spleen was found in 10%, ~1 cm range diameter (0,2 to 1,0 cm). Complication rate divided to intraoperative (4%) and postoperative (6,6 %). We noted mortality of 0,3%.

Conclusions. 1. Laparoscopic splenectomy – safe operation in the treatment of hematological diseases in patients requiring spleen removal (despite the small number of level 1 evidence). 2. Single port surgery removing the spleen is gaining momentum in the world. Efficacy results are only following the patience together with a team of hematologist. Especially important in assessing the added spleen discovery before the operation and during the journey.

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53. Multidisciplinary management of duodenal GIST in an obese patient: A case report

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Introduction. Gastrointestinal stromal tumours (GISTs) are mesenchymal neoplasms that may arise throughout the entire digestive tract and might be as incidental finding during endoscopy, radiologic studies or surgery. Choice of surgical procedure for duodenal GISTs depends on size and location of a tumour [1, 2]. Pancreatoduodenectomy or local resection are available options for patients with duodenal GIST [1]. Previous studies described an association between obesity and GIST. However, sarcopenic obesity is a strong

predictor of major complications after PD, as the risk of developing POPF grades B and C is significantly increased in these patients [4, 5].

Case report. A 65-year-old woman with a body mass index of 47 kg/m² was diagnosed with a 26×30×45 mm size tumor in the horizontal part of duodenum just distal to the inferior duodenal flexure. CT scan and endoscopic ultrasound were conclusive excluding pancreas involvement. Histopathological examination revealed a mesenchymal tumour composed of spindle-shaped cells CD117 positive, CD34, desmin, and smooth-muscle actin negative on immunohistochemical analysis confirming duodenal GIST. Initial evaluation of the patient at the multidisciplinary meeting revealed the necessity of pancreatoduodenectomy or pancreas preserving duodenectomy due to vicinity of the tumor to the papilla of Vater. Evaluating potential risks of extensive surgery in a morbidly obese patient neoadjuvant treatment with tyrosine kinase inhibitors was proposed to downsize the tumour, potentially allowing for local duodenal resection. Simultaneously dietary recommendations were given to lose weight. After two months of treatment abdominal CT scan was performed to reveal stable disease. During this period the patient has lost 3.2% of her body mass. While neoadjuvant treatment has not resulted in considerable tumor shrinkage and pancreatoduodenectomy was anticipated, multidisciplinary meeting recommended bariatric surgery to reduce significantly the patient's body mass and to reduce the risk of perioperative morbidity. The treatment with imatinib mesylate was continued, and the patient underwent laparoscopic gastric plication procedure. Two months after surgery the patient's whole body mass has decreased by 16.5%. Abdominal CT scan showed downsized (26×22 mm size) duodenal tumour. Duodenoscopy revealed no tumor in the vicinity of papilla of Vater, allowing for partial duodenectomy. Resection of the third part of duodenum with side-to-side duodenojejunostomy was performed. Histopathological examination of surgical specimen revealed R0 resection of the duodenal GIST was achieved. The patient's postoperative course was complicated by gastrointestinal bleeding from duodenojejunostomy site on the first postoperative day, which was successfully managed endoscopically. Patient's recovery was otherwise uneventful. There were no signs of recurrence at follow-up after six months post-surgery.

Conclusion. Multidisciplinary approach including neoadjuvant therapy with tyrosine kinase inhibitors and bariatric surgery was beneficial downsizing the tumor, reducing patient's excessive body mass, allowing for less extensive surgical procedure, and potentially reducing perioperative morbidity.

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54. Mesenteric occlusion: urgent surgery or first urgent interventional angiography for all patient's without peritonitis

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Background. The mortality rate of acute mesenteric ischemia (AMI) is from 70% to 85% and patient's survival depends of early occlusion diagnosis and urgent treatment. The main mesenteric artery occlusion treatment is urgent surgery and/or interventional angiography [1]. The main reason of patient's mortality of AMI is general organism intoxication of long stay intestinal necrosis in abdominal cavity [2]. Recommendations of AMI treatment depends of presence of peritonitis. If there is AMI with peritonitis, patients need urgent surgery, if there is AMI without peritonitis, patients need urgent interventional angiography with surgery or only interventional angiography [3]. The main problem, that intestinal necrosis is diagnosed for half of patients during "second look" operation after interventional angiography [4]. It could be a reason of high mortality and complications rate that intestinal necrosis stay in abdominal cavity after interventional procedures during 6–12 hours when time of "second look" operation will come.

The aim of study is to evaluate which diagnostic criterions could identify intestinal necrosis for patient's with AMI and influence a selection of different acute mesenteric occlusion treatment.

Materials and Methods. Retrospective analysis of patient's case-histories who were treated of AMI in Lithuanian University of Health Sciences, Kaunas Clinics, Department of Surgery from 2006 to 2017 years. The diagnostic preoperative parameters such as: WBC, CRP, serum L- lactate, base excess (BE) and blood pH were analyzed. These parameters were analyzed in patient's admission time to urgent care department. The duration of disease (since beginning of patient's complains to arrival to hospital) was analyzed also.

Results. Two hundred eighty patients (170 females and 110 males) were included in the study. The mean age of patients was 77.8 ± 10.4 y. Thirty eight patients (13.6%) were not operated of very severe general condition and other 242 pts. (86.4%) underwent for surgery. 62.1% of patients had intestinal necrosis and other 23.9% – without intestinal necrosis. 51.4% of patients had only explorative laparotomy of total intestinal necrosis. The mortality rate was 81.4%. Interventional angiography before surgery was performed in 33 cases. Twenty patients had embolectomy, 11 – stenting and 2 – embolectomy with stenting. 29 patients underwent for surgery after angiography and 19 (65.5%) of them had intestinal necrosis. The patients with intestinal necrosis had significantly higher preoperative CRP (156.9 ± 11.39 vs. 113.61 ± 17.58 ; $p = 0.022$) and BE (-9.98 ± 0.72 vs. -6.49 ± 1.4 ; $p = 0.015$) compared with patients without intestinal necrosis. Patients with intestinal necrosis also had higher WBC, blood pH and serum L- lactate but without significant difference. The duration from beginning of clinical symptoms to interventional procedures was significantly longer to patients with intestinal necrosis.

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55. When fast decision making is essential for patient survival: a case series of 8 patients with cervicofacial necrotizing fasciitis

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Introduction. Necrotizing fasciitis of the head and neck region is a rare soft tissue infection that rapidly spreads along the fascial planes and results in skin, subcutaneous tissue and fascia necrosis, systemic inflammatory response syndrome and is associated with high mortality rate [1]. Left untreated, up to 100 % of necrotizing soft tissue infections result in mortality [2]. Even with optimal treatment, which includes timely surgical debridement, broad spectrum antibiotics and hemodynamic support, necrotizing soft tissue infections portend significant morbidity and have mortality rates of 25–35% [3]. Surgeons and intensive care unit specialists must be always alert of this condition and should start the treatment as soon as possible. Unfortunately, the initial symptoms are non-specific and there are no definite laboratory or instrumental tests to confirm the diagnosis [4].

Aim of the presentation The main goal of the presentation is to share the experience of recognizing, diagnosing and treating necrotizing fasciitis of the head and neck region and show challenges the surgeon could meet in managing this severe condition.

Materials and methods. We collected and analyzed the data of patients that were treated for necrotizing fasciitis of the head and neck region from December 2002 to February 2018. We evaluated patients' health status, comorbidities, clinical presentation, microbiologic and radiologic findings, management, complications and outcomes.

Results. We treated 8 patients (age range – 10–83 years) with necrotizing fasciitis of the cervicofacial region, 4 of which were women. The affected areas were neck and periorbital region. 5 patients had comorbidities that could compromise their immune response, most commonly – diabetes, anemia and chronic alcohol abuse; 3 patients were previously healthy. The polymicrobial infection was the cause of necrotizing fasciitis in 4 patients, Group A beta-hemolytic streptococcus was the causative agent in the remaining 4 cases. The time from the onset of symptoms till admission to hospital

ranged from 1 to 14 days; all patients presented with severe pain, swelling, erythema, soft tissue induration and signs of systemic toxicity. In 5 patients, skin necrosis was noted at the time of admission. Broad spectrum antibiotics and surgical treatment were initiated on the 1st day of admission in all patients. The patients required 1–5 surgical debridements; 4 patients received defect reconstruction with skin grafts or local flaps. 3 patients required treatment in the intensive care unit due to multisystem organ failure, toxic shock syndrome and postoperative bleeding. The hospital stay ranged from 11 to 55 days. The survival rate is 100 %.

Conclusion. Recognition of clinical symptoms, early diagnosis, immediate and aggressive surgical and intravenous antimicrobial therapy are the main goals in treating necrotizing fasciitis.

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56. Primary antireflux surgery and redo for failed fundoplication: a retrospective case control study

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Introduction. With an increase in a performance of antireflux surgery procedures more patients with a failed primary fundoplication require complex redo procedures. The morbidity of revisional surgery is reported higher, and the clinical outcomes may not be as good as after primary antireflux procedures (1).

Aim. The objective of this study was to evaluate and compare results of primary and redo antireflux surgery.

Methods. Data on patients undergoing antireflux surgery has been collected prospectively. Laparoscopic redo antireflux

procedures have been performed between 2002 and 2017 for patients suffering recurrent reflux, dysphagia, epigastric pain despite medical treatment. Failure of primary fundoplication was confirmed with endoscopy and barium studies. Patients who underwent surgery for symptomatic failed fundoplication were included in the study. A control group consisting of the same number of patients who underwent a primary fundoplication was randomly selected from the same database. Perioperative outcomes were compared between study groups. Symptomatic outcomes regarding heartburn, dysphagia, patient satisfaction was evaluated with Visick scores. Summary: Fifty-eight reoperations were performed in 36 women and 22 men. Median time from primary surgery was 51 month. Predominant symptoms were recurrent reflux in 42 (72.4%), dysphagia in 20 (34.5%), severe epigastric pain 31 (53.4%). Twenty-eight patients underwent total and 30 patients partial fundoplication. In 26 cases mesh was placed to secure diaphragmatic crura closure. All the procedures were completed laparoscopically. Reoperative patients were similar to their controls (age, sex, BMI). There were no postoperative deaths in this study. Redo antireflux surgery took longer; in-hospital stay after reoperation was also longer. The median time of postoperative follow-up was 70 months. The primary outcome variable was determined as a failure of the surgical procedure requiring reoperation. Secondary endpoints were symptomatic outcome and patients satisfaction scores. Six (10.3%) failures were identified in redo surgery group, while in primary antireflux surgery group three (5.1%) reoperations were performed during the follow-up period. These results are comparable with other series after reoperative antireflux surgery (2, 3). Patient satisfaction scores were lower in revision group patients although the majority of patients were either “very satisfied” 34 (58.6%), or “satisfied” 16 (27.6%) with results of the treatment.

Conclusions. Compared to primary antireflux surgery, redo operations are associated with longer operating time, increased length of hospital stay, higher surgery failure rate. Nevertheless, the majority of the patients are satisfied with the outcomes of revisional antireflux surgery, symptomatic outcomes are generally good.

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57. Malnutrition criterias as selection points for percutaneous endoscopic gastrostomy before treatment for patients with head and neck cancer

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Malnutrition and underfeeding are common complications of advanced head and neck cancer (HNC). Oftently patients present with advanced dysphagia and severe level of cachexia, that has a big impact on the prognosis of radical treatment. Percutaneous endoscopic gastrostomy (PEG) and nasogastric tubes are appropriate methods of supplementary nutrition [1]. Unfortunately there are no objective criterias in Lithuania when to introduce supplementary feeding for HNC patients.

Aim of the study. 1. To perform a published data review for any recommendations and specific guidelines for prophylactic PEG incertion for HNC patiens 2. To make a retrospective clinical study of prophylactic PEG incertion for HNC patients in Natonal cancer institute, Vilnius, Lithuania (NCI) and to evaluate serum markers and body mass index (BMI) as a reliable malnutrition criterias. To evaluate prognostic nutritional index (PNI) as a reliable marker of malnutrition [2].

Methodology. Data search strategy: English database (Medline) was searched for case reports, studies, systemic analysis, literature reviews for any guidelines or recommendations on when to place prophylactic PEG without any time or language restrictions. Only firsthand literature was included. The titles and abstracts of the studies identified by database searches. All references appearing to meet inclusion criteria were requested in full text. Information extracted from each study included the author, year of publication and specific recommendations. A single-centre (national cancer institute – NCI) retrospective analysis was performed to evaluate BMI, serum albumine and serum total protein levels as reliable markers of malnutrition. A study included 48 patients, who underwent PEG procedure. BMI, serum albumine ant total protein were evaluated before tube placement. All patients had signs of dysphiagia and weight loss. All patients underwent chemoradiotherapy after performing PEG procedure.

Results. After performing literature review 20 articles were found, with only one systematic literature analysis. We found only one guideline (The Management of Head and Neck Cancer in Ontario, Cancer care Ontaro, 2009) when supplementary feeding should be considered. One of the cri-

terias was BMI lower than 18,5 [1]. Our retrospective study included 48 patients, who underwent PEG procedure before chemoradiotreatmet. We evaluated patents serum albumine and total protein levels and then compared them to standarts. BMI was compared with Cancer care Ontario guidelines (2009). Our results showed that 50 percent of the patients had BMI higher than 18,5. (average 19,45). Only 24 percent of the patiens had low level of serum albumine (average 36,7), and 17,1percent had hypoproteinemy (average – 67,7). This study concludes that serum albumine and total protein counts are not reliable findings for malnutrition screening in patiens with HNC. BMI comparing to Cancer care Ontario guidelines is not reliable as a single finding also. After calculating patients PNI using formula $\text{albumine (g/l)} + 5 \cdot \text{lymphocyte count}(10e9/l)$, our findings showed that 91,3 percent of the petiens had lower PNI than 52 (average – 48). This concludes that PNI can be used as a reliable malnutrition marker to decide whether a PEG placement should be considered.

Conclusion. Serum albumine and total protein counts alone are not reliable tests for malnutrition screening in patients with HNC. BMI can't be used as a single criteria also. PNI can be used as a reliable malnutrition marker to decide whether a PEG placement should be considered, but further studies should be performed, alongside with weight loss.

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58. The efficacy and perspectives of endoscopic treatment of type i gastric neuroendocrine tumors (TI-G-NET's)

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The incidence and prevalence of these tumors have been increasing in recent decades. Only gastric – NET were registered in the SEER database (The Surveillance, Epidemiology and End Results) up to 1986. In the 1970s, incidence was low: 0.01 in both the USA and the UK. Now, NET's are rare tumors that account for approximately 1%–2% of all

neoplasms. The percentage of G-NET tumors among all gastric malignancies has increased from 0,3 to 1,77 % since the 1950s, and proportion of G-NET among all TI-G-NET has increased from 2,4 to 8,7 %.

G-NET's are classified into three categories:

- type I, (TI-G-NETs) arising on atrophic body gastritis (ABG);
- type II, (TII-G-NETs) a manifestation of type I multiple endocrine neoplasia (MEN-I);
- type III, (TIII-G-NETs) with no specific background disease .

Due to the widespread use of HD endoscopy, and especially with new possibilities of higher resolution devices NET of GI tract are identified with increasing frequency. Usually, after confirmation by endoscopic biopsies many question may arise:

- What should we do next?
- Is endoscopic ultrasound (EUS) required to further evaluate these lesion?
- Should we perform an endoscopic resection and if so, what is the best approach? Or

You refer this patient for surgery?

- Is a surveillance gastroscopy be performed what strategy is adequate.

In this report we article endeavour to update the practising endoscopist on the key clinical features and management of patient with upper gastrointestinal NET's. At first, You found datas on clinical and endosopical features of all three types of gastric NET, with short explanations of G-NET's pathogenesis. The current surveillance intervals and treatment is recommended by the European Neuroendocrine Tumor Society (ENETS), American Joint Committee on Cancer (AJCC), Japan and North America expert centers. We discussed according personal cases with endoscopic and surgical treatment.

ESD we provide since 2016 year, but cases are more than sporadic comparing with surgical intervention. We use cap-assisted endoscopic resection, snare resection after saline lift, or endoscopic submucosal dissection (ESD). This decision should be individualised, can depend on availability of local expertise or resource-this should be balance with operative time and availability.

In expert centres practising ESD, for type TI-G-NET's have been reported to be efficacious and safe with similar resection and complication rates to endoscopic mucosal resection (EMR).

There are no current randomised controlled trials (RCT) to suggest which strategy on current surveillance is preferable. Hence, this decision should be individualised, can depend on

availability of local expertise or resource and generally, made in partnership with the patient (ENET Vienna Consensus Conference participants Guidelines). According ENETS recommendations for TI-NET's >1 cm, endoscopic resection is widely recommended in Europe.

The endoscopic management is a safe and effective method for patients with TI-G-NET's. More studies based on larger series are needed to identify recurrence risk factors for TI-G-NET's.

For TI-G-NETs that are too large for safe endoscopic resection or predicted T2, and surgical resection usually become preferable, but new devices and more perfect training help in this procedure.

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59. Endoscopic submucosal dissection versus surgical resection for early gastric cancer and premalignant lesions of the stomach in Klaipėda University Hospital

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Introduction. Endoscopic submucosal dissection (ESD) was first conceptually described almost 30 years ago in Japan and is recently practiced in Europe. ESD is an effective treatment for premalignant and early-stage malignant lesions of the stomach. Oncologic outcomes with ESD compare favorably with competing surgical interventions. ESD also serves as an excellent T-staging tool to identify noncurative resec-

tions that will require further treatment. ESD is technically demanding and has a higher rate of adverse events than most endoscopic procedures including EMR and sufficient ESD training is critical to ensure safe conduct and high-quality resections. Recently ESD are recognized by Western endoscopists as an organ sparing option for early gastric cancer that is alternative to laparoscopic or open stomach resection.

Aim. To investigate the efficacy of endoscopic submucosal dissection (ESD) at diagnosing and treating and to compare ESD with surgical resection for early gastric cancer and premalignant lesions in Klaipėda University Hospital.

Methods. Data of patients with mucosal gastric lesions treated with ESD or traditional surgery (open or laparoscopic resection or gastrectomy) in Klaipėda University Hospital were retrieved for a period of 5 years (Jan 2013 to Dec 2017) from the electronic patient records of the hospital. Patient demographics, tumor characteristics, stage, operation time, length of stay, early and late operative complications were analyzed and compared. We also aimed to compare local recurrence of ESD and surgery for superficial gastric lesions in the follow-up period of 12–60 months.

Results. Among the 47 patients with superficial gastric lesions, 16 (34%) underwent ESD and 31 (66%) underwent surgery. Out of 16 ESD performed, en-bloc resection was achieved in 87.5% of cases. ESD was considered complete on endoscopy in 95% of cases compared to only 68% on histology. The demographic and clinicopathological characteristics of the patients were well balanced. There was also significant difference in follow-up time, since ESD was started applying only from October 2016. ESD group had significantly shorter procedure times, shorter fasting period, and shorter hospital stay than the surgical resection group. Immediate and late complications in the surgical resection group were more common compared to those in the ESD group. Local recurrence rate in the ESD patients and in patients which underwent surgical resection was 10.3% and 8.1%, respectively ($P = 0.1$). To verify the significance, Student's independent test was used.

Conclusions. ESD may be an alternative treatment option to surgery for early gastric cancer and premalignant lesions of the stomach with fewer early complication rates and shorter duration of hospital stay compared to surgical resection.

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60. Flexible endoscopic diverticulotomy of Zenker diverticulum: a single center experience

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Introduction. Zenker's diverticulum is a sac-like out-pouching of the mucosa and submucosa through Killian's triangle. Symptomatic diverticulum causes dysphagia, regurgitation of food into the mouth, cough, pulmonary aspiration and other symptoms. Treatment options include open surgical diverticulectomy and diverticulopexy with myotomy or myotomy alone using flexible or rigid endoscopes [1].

The Aim of our study was to evaluate results of flexible endoscopic diverticulotomy of Zenker's diverticulum at Vilnius University Hospital Santaros Klinikos (VUH SK). **Patients and methods.** All the patients, who underwent flexible endoscopic diverticulotomy of Zenker's diverticulum at VUH SK from November 2014 till July 2017 were included in the present study. Data were collected retrospectively from endoscopic reports, radiological imaging reports and clinical reports. We evaluated following parameters: demographic data (sex, age); symptoms; duration of symptoms; diverticulum depth; length of hospitalization after procedure; technical data; symptoms resolution immediately after procedure; complications; symptoms recurrence. Follow-up continued until patient death or last telephone contact.

Results. From November 2014 till July 2017 fifteen persons ($n = 15$) underwent flexible endoscopic Zenker's diverticulotomy by single endoscopist at VUH SK. The mean age (SD; range) of the 15 patients was 68.7 years (14.5; 44–91), with 5 men (33.3%) and 10 women (66.7%). The mean length (SD; range) of hospitalization after procedure was 3.13 days (1.25; 1–5). All patients had symptomatic Zenker's diverticulum. The majority of patients had more than one symptom: 40% ($n = 6$) had three symptoms, 33.3% ($n = 5$) had only one symptom, 20% ($n = 3$) had four symptoms and 6.7% ($n = 1$) had two symptoms. Dysphagia was the most common symptom and occurred in all patients (100%). Antibiotics prophylaxis was given to 8 patients (53.3%) with 3rd generation cephalosporins or with penicillin group antibiotics. Further preion of antibiotics was

related to complications, rise of CRP after diverticulotomy, patient's complains and medical status. After diverticulotomy 9 patients (60%) complained of throat pain and analgetics were prescribed to relief pain. In all patients endoscopic diverticulotomy was successfully performed. Mean procedure time was 35 minutes and ranged from 20 to 60 minutes. Fourteen patients (n = 14, 93.3%) had no complications. In one patient (n = 1, 7%) on barium swallow mild local extravasation was seen and microperforation was diagnosed. This patient was treated conservatively with antibiotics (ampicillin, metronidazole), and on repeated barium swallow on day 4th extravasation was not seen. 14 of 15 patients (93.3%) had substantial initial symptomatic improvement after the procedure: eight patients (53.3%) had complete disappearance of symptoms and six patients (40%) had near-complete symptoms resolution. In average 3.3 months after procedure, 9 out of 15 patients were available at the outpatient clinic to re-evaluate the symptoms and to repeat barium swallow. At this moment of follow-up eight patients (89%) had no recurrence of symptoms. One patient had improvement of dysphagia 50% form baseline, but regurgitation and weight loss had no reoccurred.

Conclusions. 1. After endoscopic diverticulotomy complaints disappeared or significantly improved in 14 out of 15 patients (93.3%) 2. At the remote period, 8 out of 9 patients examined felt no recurrence of symptoms (89%).

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61. Endoscopic restitution of the integrity of gastrointestinal tract using the over-the-scope-clip system (OVESCO): two-centre experience

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The increased invasiveness of endoscopic procedures and complex surgical interventions has resulted in an increased number of gastrointestinal iatrogenic defects, such as per-

forations, leak and fistulas. An over-the-scope clip (OTSC), OVESCO, has been developed for the closure of small mural defects and bleeding ulcers [1, 2]. The OTSC produces more durable closure than standard endoclips because of its ability to grasp more tissue, include the entire thickness of the visceral wall, and apply a greater compressive force [3].

The aim of the presentation is to evaluate our 5 years experience in endoscopic restitution of the integrity of gastrointestinal tract using the over-the-scope-clip system.

Materials and methods. We have performed a retrospective analysis of the data (including technical aspects, clinical outcomes and closure rates) related to the cases of restitution of the digestive tract integrity with OTSC System in two Lithuanian hospitals.

Results. 25 patients from two Lithuanian hospitals (National Cancer Institute and Vilnius University Hospital Santaros klinikos) were treated applying the OTSC clip. A total of 29 procedures were carried out and 32 clips were applied between 2013 and 2018. Underlying pathology were: post-surgery leak/ fistula – 16 cases, iatrogenic bowel lesion – 6, other – 2 and leak of esophageal suture – 1 case. Mean age of the patients (10 females, 15 males) was 65 years (range: 35–85 years). Mean size of injuring 1.2 cm (range: 0.2–4.0 cm). Persistence of the condition prior to the procedure: acute (0–3 days) – 7 patients, sub acute (3 days–1 month) – 12, chronic (more than 1 month) – 6 patients. We achieved a complete defect closure at initial procedure in 18/25 of the cases (72%). Two clips were applied during the initial procedure in 3 cases, but in all large lesion size (>20mm) cases initial procedure was unsuccessful. After 1 week fistula remained closed in 12/25 cases – 48%. Repeated procedure were made in 4 cases, complete closure was achieved in all cases. At the remote period in 11 out of 17 followed patients 64, 7 % fistula remained closed. Iatrogenic perforations of the colon were successfully closed in all cases.

Conclusions. OTSC® System could replace or supplement in certain cases traditional surgical approach in the treatment of fistula, perforation or anastomotic leak. At initial procedure complete closure achieved in 18/25 of the cases (72%). In all cases of iatrogenic injuries (6/6) clips were applied successfully, patients recovered, OTSC® should be available in the endoscopy units. A large lesion size (greater than 20 mm) and a delayed diagnosis (more than 1 week) were the major contributing factors for the overall unsuccessful clinical cases. Closure of fistulas remains a clinical challenge since fibrosis or necrotic and inflamed tissue surrounding lesions may cause clip failure. Tissues are less mobile and when applying suction, even if the cap is not completely filled with tissue, the clip may be placed properly.

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62. A successful endoscopic treatment (ESD) due to recurrent esophageal cancer (case report)

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We report a rare case of a submucosal tumor-like recurrence after endoscopic resection of early esophageal cancer. Several studies have reported that patients with complete resection during ESD have a very low risk of local recurrence, but there remains a possibility of local recurrence, particularly in the case of incomplete resection during ESD. In our case the patient was re-operated twice, and it show that early detection of residual malignant places can be successfully treated by the ESD . A 53 year old man presented with small dysphagia of more than 3 month duration having the Barrett esophagus with long segment C5M0 (Prague criteria). Upon pathological examination after ESD was detected of the lower esophagus judged to be T1aN0M0 adenocarcinoma. The horizontal resection margin was negative for carcinoma, but the vertical distal and proximal resection margins were positive for malignancy. The endoscopic findings suggesting remnant cancer was not seen. On magnified endoscopy with narrow band imagin, an irregular microvascular patter was observed in the nodular areas of both margins, and was repeated biopsies – they were negative to malignancy. The patient don't agree to the thoracic surgery and for the re-ESD he was send to Marseille Nord Hospital. Recurrent stage was diagnosed with EUS and was performed the ESD on 86 day

after first ESD. After three months on control endoscopy new recurrent changers were found and the same malignization with moderately differentiated carcinoma without muscularis mucosae penetration was confirm by biopsy material – the 7 mm ulceration was seen. After chest CT scanning all dates were send to Marseille NH and after the EUS was performed third ESD on 142 day after the re- ESD. We make endoscopic control twice – two month and five month's after last re-ESD, and there was no evidence of mucosal changers. Only on control chest CT scan was found changes into mediastinum lower – medial parts – showed enlargement of LN and small, but multilocal changers into the bilateral lungs. Was performed thoroscopic lungs biopsy and endoscopic bronchial ultrasound biopsy – pathological examinations were without evidence of metastasis and now we have confirmation on accompanying disease the Sarcoidosis. It is second chronic disease, because patient have more 17 years treatment of another disease , the Podagra. We look to the nice future of ESD with nice long-term outcomes.

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63. Endoscopic stenting versus operative gastrojejunostomy for malignant gastric outlet obstruction

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Background. Largest part of stenosis of upper part of digestive tract (UPGT) are patients with a first diagnosed an unresectable tumor. The aim of the study was to compare self-expanding metal stents to antrumectomy and Roux-en Y

gastrojejunostomy (GJ) for palliation of obstructive adenocarcinoma of the gastric antrum. Second part of patients are with malignant pyloroduodenal obstruction. Third part of UPDT obstruction are patients mostly with benign obstruction as iatrogenic cases, and in rare cases is obstruction of in lower duodenal parts. Open surgical (GJ) has been the treatment of choice, but it has high morbidity and mortality rates. During the last decade, endoscopic self-expandable metal stents (SEMS) have been used. This meta-analysis aimed to compare surgical GJ and endoscopic stenting (ES) in palliation of obstruction of UPDT.

Methods. The search identified on personal experience stenting for the outflow obstruction and patients who were underwent surgical GJ in abdominal surgery department of Lithuanian National Cancer Institute. The article presenting data with different kind of UPDT obstruction after the ES. Patients were matched with respect to ASA and level of obstruction. The outcomes were compared on time to starting free oral fluids, length of stay in department and survival. Parallel we use the Eastern Cooperative Oncology Group (ECOG) scoring system to evaluate clinical success and assessment of quality of life before and after treatment comparing with group patient who underwent surgery.

Results. The median survival of patients with stenosis of UPDT is till the 6–12 months. At this period, is no significant difference in percentage of patients with recurrent obstruction. The randomized controlled trials (RCT) and non RCT not show the significant difference between median survival times. We did not find statistically significant differences with regards to long – term survival.

Conclusions. Our findings suggest that stent placement is associated with better short-term outcomes and hence, stenting is a safe means of palliating malignant gastric outflow obstruction. This endoscopic approach is also in line with the minimally invasive goals of palliation, namely minimizing pain, hospitalization, and physiologic stress to the patient.

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64. Risk factors causing duodenal ulcer suture dehiscence after laparoscopic perforated ulcer treatment

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Introduction. Perforated peptic ulcer is the second most common complication of peptic ulcer disease. Ulcer perforation is an acute abdominal condition and the most common cause emergency operation among those with peptic ulcer disease [1]. One of the most common complications demanding reoperation after laparoscopic suture of a perforated ulcer is wound dehiscence; however, few studies try to examine the factors associated with this complication [2, 3].

Aim. The aim of our study was to assess treatment outcomes of patients in our center who were laparoscopically treated due to ulcer perforation to determine suture dehiscence risk factors – variables potentially responsible for reoperation, along with increased morbidity, mortality and hospital stay duration.

Methods. A study of all patients who undergone laparoscopic perforated ulcer closure in the Centre of Abdominal Surgery, Vilnius University Hospital “Santaros Klinikos” between January 2011 and January 2018 was conducted. All operations were performed using the same technique. The severity of peritonitis was evaluated after operations using Mannheim Peritonitis index [4]. The Boey score system was used as a predictor of postoperative morbidity and mortality [5]. Patients were divided into two separate groups for analysis: patients with postoperative suture dehiscence and a control group of patients without. Statistical analysis was carried out using SPSS version 21. Chi-square test or Fisher exact test was used to compare categorical variables and Mann–Whitney U test was used for continuous variables. The difference was considered statistically significant at a *p* value of ≤ 0.05 .

Results. In total we performed 65 laparoscopic ulcerorhaphy operations. 4 patients (6.2%) had postoperative suture

dehiscence. Mortality was observed on 3 patients (4.6%). We observed a statistical significant difference of patients' body mass index (64 % of the patients in the group without suture dehiscence were in the body mass index range of 18.5–24.9; $p = 0.011$). Patients that developed suture dehiscence had a higher American Society of Anesthesiologists score (50% of patients with suture dehiscence had an ASA grade III and 65.6% of patients without suture dehiscence had an ASA grade II; $p = 0.017$). Patients with suture dehiscence were operated by less experienced surgeons (13 vs. 3.5 years of medical experience; $p = 0.036$). Significant differences were also observed when comparing hospital stay (6 vs. 17 days; $p = 0.004$) and 30-day mortality rates (3.3% vs. 25.0%; $p = 0.045$).

Conclusions. Suture dehiscence could be attributed to such factors such as: obesity or emaciation within a patient, and patients' systemic comorbidities. One of the most important risk factors is a lack of surgical experience.

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65. Endoscopic stentation of enterocutaneous fistula in combination with short bowel syndrome. Clinical case report

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Introduction. Large high-output enterocutaneous fistula pose great difficulties, especially in the setting of recent surgeries resulting into the short bowel syndrome, mainly because the mortality is still high in spite of modern medical advances.

Methods. Our clinical case demonstrates an alternative technique of endoscopic control of enterocutaneous fistula by using 26 millimeters covered, non-growing into wall, metal gastroduodenic stent. In brief, one chord was passed endoscopically throughout the small bowel's leading end (1 meter), the other – through the outgoing end (15 centimeters). On the chord, inserted into the outgoing end, the sliced drain along the way was placed, and the chord itself removed. Throughout the canal of this drain a chord from the leading end was inserted and pushed in with the stentation system towards the caecum, where the stent was spread.

Results. The patient featured in this case developed a high-output enterocutaneous fistula after the set of surgeries which were created following a small bowel leak after a curative surgery for a thrombosis of the mesenteric vein. All of this resulted having a short bowel syndrome and expressed inflammatory process that contraindicated to treat fistula by performing a surgery. Firstly, we used vacuum-assisted closure therapy with drainage and created a probe nutrition straight to the large bowel after denying the leakage of contrast with a computer tomography. Secondly, after fistulograms showed more precise length of the small bowel that was left, we decided to try proceed with the stentation. Although the stent did not succeed in completely closing the fistula, it helped to reduce its secretion, regain the upper part of the small bowel and the patient started to evacuate himself. Using the technique featured in this case, the patient was also nutritionally optimized with a combination of oral and parenteral nutrition.

Conclusions. This case demonstrates a non-standard alternative treatment method that has not been found to have analogues in the medical literature, when in the presence of short bowel syndrome accompanied by a high-output small bowel fistula during the open abdomen (that has a small possibility of its spontaneous closure), there is a need to deal with problems of nutrition and difficulties in reducing the secret full of active content, therefore to avoid risky surgical treatment due to the expressed inflammation. This method serves as a proof of the concept for treating enterocutaneous fistulas with endoscopic stenting.

66. Is percutaneous cholecystostomy reasonable alternative for the treatment of acute cholecystitis?

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Introduction. For many years laparoscopic cholecystectomy is described as a safe, relatively simple procedure and the treatment of choice for acute cholecystitis. As an alternative treatment option in critically ill or elderly patients percutaneous cholecystostomy (PC) is performed.

Aim. To evaluate the clinical outcomes and possible benefit of an ultrasound guided PC in the treatment of acute cholecystitis for high risk patients.

Methods. Retrospective review of patients undergoing PC from 2008 to 2016 in Hospital of Lithuanian University of Health Sciences Kaunas Clinics. Patients were reviewed for demographic features, laboratory tests, complications, outcomes, hospital stay, American Society of Anaesthesiologists (ASA) physical status class and mortality rate.

Results. Thirty-eight patients (65.8% males (n = 25)) were included in the study with a median age of 77.1±9.4. All patients had calculous cholecystitis. Twenty-one patient (71.1%) were ASA III and 8 patients (21.8%) – ASA IV. In all patient's ultrasound guided drainage was performed. The mean time between onset of symptoms and hospitalization was 96.58±92.97 hours. Statistically significant decrease in white blood cell count (from 13.9±5.25 to 8.35±5.18) and C-reactive protein level (from 212.34±120.87 to 50.96±50.45) after PC was observed. Four patients (10.5%) developed post-procedure complications including obstructive jaundice (n = 2), septic shock (n = 1) and a gallbladder empyema with liver abscess (n = 1). The mean hospital stay was 12.78±9.47 days and 30-day mortality was 10.5%, however, there was no deaths accompanied directly to a procedure. The causes of death were septic shock (n = 1), acute respiratory failure (n = 1) and unknown cardiac pathology (n = 1). Eight patients (21.1%) underwent interval surgery during postoperative period in hospital. In three cases laparoscopic (7.9%) and in 2 (5.3%) cases open cholecystectomy was performed. There were no follow-up data for 3 (7.9%) patients.

Conclusion. PC is a reasonable low risk management option for high-risk (ASA III) patients with acute cholecystitis and co-morbidities. It can be used as a temporizing measure or as a definitive treatment option with a low number of interval cholecystectomy (21.1%).

67. Prediction of choledocholithiasis prior to laparoscopic cholecystectomy using original prognostic index

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Introduction. Common bile duct (CBD) obstruction by stones can lead to acute biliary pancreatitis, mechanical jaundice and acute ascending cholangitis and even to fatal outcomes. Accurate risk evaluation of possible choledocholithiasis prior to planned laparoscopic cholecystectomy (LC) is essential because this determines patient's management strategy [1]. Use of endoscopic retrograde cholangiopancreatography (ERCP) as a diagnostic tool should be minimized as it carries considerable risk of post-procedural complications [2; 3]. Therefore the best possible patient selection for ERCP is needed.

Aims and methods. At Vilnius University Hospital Santaros klinikos an original prognostic index (Vilnius University Hospital index or VUHI) is used for evaluation of risk of choledocholithiasis before planned LC ($VUHI = A/30 + 0.4 \times B$; A – total bilirubin concentration ($\mu\text{mol/l}$), B – CBD diameter (mm) measured by ultrasound) [4]. The aims of our study were to evaluate the accuracy of separate predictors (elevated bilirubin concentration, dilated CBD (>6 mm) and CBD stones seen by ultrasound) and VUHI diagnosing choledocholithiasis and to determine thresholds of index values for intermediate choledocholithiasis risk, i.e. distinguish patients who would benefit from additional investigation. We performed a retrospective study of patients admitted to tertiary care center Vilnius University Hospital Santaros klinikos from 2012 to 2015 for LC due to cholecystolithiasis who were investigated for concomitant choledocholithiasis. The study was approved by Vilnius Regional Biomedical Research Ethics Committee.

Results. 350 patients (63.4% female, mean age 65.2 years, SD 17.89) who underwent investigations for suspected choledocholithiasis were selected. 111 (31.7%) patients were classified as a lower risk group ($VUHI < 4.7$) and 239 (68.3%) patients as a higher risk group ($VUHI \geq 4.7$). CBD stones were found in 226 cases: 182 (76.2%) in higher risk group and 44 (39.6%) in lower. As a predictor for choledocholithiasis dilated CBD had highest sensitivity (92.5%), although quite low specificity (32.2%); overall accuracy was 71.1%. Sensitivity of CBD stones found by ultrasound was

51.3%, specificity – 84.6%; accuracy – 63.0%. Bilirubin elevation above 20 $\mu\text{mol/l}$ did not differ between patients with and without CBD stones; elevation above 30.78 $\mu\text{mol/l}$ was significantly more frequent in high risk group (p 0.011) and had accuracy of 62.3% (sensitivity 76.5%, specificity 36.3%).

VUHI value ≥ 4.7 was found to be associated with more than four-fold greater risk of having CBDS than VUHI value < 4.7 (OR 4.86). Its sensitivity was 80.5%, specificity – 54.0%, positive predictive value – 76.1%, negative predictive value – 60.4%, accuracy – 71.1%.

Equation to calculate predicted probability of finding a CBD stone at a certain value of VUHI was established using ANOVA method and logistic regression model. The currently used VUHI threshold value of 4.7 gives 53.6% probability. Presuming that the intermediate risk covers probability for CBD stones from 25 to 75% this corresponds to VUHI values from 2.6 to 6.9.

Conclusions. The study showed that our prognostic index has good diagnostic accuracy but dividing patients into two risk groups is insufficient deciding on the best management approach. Suggested model allows determining intermediate risk group which requires additional investigation.

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68. Percutaneous cholecystostomy in acute cholecystitis: analysis of outcomes

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Background. Acute cholecystitis (AC) as a common surgical condition is usually treated with an early cholecystectomy

in addition with antibiotic therapy [1]. However, open or laparoscopic cholecystectomy in critically ill patients or those with multiple comorbidities can lead to significantly higher mortality rates [2]. Percutaneous transhepatic cholecystostomy (PTC) is a preferable treatment option for patients with AC who are considered to be unfit for surgery [3].

Purpose. To evaluate and analyse clinical outcomes of patients with AC, who underwent PC.

Methods used including statistical analysis methods. Data of 49 patients who underwent PTC between 2012 and 2017 at Lithuanian University of Health Sciences Kaunas Clinics was reviewed retrospectively. Collected data included patient demographics, indications for PTC, American Society of Anesthesiologists (ASA) grading, duration of symptoms, results of laboratory and radiological tests. Clinical outcomes included the duration of hospitalisation, complications, patient mortality and scheduled cholecystectomy. Statistical analysis was performed using SPSS v23 software.

Results. Current analysis included 49 patients (31 men and 18 women) of mean age 76.5 ± 8.9 years and hospital stay – 13.6 ± 12.6 days. 41 (83.7%) patients had obstructive AC while 8 (16.3%) – non-obstructive AC. Duration of disease before hospitalisation was 5 ± 3.6 days. 93.9% of patients were classified with ASA III 73.5% ($n = 36$) and IV 20.4% ($n = 10$) grades. 67.3% ($n = 33$) had Grade II (moderate) and 32.7% ($n = 16$) had Grade III (severe) AC, according to Tokyo Guidelines 2018. Before PTC, abdominal ultrasound imaging was performed to all patients ($n = 49$), 17 of these patients also had CT scanning (34.7%).

Main PTC indications were high and dynamically increasing inflammatory parameters, duration of symptoms more than 72 hours and Grade II–III AC, according to Tokyo Guidelines 2018. Success of PTC was 94% (leukocytosis, CRP, clinical symptoms evaluated before and 72h after PTC: leukocytes – $20.3 \pm 1.5 \downarrow 8.7 \pm 1 \times 10^9/l$, CRP – $208.4 \pm 128.8 \downarrow 11.9 \pm 3.6$ mg/l, the pain in the right upper quadrant significantly decreased in 46 patients). Mean duration of antibiotic therapy was 12 ± 7.7 days. 10.2% patients had complications after PTC: 1 haemorrhage (2%) and sepsis developed in 4 patients (8.2%). In total 36 patients were discharged with PC to outpatient treatment, 12 patients had drainage removed during their hospital stay and 2 patients pulled out drainage by themselves.

Following PTC, scheduled cholecystectomy was performed for 24.4% ($n = 12$) patients 3–4 months after drain extraction. 1 patient was readmitted with recurrent AC one month after intervention. 8 patients died during hospitalisation. Main causes of death were sepsis ($n = 3$), acute cardiovascular failure ($n = 4$), lung thromboembolism ($n = 1$).

Microorganisms from obtained bile samples	Number of cases	Percentages
<i>E. coli</i>	18	36.7%
<i>Mixed growth</i>	13	26.5%
<i>Sterile</i>	11	22.4%
<i>Klebsiella oxytoca</i>	3	6.4%
<i>Candida krusei</i>	1	2%
<i>Citrobacter braakii</i>	1	2%
<i>Enterobacter cloacae</i>	1	2%
<i>Enterococcus faecalis</i>	1	2%
Overall:	49	100%

Conclusions. Successful PTC was in 94% of patients. Morbidity rate after PTC was 10.2%, mortality rate – 16.3%. Repeated AC was observed only in 2% of patients during one year follow-up period. The most common microorganism caused AC – *E.coli* (36.7%).

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69. Evaluation of medical laser effect on soft tissues during hemorrhoidectomy

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Introduction. Laser hemorrhoidoplasty has been described as a promising new technique of treatment of hemorrhoids [1]. However, intrahemorrhoidal laser effects on perianal tissue have not been widely studied. Occurrence of visible changes on mucosa during intrahemorrhoidal laser procedure should be avoided, thus exact space of laser coagulation is not evident at the time of procedure.

The aim of this study is to delineate the size of coagulation effect of diode 1470 nm laser on perianal tissue model depending on laser power and laser activation time.

Methods. Fresh rectal tissue of twenty four pigs were harvested approximately 5 cm in depth and 2 cm around anus. Every specimen had the gender marked and was split transversely into two or three parts to produce 54 samples. Each sample was randomly assigned to receive the laser power of 6, 8 and 10 W and 1, 2 or 3 second pulses. The procedure was made using Biolitec Ceralas diode laser with 6 mm optical fiber. The fiber was inserted in a manner, similar to intrahemorrhoidal laser application. The insertion place was marked with a pin. After exposure, each sample was evaluated after one and ten minutes to identify visual and palpable tissue changes. All changes were recorded. Samples were fixated in a 10% buffered formalin solution for 24 hours and conventional hematoxylin-eosin staining was performed. Samples were evaluated using low-power and high-power light microscopy by single pathologist. The extension of tissue injury was measured on high-magnification microscopy. Statistical analysis was performed with SAS On Demand for academics, using multiway ANOVA, two-way ANOVA and Chi-square tests. Results: The deepest tissue injury from 0 mm to 12 mm (mean 3.93 mm) was caused by the longest laser exposure time (3 sec) with no significant difference between laser power used. Palpable changes in perianal tissues were closely related to the power of laser exposure and occurred with higher power, resultantly 6W – 0%, 8W – 33,3%, 10W – 66,7%. Furthermore, longer laser exposure time caused higher rate in appearance of palpable tissue changes: 1 sec – 11,1%, 2 sec – 38,9%, 3 sec – 50,0%.

Conclusions. The effect of the 1470 nm diode laser on perianal soft tissues mainly depends on laser exposure time. 10W 3 second pulses seem to produce the coagulation length of 3.93. Palpable tissue changes after 10 minutes were evaluated as statistically significant and correlating with the time and power of laser exposure (respectively p values: power – 0.039 and length – 0.001).

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70. Initial results of the randomized, double-blind clinical trial of laser hemorrhoidoplasty versus rectoanal repair versus open hemorrhoidectomy

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Introduction. Laser hemorrhoidoplasty and rectoanal repair have been suggested as alternatives to excisional hemorrhoidectomy. There are no trials comparing two new techniques and comparing them to the standard treatment (excisional hemorrhoidectomy).

The aim of this study is to compare the early results (after 6 weeks) of three different modalities for treatment of symptomatic 2 to 3 degrees hemorrhoids: intrahaemorrhoidal laser procedure (laser hemorrhoidoplasty) (group I), rectoanal repair (group II) and open haemorrhoidectomy (group III).

Materials and methods. Study was approved by the Regional bioethics committee. This study has been conducted at Vilnius University Hospital Santaros Clinics for period of 2 years (from April 2016 to January 2018). 121 patients have been included. Patients have filled questionnaires preoperatively on the quality of life and defecation function (Patient symptoms scale, Cleveland clinic incontinence scale, Health survey – SF 36, Fecal incontinence quality of life instrument – FIQOL). Patients have been randomly allocated to one of the three intervention interventions. They were followed up at 1 and 6 weeks postoperatively by colorectal surgeons who were not aware of the operation performed, the operation was coded on the patient's chart. Wound healing, recurrence rate and continence, quality of life were assessed using questionnaires (FIQOL, Wexner, SF-36). Statistical analysis was performed with SAS On Demand for academics, using multiway ANOVA, two-way ANOVA and Chi-square tests.

Results. 121 patients – 53 (43.8%) women and 68 (56.2%) men – were randomized to three groups: 40 patients (33.1%) underwent laser hemorrhoidoplasty (group I), 41 patients (33.9%) underwent rectoanal repair (group II) and 40 patients (33.1%) underwent excisional hemor-

rhoidectomy (group III). There was no difference between age of the patients between the groups. Operation time was 15.00 min (± 5.58) in I, 15.00 min (± 5.60) in group II and 27.50 min (± 10.39) in group III ($p < 0.001$). There was no statistical difference in preoperative symptom scale or degrees of hemorrhoids among groups. Postoperative analgesics were used for 4.98 ± 2.74 days in the group I, 5.05 ± 3.02 days in II and 8.03 ± 3.65 days in III group ($p < 0.001$). The return to work time was 8.23 ± 5.07 days in the group I, 6.66 ± 4.29 in group II and 14.88 ± 6.28 days in III ($p < 0.001$). There was statistically significant difference between three groups regarding the early postoperative pain after 1 week and 1 month ($p < 0.014$). Patients satisfaction score, defecation on the first postoperative day, complication rate and one month follow up results were better in group I and II comparing with group III. Significantly higher quality of life was in groups I and II ($p = 0.02$).

Conclusion. Laser hemorrhoidoplasty and rectoanal repair are effective procedures for grades II and III hemorrhoids with obvious advantages, such as reduced recovery time and postoperative pain. Distant result should be studied further.

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71. Emborrhoid: method of choice for high risk patients with chronic hemorrhoids bleeding

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Background. Emborrhoid – innovative technique for the treatment of chronic hemorrhoids bleeding for high risk patients with severe comorbidities when other methods of treatment are unsafe. Selective endovascular occlusion of the superior hemorrhoidal arteries is performed with the guidance of transanal Doppler [1].

Methods. We report the first 3 cases of our hospital experience with this particular method during last four years since 2015 until 2018. All patients were men with age of 30–47 years. All of them had IIIo hemorrhoids and the main complaint was chronic rectal bleeding. Case no.1 had chronic hepatitis B, anorectal varices, ischemic type bile duct lesion, hepatic transplantation and previously performed embolisation of the minor rectal arteries. Case no.2 had aortic insufficiency. Case no.3 had previous unsuccessful hemorrhoidal ligation. After latter procedure emborrhoid was chosen. There was significant relief of symptoms for five months.

Results. Emborrhoid technical and instantaneous clinical success in both ways was 100%. No ischemia, acute pain, immediate bleeding was noticed. In case no.1 local scrotum hematoma was observed after the procedure. Although no specific treatment was needed. Follow up after more than two months in case no.1. and case no.2. shows significant rectal bleeding reduction from severe to moderate. There was no data about case no.2.

Conclusion. Our experience indicates that emborrhoid do not cause immediate complications. Initial treatment results and efficient suppression of symptoms allows to suppose about the perspective of emborrhoid in the future. However there are shortage of reaserch about outlying treatment results for this particular method to be objectively assessed.

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72. Challenges in correct diagnosis of acute appendicitis

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Introduction. Acute appendicitis is the most common cause of acute abdominal pain requiring urgent surgery. But the diagnostic algorithms and role of imaging is still very variable among different regions and countries resulting in high variation of negative appendectomies from 6% to 30%. Choosing the right diagnostic strategy to diagnose acute appendicitis is important to keep the lowest negative appendectomies and false negative results rates.

Aim. To present the results of two retrospective studies done in University Hospital Santaros Klinikos analysing diagnostic accuracy results before and after the application of new diagnostic algorithm of acute appendicitis using conditional computed tomography strategy and to compare their

diagnostic accuracy, usage of diagnostic modalities, and the amount of negative appendectomies.

Methods. two retrospective analyses of adult patients who were admitted in Emergency room at University Hospital Santaros Klinikos with suspected acute appendicitis were done: first study analysed the group of 554 patients who from 2008 to 2013 underwent surgery for suspected acute appendicitis before the new algorithm was established and the second study included the group of 74 patients who were suspected for acute appendicitis in the first three months after the establishment of new diagnostic algorithm. The results of both algorithms were compared and the positive and negative effects of new diagnostic algorithm were evaluated.

Results. In the first study inflamed appendix was found in 77.1% patients and the amount of negative appendectomies was as high as 22.9%. Application of new diagnostic algorithm dramatically reduced the amount of negative appendectomies to 0.0%, and increased the usage of imaging tools: ultrasound from 75% up to 100% and computed tomography from 3.4% up to 50%. Ultrasonography detected uninflamed appendix in 7% of cases, inflamed appendix in 43%, and in 50% of cases appendix was not detected. From all computed tomography scans applied using new diagnostic algorithm only 33% were positive for acute appendicitis and 19% had other pathological findings.

Conclusions. In the first study the amount of negative appendectomies dramatically differed from the results that were reached after the application of the new diagnostic algorithm. Although applying computed tomography scan in acute appendicitis diagnostic protocol reduces the amount of negative appendectomies, it increases exposure to ionising radiation, and taking in to account that potential patient population includes mostly young adults, some new alternatives should be searched.

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73. Clinical importance of extent and location of pancreatic necrosis in acute pancreatitis

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Introduction. approximately 20% of patients with acute pancreatitis (AP) develop necrosis of the pancreatic parenchyma or extra pancreatic fat tissue. The data on the clinical importance of the location and extent of the pancreatic necrosis is controversial. However, it is suspected it might affect the clinical course of the disease and management options.

Aim. to determine the clinical importance of the extent and location of peri/pancreatic necrosis in patients with AP. **Methods:** Retrospective review of patients diagnosed with necrotizing AP who were treated from 2010 to 2016 at Hospital of Lithuanian University of Health Sciences. Patients were allocated to subgroups according to the location (entire pancreas, left and right sides of pancreas) and extent (50%) of pancreatic necrosis. Patients were reviewed for demographic features, number of performed surgical interventions, local and systemic complications, hospital stay and mortality rate.

Results. The study included 83 patients (75.9% males (n = 63)) with a mean age of 531.7. Location and extent of necrosis were identified by contrast enhanced computed tomography. There were 22 patients (26.5%) with less than 30%, 19 patients (22.9%) with 30–50% and 42 patients (50.6%) with more than 50% of pancreatic necrosis. Total pancreatic necrosis was diagnosed in 36 patients (43.4%), right part of pancreas – in 23 patients (27.7%) and left part of pancreas – in 24 patients (28.9%). Positive blood culture (n = 14 (87.5%)), multiple organ dysfunction syndrome (n = 17 (73.9%)) and incidences of respiratory failure (n = 19 (73.1%)) were significantly more often diagnosed in patients with pancreatic necrosis exceeding 50% (p<0.05). Patients with >50% of necrosis were significantly (p<0.05) more often classified as moderately severe (n = 24 (41.4%)) and severe (n = 18 (72%)). Number of surgical operations (n = 18 (72%)) and ultrasound guided interventions (n = 26 (65%)) was also significantly higher. There were no differences in clinical course and outcomes when comparing location of the pancreatic necrosis. Except in the group of patients with total pancreatic necrosis incidences of renal insufficiency (n = 11 (64.7%)) and infected pancreatic necrosis (n = 19 (57.6%)) was significantly higher (p < 0.05).

Conclusions. the clinical course and outcomes are worse in case of pancreatic necrosis exceeding 50%. Longer and more complex treatment for this group of patients might be needed.

74. A rare complication after polytrauma: incarcerated diaphragmatic hernia

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Background. Diaphragmatic injury is uncommon and is caused by blunt or penetrating thoracic or abdominal trauma. The injury may be subtle and imaging studies can be nondiagnostic. Missed diagnosis can result in delayed presentation with potentially life threatening complications.

Case description. A 20-year-old male patient, who had been in motorcycle accident 6 months earlier, developed epigastric pain and vomiting after heavy lifting. He had multiple visits to emergency departments and to general practitioner. Gastroscopy was performed by a gastroenterologist with no definite diagnosis. Abdominal x-ray was taken, which showed well-contoured homogenous opacity in the basal part of the left lung. Since previous endoscopy was inconclusive an emergency gastroscopy was performed- it showed a deformed stomach with cyanotic mucosa. CT illustrates a diaphragmatic hernia with herniated stomach, greater omentum and part of pancreas. Emergency laparoscopic operation was performed. Abdominal organs were pulled back to abdominal cavity and diaphragmatic defect was closed with interrupted sutures and covered with intra abdominal mesh. The patient was discharged, in good condition, seven days later.

Conclusion. Diaphragmatic injury after blunt abdominal trauma is uncommon and can be undiagnosed at first. Patients with previous thoracoabdominal trauma who present with abdominal pain and vomiting should be evaluated for possible missed diaphragmatic injury. Laparoscopy can be effective in repairing the diaphragm.

75. First results of gastroenteropancreatic neuroendocrine tumors (GEP-NET) multi-institutional registry in Latvia

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Background. Recent epidemiological studies show an increasing trend in the incidence of GEP-NET [1], [2]. However, the site of origin, pathological features, distribution of stage may vary in different populations.

The aim of this study was to show first data from Latvian registry of GEP-NET from two University Hospitals.

Materials and Methods. Patients with a histopathological diagnosis of GEP-NET treated at Riga East Clinical University Hospital and Pauls Stradins Clinical University Hospital between 2006 and 2016 were registered in EUROCRINE, an international Endocrine Surgical Registry funded by the EU, and included in our study. Clinical, pathological features and treatment results were analyzed. Results: In total, 172 patients were included. The median age of the patients was 60 (IQR 52–70) years and 120 (69.8%) predominantly were female. The most frequent primary site was the pancreas (n = 50; 29.1%), followed by stomach (n = 46; 26.7%), small intestine (n = 35; 20.3%), appendix (n = 12; 7.0%), rectum (n = 8; 4.7%), colon (n = 8; 4.7%), caecum (n = 6; 3.5%), sigmoid colon (n = 4; 2.3%) and Ca of unknown primary site (n = 3; 1.7%). In 84.3% (n = 145) tumors were hormonally non-functional. Metastases at diagnosis were found in 51 patients (29.7%), however in Latvia we were not able to use PET-CT till 2016. The majority of patients 80.2% (n = 138) underwent an operation with curative intent. According to Ki-67 distribution, G1 tumors were 36.6% (n = 63), G2 33.1% (n = 57), G3 13.4% (n = 23), in 16.7% (n = 29) correct grading was difficult to obtain. Chemotherapy was administered in 13.4% (n = 23) and biological targeted therapy was administered only in 8.1% (n = 14) of patients. At the time of the analyses 42 deaths were documented, corresponding to 24.4% of the registry population.

Conclusion. Collection and critical analysis of GEP-NET data in accordance to European level can serve as a solid background for improvement of surgical and non-surgical treatment thus influencing long term results in the future.

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76. Comparison of onlay and sublay mesh repair methods for incisional hernia

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Introduction. Incisional hernia is a common postoperative complication of abdominal surgery which incidence, according to different studies, ranges from 2% to 20%. [1,2] There are several methods of treatment of incisional hernia, but the two of them remain most frequently used, they are the onlay and the sublay. [3]

Aim. The aim of this retrospective study was to compare and analyze the results of two different methods of treatment of incisional hernia: the onlay and the sublay techniques. Research goals: comparison of complications, recurrence rate, operative time, duration of hospital stay and impact of used method on patient's quality of life.

Methods. A retrospective analysis of the database of surgical department from 2011-06 to 2014-06 was performed. A total of 277 patients were divided into two groups. The group A patients were operated using onlay technique (142 patients; 51,3%); the group B – sublay technique (135 patients; 48,7%). There were sent 230 letters with questionnaires in aim to determine patients quality of life.

Results. The mean operative time was 144,75±62,98 min. in group A and 136,04±47,54 min. in group B. But that was not statistically significant ($p > 0,05$). The mean duration of hospital stay in group A was 8,07±10,36 days and in group B – 6,07±2,34 days. That means that group A stayed in hospital longer after the operation than group B, statistically significantly ($t = 2,237$; $p < 0,05$). Recurrence rate of incisional hernia was 4,2% (6 cases) in group A and 2,2% (3 cases) in group B, but that was not statistically significant ($p > 0,05$). 86 patients answered two questionnaires (SF36 and “Carolinas comfort scale” – CCS) about quality of life. SF36 questionnaire includes: physical functioning, role functioning, bodily pain, general health, vitality, social functioning, role emotional and mental health. CCS includes – sensation of mesh, pain and movement limitations. According to their answers there was no statistical significance between group A and group B ($p > 0,05$).

Conclusion. This retrospective research shows no significant difference in operative time, postoperative complications, rate of hernia recurrence, and quality of life between onlay and sublay technique for treatment of incisional hernia. The sublay method is associated with significantly shorter duration of hospital stay.

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77. Laparoscopic and open gastrectomies in Lithuania: long term follow up

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Introduction. Over 20 years passed since the first laparoscopic total gastrectomy was performed for cancer. While laparoscopic distal gastrectomy earned its place for Stage I gastric cancer in Japan (grade B recommendation), total gastrectomy remains in need of solid evidence (grade C recommendation) [1]. Despite being the pioneer in laparoscopic surgery, Europe did not have similar surgical experience compared to East Asia due to decreased exposure to gastric cancer. However, several studies on minimally invasive gastrectomy for gastric cancer have been conducted in Europe [2,3]. Baltic countries stand in between East and West in terms of gastric cancer incidence: incidence rate per 100,000 is 10.6 in United Kingdom, 26.3 in Lithuania and 85.3 in Japan [4]. Laparoscopic gastric surgery in Lithuania was started in 2000s in Kaunas and Klaipėda. Recent metaanalysis provided insight to current situation: of the 18 studies that were included, 17 were non-randomized and only 1 was randomized controlled trial [5]. However, some of the European studies did not analyse total gastrectomy as a distinct entity combining both distal and total gastrectomies; moreover, most of them do not provide data on full five-year follow up for each patient. Therefore, a case-control study was designed to evaluate laparoscopic (LTG) versus open total gastrectomy (OTG), comparing short-term surgical and long-term oncologic outcomes.

Methods. 34 patients with stage T1-2 gastric cancer underwent total gastrectomy from October 2004 to July 2009 in Klaipėda Republican Hospital and the Hospital of Lithuanian University of Health Sciences. 17 patients hav-

ing a laparoscopic approach were retrospectively compared to a homogenous group of patients, paired for age, stage of disease and comorbidities. Patients operated after 2010 were excluded in order to obtain full five-year survival data from National Cancer Registry. Open total gastrectomy group patients were enrolled using the same criteria. Results were expressed as median and range of observed values. Qualitative data were compared using Fisher's exact test or χ^2 test, Kruskal-Wallis for ordinal data; quantitative data showing a normal distribution were compared using an unpaired t test.

Results. Median operating time was 270 min in LTG group and 210 min in OTG group ($P < 0.05$). There were 20 (5–39) lymph nodes harvested laparoscopically and 22 (12–51) in using open approach ($p = 0.35$). Median length of stay was 14 (4–53) days in LTG group and 14 (9–67) in OTG group ($p = 0.64$). Time to resume liquids was 3 (1–7) days in laparoscopic surgery group and 6 (2–8) in open surgery group ($p = 0.00$). Complication rate did not differ significantly between the groups. 5-year overall survival was 76% in LTG group and 53% in OTG group.

Conclusions. Laparoscopic total gastrectomy is safe and has similar long term outcomes to open gastrectomy. Further European studies, and particularly randomized controlled trials, are needed comparing laparoscopic gastrectomies with open gastrectomies.

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78. Prevention of adhesive peritoneal disease

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Introduction. Nowadays acute small intestinal obstruction remains a widespread and tough surgical problem. For the past 20 years the frequency of acute intestinal obstruction has increased twofold in Ukraine; moreover, it does not show any tendency towards decrement. The number of patients who suffer from this disease makes 3,5% from the total number of surgical patients at hospital [1].

It is known that one of the main factors of acute adhesive peritoneal disease pathogenic mechanism is the development of abdominal adhesions varied in their structure and extension. Unfortunately, etiology and nosogenesis are not developed well enough today, and the majority of methods given to prevent adhesions development shows low efficiency or difficulty in its appliance [2].

Aim of the research. To develop the method of adhesive abdominal disease and acute small intestinal obstruction prevention.

Materials and methods. The experimental part of the work has been carried out on 40 monodactylous rats of the line “Wistar” and formed in two groups: control group – 8 rats (normal range indicators) and the main one – 32 animals. The latest were given hypotonic solution of polyethyleneglycol into the abdominal cavity after the elimination of previously created acute small intestinal obstruction and after adheolysis. Having released the animals on the 3rd, 7th, 14th and 28th day after the experiment the pathomorphological study of the abdomen and small intestinal has been carried out. The morphological study of medication has been made after staining with hematoxylin and eosin, micro-fuchsin in accordance with Van Gieson and with Mallory using the microscope “Olympus BX-41” with further processing under “Olympus Dp-soft version 3.1” programme.

The clinical stage of adhesions development prevention was held among 14 patients that had to undergo the surgery in regards to acute small intestinal obstruction. After adheolysis, hypotonic solution of polyethyleneglycol was perfused into abdominal cavity. The efficiency was estimated in accordance with the method that we developed. It included the usage of intraabdominal camera.

Results and their discussion. The usage of polyethyleneglycol hypotonic barrier solution leads to the appearance of hydroflotation phenomenon in the abdominal cavity. In accordance to the experiment data, this phenomenon remains for the next 28 days and prevents from adhesions development.

During the autopsy under abdominal cavity organs macroscopic study among the animals released from the experiment, visual displays of adhesive peritoneal disease have not been found as per the given terms. In accordance to the data of microscopic pathomorphological study it has been proved that the usage of polyethyleneglycol leads to the regression of alterant, inflammatory and vascular changes in the small bowel wall and its mesenteriolum. Under the extension of the experiment terms, lymphoid hyperplasia blotching buried in bowel mucous membrane has been noticed. It testifies about the reactive processes tension as a response to the development of pathological processes in the bowel wall. On the 28th day of the experiment the recovery of intestinal integration, deceleration and regression of the processes of intrainestinal adhesions appearance have been noticed.

Under the clinical study of the results of adhesive peritoneal disease prevention with the help of intraabdominal camera, adhesive disease displays have not been found, and the gathered data corresponded to the data of macroscopic estimate of the abdominal cavity organs in the experiment.

Conclusions. 1. The developed method using hypotonic solution of polyethyleneglycol allows us to perform the reliable prophylaxis of abdominal adhesions development starting from the first day of postoperative period. 2. The data received as per the method efficiency have also been displayed under the appliance in clinical practice.

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79. Spigelian hernia: case series and review of literature

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Background. The Spigelian hernia is an uncommon ventral abdominal hernia which occurs through the Spigelian aponeurosis at the level of the arcuate line where it is at its weakest. Traditionally Spigelian herniae have been repaired

with an open technique but the laparoscopic approach is becoming more common and widely described in the literature. We feel that the transabdominal preperitoneal (TAPP) approach restores the anatomy and prevents complications such as seroma. We present a series of Spigelian hernia repair carried out at a single district general hospital over the past 10 years and a literature review.

Methods. We carried out a retrospective review of 25 patients who had undergone Spigelian hernia repair at The Queen Elizabeth Hospital, King's Lynn between January 2005 and January 2016. Data pertaining to epidemiology, patient co-morbidities, imaging modalities used, operative techniques, post-operative complications and morbidity was collected. A MEDLINE search for 'Spigelian hernia' and 'laparoscopic' revealed 26 papers.

Results. We noted in our series that the incidence of Spigelian hernias was significantly higher in women than men, which is similar to the reported literature. The various operative techniques used ranged from open repairs with and without a mesh to laparoscopic techniques used more recently. We find that the transabdominal preperitoneal repair with a mesh is anatomically the most sound repair, with all the added benefits of keyhole surgery – reduced hospital stay, quicker recovery, fewer infections. Our complication rates matched those described in the literature.

Conclusions. Several operative techniques have been described to repair Spigelian hernias. We favour the laparoscopic approach which is safe and has all the benefits of keyhole surgery. It also aids in confirming the correct diagnosis. Of these laparoscopic techniques, the transabdominal preperitoneal repair with mesh has proven to be highly effective and provides an anatomical closure of the hernial defect.

80. Predictors of postoperative hypocalcemia occurring after a total thyroidectomy: Results of a prospective multicenter study

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Abstract Background. Thyroid surgeries are among the most common operations performed in the world. Hypocalcemia following total thyroidectomy is a common complication that is sometimes difficult to correct. The aim of this study is to determine the risk factors for hypocalcemia following total thyroidectomy and their clinical value.

Subjects and Methods. From January 2015 through to April 2017, 400 patients were included in this prospective multicenter study. All patients underwent total thyroidectomy due to various thyroid diseases. The following risk factors were analyzed: pre-operative and post-operative biochemical blood parameters, clinical effects and factors related to surgery, the patient, and the disease.

Results. Post-operative hypocalcemia developed in 257 patients (64.2%). Of them, 197 patients (76.7%) were diagnosed with asymptomatic hypocalcemia. Clinical symptoms were present in 60 of the 257 patients with hypocalcemia (23.3%). The statistically significant predictors of hypocalcemia were calcium and ionized calcium pre- and post-operatively ($p < 0.001$), parathyroid hormone on day one following surgery ($p < 0.001$), thyrotoxicosis <10 years before surgery (odds ratio 1.65, 95% CI 1.01–2.70, $p = 0.046$), the number of parathyroid glands found during surgery (odds ratio 0.52, 95% CI 0.38–0.70, $p < 0.001$), ligation of the trunk of the left inferior thyroid artery (odds ratio 2.04, 95% CI 1.27–3.29, $p = 0.003$), ligation of the trunk of the right inferior thyroid artery (odds ratio 2.37, 95% CI 1.47–3.81, $p < 0.001$), and the number of transplanted parathyroid glands (odds ratio 1.87, 95% CI 1.12–2.97, $p = 0.015$). In the multivariate analysis, age (odds ratio 1.05, 95% CI 1.01–1.09, $p = 0.029$) and gender (odds ratio 5.94, 95% CI 1.13–31.26, $p = 0.035$) were statistically significant predictors.

Conclusions. This study demonstrates that there is a number of different patient (gender, age, and duration of thyrotoxicosis <10 years before surgery) and surgical (number of parathyroid glands found during surgery, calcium and ionized calcium before and after surgery, parathyroid hormone on day one following surgery, and ligation of the trunk of the left and right inferior thyroid artery) risk factors predictive of hypocalcemia following total thyroidectomy. Optimization of the surgical technique could possibly prevent the occurrence of hypocalcemia after total thyroidectomy in some cases; in other cases, identification of known risk factors post-operatively could permit early detection and effective

treatment of these patients. Keywords: Total thyroidectomy; Hypocalcemia; Thyroid surgery; Predictors.

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81. Hypocalcemia 6–12 months following total thyroidectomy: Results of a prospective multicenter study

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Abstract Background. Thyroid surgeries are among the most common operations performed in the world. Hypocalcemia following total thyroidectomy is a common complication that is sometimes difficult to correct.

The aim of this study was to compare two groups of patients: those with normocalcemia and hypocalcemia following total thyroidectomy upon discharge from the hospital and 6–12 months following surgery as well as to determine the clinical value.

Subjects and Methods. From January 2015 through April 2017, 400 patients were included in this prospective multicenter study. All the patients underwent total thyroidectomy

due to various thyroid diseases. The following risk factors were analyzed: pre-operative and post-operative biochemical blood parameters, clinical effects and factors related to surgery, the patient, and the disease. By way of random selection, two groups of patients were formed: 30 patients who had a normal level of calcium detected in the blood upon discharge from the hospital following total thyroidectomy (normocalcemia group) and 30 patients who had a reduced level of calcium in the blood upon discharge from the hospital (hypocalcemia group). In these groups of the patients, the following parameters were determined: calcium, ionized calcium, 25-hydroxyvitamin D, parathyroid hormone, clinical expression of hypocalcemia, and the use of calcium and 25-hydroxyvitamin D preparations upon discharge from the hospital and 6–12 months following surgery.

Results. Based on the data of our study, the comparison of patient groups with normocalcemia and hypocalcemia upon discharge from the hospital and 6–12 months following surgery demonstrated that there were no statistically significant factors for post-operative hypocalcemia. Generally, there were no differences between the groups 6–12 months following surgery. A reduced level of calcium was determined only in 2 of 30 patients with hypocalcemia 6–12 months following surgery. In the group of patients with normocalcemia, the level of calcium remained normal both on day 2 when they were discharged from the hospital and 6–12 months following surgery. Comparing the normocalcemia and hypocalcemia groups on day 2 following surgery and 6–12 months following surgery, the Mc Nemar test showed a statistically significant distribution between these patient groups ($p < 0.01$). Of the 2 mentioned patients with hypocalcemia, clinical symptoms were not observed in 1 patient 6–12 months following surgery. The patient did not take calcium and calcitriol preparations. Another patient complained about numbness of fingers. The patient used calcium and calcitriol preparation per os. In the group of hypocalcemia, a reduced level of parathyroid hormone was determined in 9 patients on day 1 following surgery. A reduced level of parathyroid hormone was determined in 1 patient of this group 6–12 months following surgery.

Conclusions. Hypocalcemia following total thyroidectomy is among the most common complications. Treatment with calcium and 25-hydroxyvitamin D preparations after surgery leads to disappearance of both biochemical and clinical expression of hypocalcemia in the majority of cases. Upon discharge from the hospital, patients with more pronounced hypocalcemia should be administered calcium and calcitriol preparations even in absence of clinical symptoms.

Keywords: Total thyroidectomy; Hypocalcemia; Thyroid; Predictors.

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82. Do we need to use subcutaneous vacuum drains for patient's after incisional hernia repair with Sublay method?

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Background. Postoperative wound seroma is one of the main complication after incisional hernia repair [1,2]. The rate of postoperative wound seroma is more than 40% [2]. The lack of good quality randomised control trial did not prove that subcutaneous vacuum drains could reduce postoperative wound seroma after incisional hernia repair [3].

The aim of this study to evaluate does subcutaneous vacuum drains could reduce postoperative wound seroma after incisional hernia repair.

Materials and Methods. Randomized control trial of patients who underwent for surgery of medium size (hernia width 4–10 cm according EHS incisional hernia classification) incisional hernia repair surgery in Lithuanian University of Health Sciences, Kaunas Clinics, Department of Surgery from 2016 to 2018 years. All patients were operated using Sublay hernia repair technique. Patients were randomized in two groups: control group (without drains) and drain group (with 1 or 2 subcutaneous vacuum drains). The patients' age, sex, BMI, duration of stay in hospital, surgery time, postoperative pain (VAS), postoperative wound complications (seroma, infection, hematoma and skin necrosis) and hernia

recurrence were analyzed and compared between groups. The primary endpoint was wound seroma. Clinical examination and sonography were used for wound seroma and hernia recurrence identification. The period of patients' follow-up was 12 months. Statistical analysis was performed using SPSS 21.0 statistics pack. Student t test was used for parametric criteria's and Mann-Whitney U test – for nonparametric and small sample size criteria's. Significant difference was considered, if p-value was below 0.05.

Results. Forty eight patients (23 control group and 25 drain group) were included in the study. There was no significant difference compare age, sex, BMI, duration of patient's stay in hospital and surgery time between groups. Postoperative pain was less in control group compare with drain group but without significant difference. Postoperative wound seroma was significantly higher in control group (53.3% vs. 31.6%; $p < 0.05$), but clinical wound seroma expression was only 50% of patients'. Other postoperative wound complications such infection, hematoma and skin necrosis were the similar in both groups.

Conclusions. The rate of postoperative wound seroma was higher for patients without subcutaneous vacuum drains. Clinical expression of wound seroma was for half of patients. Absence of subcutaneous vacuum drains did not increase postoperative wound infection in control group.

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83. RCC: Inferior vena cava and right atrium tumor thrombectomy, a case report

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We present a case of renal cell carcinoma with a tumor invasion in inferior vena cava up to the right atrium. It was successfully treated with nephrectomy and vena cava and right atrium tumor thrombectomy.

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84. Laparoscopic resection of the stomach for large gastrointestinal stromal tumour

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Introduction. Gastrointestinal stromal tumours (GISTs) are specific mesenchymal neoplasms. Mostly they are located in the stomach (60%), followed by small intestines (20–30%), colon and rectum (5%) [1,2]. Treatment depends on the size of the tumour and location, if it has spread to other parts of the body. Surgical resection is the treatment of choice for GISTs [1]. Laparoscopic resection now is widely used for small gastric GISTs, however the feasibility and safety of this approach for large (>5 cm) GISTs remains controversial [3]. The patients with locally advanced, distantly metastatic tumours are treated with targeted therapy [4].

Materials and methods. A 70-year-old woman presented to our hospital with a few months lasting abdominal pain and anaemia. Esophagogastroduodenoscopy disclosed a 2 cm lesion with central ulcer in the posterior wall of the upper third of the stomach. Histopathological examination and immunohistochemistry were compatible with gastrointestinal stromal tumour. A computed tomography scan of the abdomen revealed an exophytic, heterogenic 8.9×6.7×5.6 cm gastric tumour extending to the spleen, however without spleen involvement. Neoadjuvant treatment with imatinib mesylate (400 mg daily) in order to shrink the tumour was started. Two months after the initial treatment with imatinib mesylate follow-up CT scan showed minimally downsized tumour (7.2×5.2 cm). MDT decision to progress with sur-

gery was made. Laparoscopic resection of the stomach was performed using four ports and linear stapler. The steps are shown in the video. The surgery took 120 minutes without any intraoperative events.

Results. Patient's recovery was uneventful. The patient was discharged on the second post-operative day. Histopathological examination of surgical material confirmed GIST diagnosis. Free margins were achieved.

Conclusion. Our case shows that laparoscopic approach is feasible and safe for gastric GISTs that are larger than 5 cm.

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85. Laparoscopic repair of traumatic abdominal wall hernia. Case report

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Introduction. Traumatic abdominal wall hernias are an uncommon problem, but are a known consequence of blunt trauma. These defects may not be recognized initially, or may develop in a delayed fashion. Immediate and delayed repair of these hernias have been described in literature. We present one case report of delayed laparoscopic repair of traumatic right subcostal area and lumbar hernia identified after the blunt abdominal trauma. A 36 year-old male was involved in motor car accident resulting in multiple costal fractures with pneumothorax, Grade III liver injury, Grade III right kidney injury, large hematoma of right lumbar area. Drainage of right pleural cavity and stenting of right kidney was performed. The liver injury was managed non operatively. He had no clinical or radiographic evidence of evisceration or obstruction, so definitive repair was delayed. Seven months post-injury he underwent successful elective laparoscopic re-

pair of the traumatic right subcostal area and lumbar hernia using PTFE mesh. He was discharged home on post-operative day three. He has returned to full activity and work full time without restrictions. There is no evidence of hernia recurrence at 12 months follow-up.

Conclusion. Traumatic abdominal wall hernias are an uncommon problem, but are a known consequence of blunt trauma. If urgent laparotomy is required and the tissue integrity is adequate, the defect should be repaired at the time of admission. However, if indications for urgent laparotomy are absent or the tissue integrity is poor, delayed repair may be the preferred. We have described one case of traumatic right subcostal area and right lumbar hernia resulting from blunt abdominal trauma that was successfully repaired laparoscopically.

86. Our experience in totally extraperitoneal hernioplasty: next step after 20 cases still learning curve?

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Our experience in totally extraperitoneal hernioplasty : next step after 20 cases still learning curve? As we know from history: despite the success of TAPP, many surgeons still thought that entering the abdominal cavity was too invasive for an inguinal hernia repair, and so a twist on TAPP emerged. General surgeon Barry McKernan, MD, managed to create a space in the preperitoneum without entering the abdomen completely, and TEP was born. [1] Despite totally extraperitoneally hernioplasty (TEP) history from 1993 year, we still look at the results, talk about learning curve, operation time and others. In laparoscopic inguinal hernia surgery, TEP is the first choice inguinal hernia repair in Switzerland [2]. After successful first 21 clinical cases(2012–2015) in TEP, we sought and were hope for better results. We compare retrospectively last 27 TEP hernia repair until December 2017 with first cases. We was hope, that our learning curve wil be about 20 TEP hernioplasty and for next TEP repairs we show better results. We retrospectively analyzed two divided groups of our patients: I.21 patients after TEP until May 2015 and II.27 patients from May 2015 until December 2017. But our analyzed data was not optimistic and show for us, that Op. time was not decrease , but even increase untill 100min. From 60 min. to 180 min.(I-98,33 min.) Complication rate similar 1/3,7% (I-1/4.8%) and no significantly different. Others as a

length stay in hospital, pain, no recurrences is same. Sure, in II group we have one clinical case with very difficult unexplained dissection of retroinguinal posterior wall tissues and Op. time even was increased until 180 min., bilateral hernia 7 cases, right hernia cases after open surgery (appendectomy). It was real reasons for increasing of Op. time in II group. In conclusion it is not easy to compare clinical cases with different patients in small analysed group. We agree, that TEP difficult technique in inguinal hernia repair. Sure, results after TEP hernioplasty depends not only from learning curve, but and from individuality of clinical case. Selection of patients is recommended, but some time we meet difficulties just at Op. time. Standardisation is the key to success in decreasing the number of complications during learning curve period [3]. Clinical cases (edited video): 1. Bilateral inguinal hernia PLoM2Fo sinistra PL1MoFo dextra. 60 years old men (After conventional appendectomy) Duration of operation 110 min. Video 11 min. 50 sec. 2. Unilateral inguinal hernia PL2MoFo dextra. 78 years old men. Difficult dissection. Duration of operation 180 min. Video 1 min. 06 sec. 3. Unilateral inguinal hernia PL2MoFo sinistra. 70 years old men (Polycythaemia) At third postoperative day haematoma regio lumbalis sinistra. Duration of operation 135 min. Video 2 min.

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87. Experimental visualization of vascular structures using microsoft hololens

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Objective. Endovascular therapy has become an integral part of vascular surgery. While endovascular techniques are improving, peri-procedure imaging remains dependent on contrast agents and X-Rays and associated disadvantages.

Methods. We report the development of real-time navigation software, which allows a three-dimensional view of the vascular system without any need for radiation. We used

a vascular phantom model (Blue phantom FAST Trauma Full Torso Ultrasound Training Model) and an augmented reality (AR) headset (Microsoft HoloLens) to display the vascular structures in the surgeon's field of view. Using simple landmark-based surface registration of a CT scan and marching cubes segmentation of the vascular tree, both the surface and the vessels in the AR display can be visualised. Using a magnetic tracking system (i.e. AURORA, Northern Digital Inc.) it is possible to also display the position and orientation of a catheter inside the vessels [1] [2].

Results. Our preliminary results of the virtual real time navigation in endovascular procedures are promising. The presented technique allows a three-dimensional holographic view of the vascular system without any need for radiation. Using extrinsic landmark-based calibrations, the virtual objects are precisely aligned with the real world, resulting in a convincing holographic illusion. The prototype also offers the possibility of intervention planning and simulation, which in turn will lead to a reduced learning curve and therefore increased patient safety.

Conclusion. The integration of Augmented Reality and endovascular techniques may improve intraoperative visualisation, leading to precise placement of guide-wires, catheters and stents and reductions in contrast agent doses and radiation exposure.

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88. Pancreaticojejunostomy

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Pancreaticojejunal anastomosis remains a key issue responsible for postoperative morbidity following pancreatoduodenectomy. In spite of large variety of modifications no method is clearly superior against the others. This video presentation demonstrates the technique I use when the pancreas texture is soft and the pancreatic duct is not dilated.

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89. Thoracoscopic approach in the treatment of ectopic thymic parathyroid adenoma

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Primary hyperparathyroidism is overproduction of parathyroid hormone, causing hypercalcemia. Parathyroid adenomas have been found to be the aetiology for 80% of primary hyperparathyroidism cases, while almost quarter of them are ectopic. We present the case of the ectopic thymic parathyroid adenoma, treated by the thoracoscopic approach. Preoperative computerized tomogram and Technetium-99-sestamibi imaging showed adenoma, located in the front mid-mediastinum, approximately 8×10 mm in size. Resection of the tumor was indicated according to the persistent hypercalcemia after unsuccessful surgical treatment performed three years ago. It was decided to perform a parathyroidectomy during thoracoscopy. Diagnosis of parathyroid adenoma was established on postoperative histopathology staining. The patient was discharged from a hospital 5 days after the surgery. We found this minimally invasive operation to be a effective and well tolerated treatment option, determined by the experience of the surgeon.

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90. Spleen-preserving laparoscopic distal pancreatic resection. tips and tricks

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A distal pancreatic resection is the most commonly reported laparoscopic pancreatic procedure in the literature and is generally considered to be safe and practical. This has now become a standard procedure for the benign or borderline malignant tumors located in body or tail of the pancreas. A distal pancreatectomy can be performed with or without preservation of the spleen. However, a procedure with spleen preservation can be challenging and technically difficult even for experienced surgeons. We present two cases of spleen-preserving laparoscopic distal pancreatic resection. In both cases spleen preservation was performed by Warsaw's technique in which splenic vessels were ligated with the preservation of the short gastric and left gastroepiploic vessels. In first case, the dissection of the superior and inferior border of the pancreas was performed using clips, while in second case using surgical stapler. Dissection with clips was more complicated, because required more working space. Patients were discharged from a hospital 8 and 7 days after the surgery, respectively. We found spleen-preserving laparoscopic distal pancreatic resection to be a safe and well tolerated treatment option in selected patients.

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91. Percutaneous cholecystostomy: a safe approach in high-risk patients with acute cholecystitis

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Introduction. Percutaneous transhepatic cholecystostomy (PTHC) is an alternative approach for sepsis control in patients with acute cholecystitis, and may serve as a bridging procedure to surgical intervention in high-risk patients with multiple comorbidities.

Aim. To share the experience of routine application of PTHC in a single institution.

Methods. The prospectively collected data spanned over the period from 2013 to 2017. Patient age, comorbid conditions according to the ASA physical status classification, and acute cholecystitis severity grading according to the Tokyo Guidelines 2018 were admission variables. The clinical course of inflammation was assessed, analysing the dynamics of CRP, PCT and leukocyte count, while the outcome analysis included hospital stay, the incidence of a following surgical intervention, complication rate, and mortality.

Results. In total, 192 patients with acute cholecystitis during the 5-year period underwent emergent PTHC as a first step of treatment. This group consisted of 103 female (53.6%) and 89 male (46.4%) patients with a median age of 80 years (IQR 72–85 years). From the whole group, 125 patients (65.1%) corresponded to Grade II, 60 (31.3%) to Grade III, and only 7 patients (3.6%) had Grade I inflammation according to the Tokyo 2018 grading. The majority of patients had comorbidities: 100 patients (52.1%) had ASA IV, 63 (32.8%) ASA III, and 24 (12.5%) ASA V physical status, and only 5 (2.6%) corresponded to the ASA II status. Acute calculouse cholecystitis was diagnosed in 171 patients (89.5%), and acute acalculous cholecystitis in 21 (10.5%) patients. The majority of PTHC, 60.4% of patients, was performed on average 24 hours after admission (IQR 1.00 – 3.00). PTHC was therapeutic and suitable for cholangiography in 108 cases, and 84 underwent just therapeutic PTHC. The median CRP before the procedure was 171.8mg/l (IQR 99.00 – 268.95) vs. 64.75mg/l (IQR 38.00 – 110.50), compared to day 3 after the procedure, $p < 0.001$; PCT level was 5.40ng/ml (IQR 1.50 – 19.30) vs. 2.77ng/ml (IQR 0.54 – 11.20), $p < 0.001$, and leucocyte count $13.65 \times 10^9/L$ (IQR 9.97 – 17.2) vs. $8.30 \times 10^9/L$ (IQR 6.40 – 11.30), $p < 0.001$. The median in-hospital stay of patients was 7 days (IQR 4.00 – 10.00), however, drain removal was postponed in 61

(31.8%) patients who were discharged to continue outpatient treatment with a drain. Cholecystectomy as a second step of treatment during the same hospital stay was performed in 51 (26.6%) patients. The overall hospital stay was 11 days (IQR 8 – 15.5 days). Mortality reached 7.8% for the whole group. The death of 8 patients was secondary to the progression of sepsis, 3 patients died due to pulmonary thromboembolism, 2 due to mesenteric thrombosis, and one patient due to cerebral infarction. One more death was associated with a progression of hepato-renal syndrome and cardiac decompensation.

Conclusions: PTHC is a safe and effective minimally-invasive intervention in high-risk patients with acute cholecystitis and could be used as a first step and a bridging procedure before definitive cholecystectomy for sepsis control, or as a saving procedure in patients who are poor candidates for surgical intervention.

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92. Adrenal tumours: the analysis of surgical treatment

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Adrenal tumours is comparatively rare pathology, accounting for 3–10% of the population. The first publication about successfully performed laparoscopic adrenalectomy appeared in 1992 and since that time it became the “golden standart” in this type of surgery [1,2]. Anyway, the open adrenal surgery is still performed in our days and it has its indications and priorities.

The aim of the study was to evaluate the results of the surgical treatment of adrenal tumours during the 20 year period from 1998 in the Department of Surgery of Lithuanian University of Health Sciences Hospital Kaunas Clinics. Objectives of the study were: 1) to identify the main demographic and clinical patient’s data (gender, age, the number of operations by year, method of surgery, diagnosis, side of the tumor); 2) to set the most common indications for laparoscopic adrenalectomy and open adrenal surgery; 3) to compare the characteristics of the tumours operated laparoscopically and by open surgery (size of the tumor,

morphology); 4) to detect the most common complications of the adrenal surgery. Retrospective clinical study analysing 452 patients who had adrenal pathology and were operated during 1998–2017 year period in the Department of Surgery of LUHSH KC was performed. Statistical data analysis was performed by SPSS (Statistical Package for the Social Science) 21.0 programme.

Results. During the analysed period averagely 18 laparoscopic adrenalectomies and 4 open adrenal surgeries were performed annually. The laparoscopic adrenalectomy procedures were performed in 82% of cases and were 3,7 times more common in women than men, in open surgery – 1,4 times more in women than men. During the following 20 year period the age of the operated patients was increasing. Laparoscopic adrenalectomy was used more often when the tumour size was 40 mm and they were functionally active. Open surgery was more often used when tumour's malignancy was suspected and when it's size was 60 mm and bigger. Most common histological types of the tumours were: cortical adenoma – 41,1%; pheochromocytoma – 15,3%; Conn syndrome – 13,2%; other benign tumours – 12,7%; malignant tumours – 7,3% [3]. The right adrenalectomy was performed more often than left (1.3 times).

Conclusions. Laparoscopic surgery was mainly used in benign adrenal diseases: pheochromocytoma, Conn's, Cushing's syndromes. Open surgery was more often used for the treatment of malignant tumours and metastases of other malignant tumours to the adrenal gland. The more rapid changes in patients appearance are more common in Cushing's syndrome and younger patients were operated for this disease. Surgery for metastatic disease was more common among men. The most common surgical complication was bleeding during surgery, non-surgical complication – pneumonia.

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93. Could the safety of thyroid operations be improved? Assessing the feasibility of intraoperative vocal cord ultrasonography in identifying vocal cords movement and reducing the risk of bilateral palsy. Data from prospective trial

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Background. The negative impact of laryngeal nerve injury on voice is well known in thyroid surgery. Bilateral laryngeal nerve injury is a particular pressing concern for a surgeon, as it can inflict such serious ill effects as breathing difficulties, reintubation, tracheostomy or even death. Identifying the functional status of recurrent laryngeal nerve (RLN) during the thyroidectomy is of paramount importance, as in most cases injured nerve seems visually intact at surgery. RLN palsy identified intraoperatively can change the operative strategy: the operation on the second side can be cancelled and bilateral nerve injury with its devastating consequences completely avoided. Although vagal and RLN monitoring have achieved wide recognition among thyroid surgeons[1], the aim of the study was to assess the validity of a completely new method (intraoperative vocal cord ultrasonography) which is much cheaper, simple, safe and could be widely available.

Methods. A prospective trial was launched in March 2016 and finished in December 2017. The permission of Vilnius regional bioethics committee was obtained. 112 patients with known thyroid pathology were prospectively enrolled in this study. All 112 patients were operated on in Vilnius University Hospital Santaros Klinikos by a single surgeon. The Surgeon attended the Instructional Course of Transcutaneous Laryngeal Ultrasonography. The study protocol included: 1. Voice recording and laryngeal exam in all patients preoperatively and postoperatively by a qualified ENT specialist; 2. Intraoperative neurostimulation of vagal nerve and RLN, palpating postrioid region of the larynx and sensing posterior cricoarytenoid muscle contraction, so called "laryngeal twitch response" [2]; 3. intraoperative neurostimulation of RLN using anterior and lateral approach laryngeal ultrasonography for vocal cord movement evaluation [3, 4, 5]. Laryngoscopy was regarded as the gold standard procedure. The nerve stimulator Stimuplex HNS 12 BBraun was used for stimulation with stimulus amplitude 1 mA and stimulus frequency 2Hz. BK Flex Focus 800 8815, 5–10 MHz was used for ultrasound evaluation.

Results. 112 patients and 200 nerves at risk were evaluated. Sensitivity, Specificity, accuracy, positive predictive and negative predictive value and Chi-Square Test were calculated using IBM SPSS Statistics, 20 version. Calculations were based on the assumption that p value was <0.05. 6 cases of temporary vocal cord palsy were diagnosed on postoperative examination (5,4% injury rate per patient and 3% per nerve at risk). No cases of permanent or bilateral vocal cord palsy were recognised postoperatively. Sonoscopic response sensitivity counted per nerve at risk and per patient was 83,3 % (83,3%), specificity 98,5 % (97,2%), accuracy 98% (96,4%) , positive predictive value 62,5% (62,5%) and negative predictive value 99,5% (99%). The sensitivity, specificity, accuracy, positive predictive and negative predictive value using palpation method both in the vagus and RLN group were 100% (100%); 96,9% (95,3%); 97% (95,5%) , 50% (54,5%) and 100% (100%) respectively.

Conclusions. Intraoperative vocal cord ultra-sonography and laryngeal palpation are both reliable and safe methods, which correlates well with postoperative vocal cord function. Both methods could be used in conjunction, but further studies with a larger sample size should be conducted.

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94. Thyroid cancer. How to reduce the number of diagnostic thyroidectomies?

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Background. The ability to reduce the number of diagnostic thyroid operations was retrospectively evaluated.

Methods. The data of cytological examination and BRAF V600E mutation status of thyroid nodules, their diagnostic value for the diagnosis of papillary thyroid cancer, nodule size and the results of the final histological examination are presented.

Results. Data analysis of 1970 patients who underwent thyroid surgery from 2012 to 2016 was performed. Out of 1970 patients, 412 (20.9%) were diagnosed with thyroid cancer after histological examination. Out of 412 patients operated due to malignancy, 396 (96%) were diagnosed with papillary thyroid cancer, 68 (17.1%) of them had sub-centimeter thyroid nodules (microcarcinomas). The BRAF V600E mutation analysis before surgery was performed for 219 patients who were treated due to cytologically indeterminate thyroid nodules. The sensitivity of BRAF V600E mutation status for diagnosis of papillary thyroid cancer in cytologically indeterminate thyroid nodules was 67.5% and specificity – 100%.

Conclusions. The number of diagnostic thyroidectomies can be reduced by not operating on patients with subcentimeter thyroid nodules and microcarcinomas. Patients with larger than 1 cm thyroid nodules, but the cytological examination is indeterminate, BRAF V600E mutation is negative, and there are no highly suspicious ultrasonographic characteristics, should undergo surveillance.

95. Minimally invasive adrenalectomy: the best operative approach in a high-volume centre

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Introduction. Minimally invasive adrenalectomy (MIA) is the preferred surgical treatment of adrenal tumors. There are multiple minimally invasive approaches to remove the

adrenal gland, such as anterior/lateral transperitoneal (TPA) [1] and posterior/lateral retroperitoneal approaches (PRA) [2,3]. Studies comparing the surgical outcomes of transperitoneal vs. retroperitoneal approaches have reported conflicting findings and thus it remains unclear which approach is superior [4].

Aim of the study. The aim of this study was to compare the surgical outcomes of transperitoneal adrenalectomy (TPA) and posterior retroperitoneal adrenalectomy (PRA) for adrenal tumor.

Methods. From a prospectively collected adrenal database, we performed a retrospective analysis of 245 patients submitted to MIA for adrenal tumor between April 1999 and December 2017 in the Center of Abdominal surgery of Vilnius university hospital Santaros klinikos. Patients undergoing bilateral adrenal surgery, single port and single access retroperitoneal adrenalectomy were excluded. Finally, 224 cases were included in this study. Collected cases were divided into two groups on the basis of applied minimally invasive operative approach: transperitoneal or TPA group and retroperitoneal or PRA group (150 patients). Analysis was performed on patients between the groups with respect to individual patient characteristics, clinical data and tumor features. A p value less than 0.05 were regarded as statistically significant.

Results. The study included 74 TPA and 150 PRA procedures. Tumor size for PRA was smaller than for patients undergoing TPA (38.12 mm vs. 49.31 mm; $p = 0.003$). PRA procedure showed significantly less blood loss (53.6 mL vs. 273.8 mL, $p = 0.012$) and tended to have a shorter operating time (122.1 minutes vs. 130.6 minutes, $p = 0.16$). The mean operation time was significantly shorter in the PRA group for patients undergoing right adrenalectomy (111.6 vs. 131.6 min, $p = 0.009$), but those undergoing left adrenalectomy had a similar operating time to the TPA group (132.7 vs. 127.1 min, $p = 0.533$). In groups TPA and PRA, conversion was necessary in 7 (9.4%) and 4 (2.6%) cases, respectively ($p > 0.05$). The postoperative complication rate in TPA and PRA groups was 7 (9.4%) and 6 (4%) respectively ($p > 0.05$).

Conclusions. Our results show that both operative approaches (transperitoneal and retroperitoneal) were used safely with similar operative outcomes, and thus are comparable options for the treatment of adrenal tumors. Retroperitoneal approach is more appropriate for right-sided MIA due to anatomical characteristics and better surgical outcomes. For left-sided MIA, however, we propose transperitoneal approach as a more suitable operative method. The adrenal tumours with the size under 8 cm and without perioperative evidence of primary carcinoma may be removed using both operative approaches dependent on surgeon expertise and preference.

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96. Incidental papillary thyroid carcinoma

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Introduction. Papillary thyroid carcinoma (PTC) is most common thyroid cancer with increasing incidence worldwide every year.[1] Papillary thyroid microcarcinoma (PTMC) is defined as PTC in size 10mm or less.[1,2] Significant part of PTC is incidental finding in thyroids previously considered as benign.

Aim of study was to analyse rate of incidental papillary thyroid carcinomas.

Material and Methods. Retrospective thyroid patient data since October 2015 were analysed. Altogether 581 patients underwent thyroid operation – 470 due to benign indications and 111 due to malignancy. Data were analysed regarding indications for surgery, operation type, morphology, tumour size, thyroid weight.

Results. Forty-one (8.7%) PTC was incidentally found in patients operated due to various benign reasons – Group A. Indications for surgery were compression ($n = 25$), thyrotoxicosis ($n = 13$) and primary hyperparathyroidism with concomitant benign thyroid disorder ($n = 3$). In 111 cases surgery was performed due to suspected ($n = 53$) or proved malignancy ($n = 58$) – Group B. Fine needle aspiration was performed in 19 (46.3%) patients from Group A, and in 110 (99.1%) – Group B. Unilateral procedures were more common in group A – 17 (41.5%), in Group B the method of choice was total or near-total thyroidectomy – 95 (85.6%)

cases. In Group A mean tumour size was smaller comparing to Group B: 11.8 mm (1–70 mm) vs 15.8mm (1–70 mm). PTMC in Group A diagnosed in 28 (68.3 %) cases, from those five (17.8%) were multifocal. In Group B were 42 (37.8%) PTMC, multifocality noted in 12 (28.6%) cases. Among tumors >10 mm in diameter, multifocality noted in 4/13 cases in Group A vs 39/69 in Group B. Metastatic lymph nodes were less common finding in Group A – 2 (4.8%) vs B – 28 (25.2%). Among 152 PTC cases 36 (27.7%) were follicular variant of PTC, from those 2 cases with so called noninvasive follicular thyroid neoplasm with papillary-like nuclear features. Mean thyroid weight in Group A was 73.4 g vs 31.4 g in Group B.

Conclusion. PTC is not rare incidental finding in patients operated due to benign thyroid disorders. Mostly incidental PTC are PTMC but in some cases it could be large carcinomas. Follicular variant of PTC could be found in cases of incidental PTC.

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97. Thyroid gland cancer with distant metastases – national data

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Introduction. The incidence of thyroid cancer with distant metastases varies from 5 to 33%, depending on mor-

phology [1]. It has been proven as poor prognostic factor for survival, with only 50% of patients surviving more than 10 years [2]. Aim of the study: To analyze the national cancer registry data about 24 patients with thyroid gland cancer distant metastasis.

Material and methods. The national cancer registry includes data about 1202 thyroid cancer patients during the period 2012–2016 from whom 24 patients were with distant metastasis.

Results. Patients mean age was 58 years (25–81 years). Female to male ratio was 2.4: 1. Morphological types of cancer with distant metastases were papillary – 10/1006 (0.9%), follicular – 9/148 (6%), medullary – 3/40 (7.5%), anaplastic – 2/8 (25%). Localization of distant metastases were in lungs – 15, bones – 8, liver – 1. Five patients had multifocal metastases. In 4 cases localization of primary cancer was diagnosed after operation on metastases. Twenty patients underwent surgical treatment and 4 were defined as unresectable. During the study period mortality rate for papillary cancer was 20%, follicular – 22%, medullary – 67%, anaplastic cancer – 100%.

Conclusions. Anaplastic and medullary cancer with distant metastases has low survival. In case of papillary cancer distant metastases are rare and overall prognosis is better. Those patients with cancer distant metastases should be treated aggressively, as this is the population that is most likely to die of thyroid cancer.

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98. Trans-axillary endoscopic thyroid gland surgery: initial experience

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Introduction. Endoscopic techniques are uprising in the thyroid surgery mainly because of the exceptional cosmetic results. Endoscopic thyroidectomy is widely accepted technique in the far east Asia but still rare in Europe. The potential advantages of endoscopic technique include better cosmetic result, decreased hospital stay and better patient comfort.

Aims. To present a series of trans-axillary gasless endoscopic thyroidectomy.

Methods. Between July of 2017 and January of 2018, 184 thyroid surgeries were performed. 12 patients were treated by endoscopic gasless trans-axillary approach and reviewed prospectively. Only cases with benign thyroid nodules were included. Exclusion criteria were diffuse toxic goiters (Graves' disease), thyroiditis, thyroid cancer, >6 cm nodules, recurrent goitres and patients with shoulder joint pathology. Data analysis includes patient characteristics, procedure time, thyroid pathology, and postoperative complications. Morbidity data are collected during surgery, on the day after, 2 weeks and 1 month after the operation.

Results. All patients submitted to hemithyroidectomies, had normal thyroid function at the time of the operation and were low-risk anaesthetic candidates. Mean operative time was 97.20 min. For the last 5 hemithyroidectomies the mean time of 65 ± 5.2 min showed a greater drop and associated with gained experience in preparation of surgery field between the axilla and thyroid area. There was no conversion to open surgery. Wound drainage lasted for 1 day in all cases except one (no drainage). There was 2 cases of morbidity – seroma seen 2 weeks after surgery and stiffness in lower 3rd of sternocleidomastoid after 1 month. Mean hospital stay was 2.16 days (range 2–3 days). Histopathological examination revealed toxic adenomas in 2 cases and follicular adenomas in 10 cases.

Conclusions. Based on our early experience, endoscopic hemithyroidectomy via axilla approach is safe, reproducible and feasible surgical method for thyroid diseases, with excellent cosmetic result in the neck.

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99. Heat shock proteins: a novel diagnostic target in ethanol induced acute severe pancreatitis

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Introduction. Severe acute pancreatitis (SAP) is an inflammatory disorder of the pancreas that may cause life-threatening complications [1]. It is well established that damage to the outer membrane of cells is a common phenomenon allowing abnormal transmission of substances into the cytosol [2]. In acute severe pancreatitis the membrane damage of acinar cells, acting in adherence with induced heat-shock proteins (HSPs), potentially activate and release potent hydrolytic enzymes that can cause cell membrane damage and systemic responses.

Aim. The main goal of this work is to confirm or reject the hypothesis that increasing HSP90, HSP70, HSP27 concentration can affect the mortality rate in the case of SAP by studying mechanisms of membrane damage, which later can be used as biomarkers for prognostic measures and severity scales.

Methods. The biomimetic lipid membrane models are an incredibly fruitful model system for studying membrane proteins and their interactions with membranes by surface sensitive techniques: electrochemical impedance spectroscopy (EIS), surface plasmon resonance (SPR). Results: We have developed tethered bilayer lipid membranes (tBLMs) as a long-term stable and versatile experimental model for protein reconstitution and for lipid-protein interaction studies [4] In this work, different isoforms of HSP's were used to investigate their interaction with tBLM. Selected HSP's proteins exhibited the membrane damaging properties as probed by the electrochemical impedance spectroscopy (EIS).

Conclusions. Membrane composition was found to be one of the most important factors affecting the interaction of HSPs to phospholipid membranes while testing SAP samples in vivo.

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100. Moving toward a non-invasive screening tool for acute severe pancreatitis

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Introduction. Over the past twenty years, intensive care treatment has improved mortality in the first phase of acute pancreatitis (AP) caused by Systemic Inflammatory Response Syndrome, however, the overall mortality rate remains very high [1]. In the late phase of the disease, the cause of death is most often related to multiple organ failure and sepsis. To lower this mortality rate it is vital to determine which patient will develop a severe form of the disease and apply the appropriate treatment measures. Even though we live in a modern multiparametric diagnostic era, we still lack bio-markers that unambiguously specify all AP severity phases: mild, in early stage (MAP), moderate-severe (MSAP) or severe (SAP).

Aim. The ambitiousness of this work is to create a single platform of new non-invasive diagnostic tools consisting of biosensing systems displaying not one but many parameters characterizing the severity stage of AP.

Methods. Patient urine was obtained from 5 male AP patients of alcohol-related etiology (median age of 40) within 24 h of presentation, median APACHE II score was 5.5, and IMRIE score was 3.5, indicating moderate to severe AP. For biosensors based on enzyme Urease from *Canavalia ensiformis* [2] and Glucose oxidase [3] were used to measure urea and glucose in urine. For utilizing non-invasive methods,

further processing will be performed by assessing proteins, enzymes, metabolites, and ions related to AP and after that, create a set of various sensors acting in saliva or urine that identify all AP severity phases: MAP, MSAP or SAP.

Results. Our analysis revealed that urea and glucose exhibited 1.0-fold or higher increase in AP patients and correlated with validated clinical laboratory results. Elevated proteins included established and proposed biomarkers of AP including C-reactive protein, as well as several novel potential biomarkers.

Conclusions. The data obtained for AP patients using our new non-invasive tools correlated with clinical and radiological observations.

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101. HuR mediated post-tranlational regulation of HO-1 and inhibitors of apoptosis proteins is associated with the poor clinical outcomes among patients with pancreatic cancer

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Introduction. The mRNA binding protein HuR is involved in the post-tranlational regulation of cytoprotective molecules, such as COX-2, HO-1 and inhibitors of apoptosis proteins (IAP1, IAP2, XIAP, SURVIVIN), and might be related to poor prognosis in numerous cancer types. However, the association of HuR, COX-2, HO-1 and IAPs family, and their impact on chemoresistance and carcinogenesis in PDAC still remain unclear.

The aim of our study is to assess the relevance and correlation of the IAP regulation by mRNA stabilizing protein HuR and HO-1 and / or COX-2 signaling pathway, and to determine the association with clinicopathological parameters and prognosis of PDAC.

Methods. Data of 32 patients after pancreatoduodenectomy for PDAC between 2011–2016 were analyzed. Patient's mRNA expression levels of HuR, COX-2, HO-1, IAP1, IAP2, Survivin and XIAP in PDAC were compared with normal pancreatic tissue obtained from organ donors. Additionally, the correlations among HuR, COX-2, HO-1, IAP1, IAP2, Survivin and XIAP, as well as their respective correlations with clinicopathological parameters were analyzed. The Kaplan-Meier method and log-rank tests were used for univariate analysis. Cox proportional hazard model was applied to identify prognostic factors that were independently associated with survival.

Results. HO-1, COX-2, HuR, IAP1, IAP2 mRNA expression were accordingly 3-fold, 8.8-fold, 1.5-fold, 4.8-fold and 5-fold higher, while XIAP and Survivin mRNA expression were 3.8-fold and 3.4-fold lower when compared to normal pancreatic tissue. Expression of HuR was positively associated with COX-2, HO-1, IAP1, IAP2, XIAP. High expression levels of HuR were significantly correlated with higher G stage and microvascular invasion, while high levels of XIAP were negatively associated with microvascular and perineural invasion. Univariate analysis revealed that high expression of HuR, lymph-node metastases, tumor differentiation and perineural invasion were significantly associated with overall survival (OS) of PDAC patients. In multivariate analysis, high levels of HuR, lymph-node metastases, tumor differentiation and perineural invasion were independently correlated with lower OS in patients with PDAC.

Conclusions. Our results suggested that upregulation of HuR in PDAC patients were significantly related with poor outcome. Even though, significant correlation with IAP proteins in PDAC was noticed, more data is needed to analyze the mechanism underlying HuR and IAPs interaction.

102. Heme oxygenase-1 gene promoter polymorphism is associated with the development of necrotizing acute pancreatitis

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Introduction. Acute pancreatitis is a severe and frequently life-threatening disease, which can lead to pancreatic necrosis, acute lung injury, systemic inflammatory response syndrome, and other complications.

Aim. In this study, we hypothesized that the expression of heme oxygenase-1 determined by the number of guanidinium thiocyanate (GT) repeats can influence the occurrence of acute pancreatitis. **Methods:** Patients with acute pancreatitis (n = 131) and age- and sex-matched healthy controls (n = 108) were studied. The polymerase chain reaction products were analyzed by ABI 3130 genetic analyzer and the exact size of the polymerase chain reaction products was determined by GeneMapper software. A short allele was defined as containing 27 GT repeats or fewer, whereas a long allele was more than 27 repeats. Levels of 12 different cytokines in blood serum of the same subjects were measured by enzyme linked immunosorbent assay.

Results. The subjects were categorized into 3 groups on the basis of the genotype results: 1 short and 1 long, 2 short, and 2 long alleles (L/L). Patients with necrotizing disease more frequently were carriers of LL genotype compared with those who had edematous acute pancreatitis. Furthermore, logistic regression analysis revealed that the presence of L/L allele type doubles the risk for developing pancreatic necrosis in patients with acute pancreatitis. E-selectin and VCAM are expressed at statistically significantly higher levels in serum of acute pancreatitis patients with LL genotype in comparison to those with SS or SL genotype. VCAM and E-selectin levels in serum of acute pancreatitis patients also significantly correlate with summative (total) allele length of HO-1 promoter region.

Conclusions. The polymorphism of the GT repeats in the heme oxygenase-1 promoter region may be a risk factor for developing severe and necrotizing acute pancreatitis. Data demonstrates a strong bias towards presence of long HO-1 alleles and higher serum levels of VCAM-1 and E-selectins among patients with acute pancreatitis. Thus, polymorphism of the GT repeats in the HO-1 promoter region may be a risk factor for developing acute necrotizing pancreatitis due to deregulation of immune response.

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103. Narrow line between benefit and harm: additivity of hyperthermia to cisplatin cytotoxicity in different gastrointestinal cancer cells

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Hyperthermia is considered to enhance cytotoxicity of chemotherapy in HIPEC. Numbers of studies prove their synergy, but converse data is also present [1, 2]. Our aim was to investigate the response to hyperthermia and chemotherapy, analysing cell apoptosis, cytotoxicity and intracellular cisplatin concentration in GI cancer lines. AGS (gastric adenocarcinoma), Caco-2 (colorectal adenocarcinoma), T3M4 (pancreatic adenocarcinoma) cells were exposed to different temperature regimens (37 °C to 45 °C) either in isolated manner, or in combination with cisplatin. Cells were harvested for one hour, mimicking the HIPEC clinical setting. Viability was evaluated by the means of MTT, apoptosis by flow cytometry, using Annexin V-PE and 7ADD, intracellular cisplatin concentration by mass spectrometry. Isobologram analysis [3] was performed to evaluate the effect of combined (temperature and cisplatin) treatment. AGS cells were the most sensitive to hyperthermia. CACO-2 cells viability had no significant response to a temperature rise until 42 °C. At higher temperatures its viability dropped by 14 % and stayed at the similar level. Opposite, higher temperatures provoked the increase of T3M4 cells viability. In combined treatment, we observed no synergistic effect at the interval from 37 °C to 41 °C in all cell lines. 43 °C enhanced cisplatin cytotoxicity for Caco-2 cells. Isobologram analysis revealed that combined application of hyperthermia and cisplatin was strongly antagonistic for AGS cells and tripled in Caco-2 cells: synergistic (at 40 °C with 50 µM and 100 µM of cisplatin, at 43 °C with 50 µM, 100 µM, and 200 µM cisplatin, at 44°C with 50 µM,

100 µM, and 200 µM of cisplatin), additive (at 39°C with 100 µM of cisplatin, at 41°C with 100 µM cisplatin, and at 42 °C with 50 µM and 100 µM of cisplatin), and antagonistic (at 39 °C with 200 µM of cisplatin, at 40 °C with 200 µM cisplatin, at 41 °C with 50 µM and 200 µM cisplatin, and at 42 °C with 200 µM of cisplatin). Combined treatment of T3M4 at 41 °C with 200 µM cisplatin, at 42 °C with 50 µM cisplatin, and at 44 °C with 100 µM and 200 µM of cisplatin had an additive effect. The remaining combinations were antagonistic. Apoptosis rates of combined treatment were highest in AGS cells enhancing it by 61%. Combined treatment stimulated apoptosis rates of Caco-2 and T3M4 cells 20% and 19% respectively. Hyperthermia (43 °C) enhanced intracellular cisplatin concentration by 30%, 20% and 18% in AGS, Caco-2 and T3M4 cells respectively. Hyperthermia up to 43 °C in addition to chemotherapy does not influence AGS, Caco-2 and T3M4 cells viability in a synergistic manner. However, some regimens of hyperthermic chemotherapy are beneficial regarding apoptotic response and increase of intracellular cisplatin concentration.

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104. The diagnosis of papillary thyroid cancer in cytologically indeterminate thyroid nodules

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Background. Ultrasound guided fine needle aspiration biopsy with cytologic analysis is an initial step in diagnostic of thyroid nodules. Unfortunately, up to 30% of biopsies are

indeterminate and diagnostic surgery is required. The aim of this study was to estimate the diagnostic value of BRAF V600E mutation status, cytomorphological features, and combination of both these features for diagnosis of papillary thyroid cancer (PTC) in cytologically indeterminate thyroid nodules.

Methods. A prospective study analyzed patients who had ultrasound suspicious thyroid nodules, underwent fine needle aspiration and cytological examination, and were assigned to indeterminate categories of the Bethesda system. These patients were examined for BRAF V600E mutation and 22 cytomorphological features, and underwent thyroid surgery. The utility of three diagnostic methods was evaluated.

Results. A total of 219 patients met study criteria. After histological examination, 77 (35.2%) patients were diagnosed with PTC and 142 (64.8%) with benign nodular thyroid disease. The sensitivity of BRAF V600E mutation status for diagnosis of PTC in cytologically indeterminate thyroid nodules was 67.5%, specificity – 100%, positive predictive value – 100%, and negative predictive value – 85%. Regression model based on cytomorphological features achieved a sensitivity of 68.8%, specificity of 91.6%, positive predictive value of 81.5%, and negative predictive value of 84.4%. Combined use of BRAF V600E mutation status and cytomorphological features showed the best diagnostic efficiency, with sensitivity of 80.5%, specificity of 99.3%, positive predictive value of 98.4%, and negative predictive value of 90.4%.

Conclusions. Evaluation of BRAF V600E mutation status combined with cytomorphological features for diagnosis of PTC in cytologically indeterminate thyroid nodules can significantly improve diagnostic accuracy and reduce the number of diagnostic operations (calculator available at www.ptc-calc.we2host.lt).

105. Stimulated upregulation of HO-1 is linked to inadequate response of gastric and ovarian cancer cell lines to hyperthermia and cisplatin treatment

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The hyperthermal intraperitoneal chemotherapy (HIPEC) is a treatment method to cure gastric and ovarian cancer at advanced stages and improve patients' survival rates. However, number of clinical studies report satisfactory results, still there is opposing data [1, 2]. Heat shock proteins are known to be responsible for cellular resistance to temperature. HO-1 is a thermal stress protein, which is induced by hyperthermia [3, 4]. The aim of our in vitro study was to improve the cellular response to hyperthermia and cisplatin treatment, by HO-1 expression modulation. AGS (gastric adenocarcinoma), OVCAR-3 (ovarian adenocarcinoma) cells were exposed to different temperature regimens (37 °C were used as a control temperature and 43 °C as a hyperthermia) either in isolated manner, or in combination with IC50 of cisplatin and HO-1 siRNA. Cells were cultivated for one hour. Cell viability was measured by MTT, apoptosis by Annexin V-PE and 7ADD flow cytometry. xCELLigence® real time cell analyzer was used for cell number change evaluation. Western blot and QRT PCR were used to detect HO-1 changes in expression. Cisplatin enhanced OVCAR-3 HO-1 RNA expression by 3.7 and 3.2-fold in 37 °C and 43 °C significantly, but temperature had no effect. Opposite, in AGS cells, only temperature slightly increased HO-1 RNA levels. Similar findings were observed in Western blot analysis. In normothermia cisplatin affected OVCAR-3 viability did not change while HO-1 expression was downregulated, but hyperthermia supported HO-1 suppression and reduced the viability rate by 26 %. Oppositely, AGS viability was suppressed by HO-1 siRNA by 9 % in normothermia only. Temperature only, did not influence the cellular apoptosis neither in OVCAR-3, nor in AGS cells. Cisplatin affected and HO-1 silenced cells in normothermia became more apoptotic (AGS – 2,3-fold; OVCAR-3 – 2-fold) as compared to cisplatin induced cells only. Hyperthermia enhanced this affect in OVCAR-3 cells by almost 3-fold, and 6-fold in AGS cells. Analyzing real time cell analyser data, we observed drop of cisplatin affected and HO-1 silenced OVCAR-3 cells in normothermia number and hyperthermia enhanced the effect. While in AGS cells temperature did not play any role in this action. HO-1 over-expression is induced not only by temperature (AGS cells), it also can be enhanced by cisplatin treatment (OVCAR-3 cells). Silencing HO-1 enhances cellular response in hyperthermia and cisplatin affected ovarian cancer cells, while no clear impact is seen in gastric cancer cells.

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106. Can gene expression changes predict late oncological results in rectal cancer patients?

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Background. The effectiveness of neoadjuvant therapy, which has been commonly used for stage II–III rectal cancer treatment, is limited. Supposedly genes, associated with pathogenesis of rectal cancer, could determine response to neoadjuvant therapy. The aim of this study was to evaluate the impact of neoadjuvant therapy for VEGFA, COX2, HUR, CUGBP2 gene expression and genes predictive-prognostic value.

Methods. We examined rectal cancer and healthy rectal mucosa tissue for VEGFA, COX2, HUR, CUGBP2 expression by quantitative real-time polymerase chain reaction. Biopsies were taken twice: before neoadjuvant therapy and 6–8 weeks after neoadjuvant therapy. Forty-nine patients were included. Genes expression was compared between rectal cancer and healthy rectal mucosa tissue. All settings were au-

tomatically calculated by Real-Time PCR. ΔCT and $\Delta\Delta\text{CT}$ (Livak) methods for genes expression data analysis were used. The relative values ($2^{\Delta\text{CT}}$ and $2^{-\Delta\Delta\text{CT}}$) of gene expression were used for statistical analysis. Nonparametric data were compared using Wilcoxon test for two dependent samples and nonparametric Mann-Whitney test for independent samples. Multivariate analysis by Cox regression model was performed to evaluate the relationship between genes expression and patients' prognosis. When statistical hypotheses were verified, $p < 0.05$ was considered significant.

Results. We analyzed gene expression in 29 patients' rectal cancer (RC) and healthy rectal mucosa tissue, taken before neoadjuvant therapy and 12 patients' tissue taken after neoadjuvant therapy. Median follow-up time was 70.7 (range 4.3–85.1) months. VEGFA, COX2 and HUR genes expression was found to be significant greater in rectal cancer tissue comparing to healthy rectal mucosa tissue ($p < 0.05$). VEGFA, HUR, CUGBP2 genes expression significantly decreased after neoadjuvant therapy ($p < 0.05$). VEGFA gene expression predicts response to neoadjuvant therapy according to T stage downstaging ($p < 0.05$). Responders demonstrated a significantly higher VEGFA and COX2 expression decrease after neoadjuvant therapy than non-responders ($p < 0.05$). In multivariate analysis, combined expression of HUR and CUGBP2 genes after neoadjuvant therapy were independent worse prognostic factors for rectal cancer patients ($p < 0.05$).

Conclusion. VEGFA, COX2 and HUR genes are important in rectal cancer pathogenesis. VEGFA gene expression in pretreatment biopsies could be predictive value to neoadjuvant treatment according to T stage downstaging. Decrease of VEGFA and COX2 genes expression indicates effectiveness of neoadjuvant therapy in rectal cancer patients. Post treatment HUR and CUGBP2 gene expression we found is a potential prognostic marker for rectal cancer patients.

107. Trauma care performance assessment in Lithuania, 2007–2012: still long way to go

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Introduction. Lithuania was among the top four countries of the European region regarding age-adjusted standardized death from external causes rate in 2006. Russia, Belarus, and Kazakhstan were the other top countries where the age-adjusted standardized death rates exceeded 150 cases per 100,000 individuals a year. Few well-budgeted trauma programs aimed to improve injury prevention and trauma care provision launched in Lithuania in 2000–2012.

The aim of this study was to assess the effects of changes on the Lithuanian trauma service over the 2007–2012 year period. We postulated that implications of this study might be of importance for trauma policy planners and makers in Lithuania and other countries of Eastern and Central Europe.

Methods. 26 Emergency Medical Stations and four trauma centres were audited. Two study samples for the years 2007 and 2012 were compiled from the trauma patients hospitalized to trauma centres and compared. Out of 10,390 admissions in 2007, 294 cases (2.8%) were selected for the first study sample. Similarly, of 9,918 admissions in 2012, 250 (2.5%) cases chosen. Only cases with a diagnosis falling into the ICD – 10 “S” and “T” codes were included. We accumulated data on cervical spine protection, pelvic binders and splints to the limbs, intravenous (IV) infusion, oxygen therapy, airway management, control of external bleeding, pain relief, time from the moment of call from the site of accident to the patient’s arrival at the trauma centre, and time from the trauma bay at the Emergency Department (ED) to the diagnostic or interventional radiology suite, operating theatre, intensive care unit, or trauma ward. The first set of physiologic data from primary trauma survey was taken into account for calculations of the Revised Trauma Score (RTS).

Results. The RTS mean value was 7.45 ± 1.04 for the year 2007 study sample; it was 7.53 ± 0.93 for the year 2012 sample ($P = 0.33$). The mean time from the moment of a call from the site of the accident to the patient’s arrival to the trauma centre did not differ between the samples: 49.95 min in 2007 vs. 51.6 min in 2012 ($P = 0.81$). An application of the operational procedures such as cervical spine protection using a hard collar, oxygen therapy, and infusion of IV fluids on the trauma scene was more frequent in 2012. Management of trauma patients in the ED improved regarding the availability of 24/7 CT-scanner facilities and an on-site radiographer. The mean time to CT-scanning was reduced by 38.8%, i.e. from 88.82 min in 2007 to 63.97 min in 2012. The mean time to key decision-making was reduced by 16.5% in 2012, i.e. from 118.0 min in 2007 to 101.27 min in 2012 ($P = 0.039$). In-hospital case fatality rate was similar: 340 (3.27%) out of 10,390 patients died in 2007, 401 (4.04%) patients died in 2012.

Conclusions. Although some aspects of the Lithuanian pre-hospital trauma care provision and further management of patients in ED of trauma centres improved by 2012, this study shows that a National Trauma System requires further structured and conceptual development.

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108. Treatment results of trauma patients

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Background. Trauma is the leading cause of death worldwide for patients under the age of 45 [1,2]. The main cause of potentially preventable deaths among these patients is uncontrolled hemorrhage leading to a “lethal triad” of coagulopathy, metabolic acidosis and hypothermia. Aggressive intervention required to stabilize these patients encompasses surgery and restoration of normal physiology [3,4]. An alternative for traditional laparotomy (TL) is damage control surgery (DCS). The principles of DCS include abbreviated surgery to control bleeding, simultaneous correction of physiology and definitive surgical repair at the later stage [5]. However, while not a new method, DCS is hardly ever applied in Lithuania and no protocols are in place.

Aim. To evaluate treatment results of patients who underwent surgery for trauma in the Department of Surgery of Hospital of Lithuanian University of Health Sciences and assess potential indications for damage control surgery.

Methods. Retrospective review of abdominal, thoracic and multiple trauma patients between the years of 2010–2014 was performed. Patients’ age, mechanism of injury, vital signs, blood work, operative time, outcomes and postoperative complications were analyzed. Possible indications for hypothetical use of DCS for these patients were assessed.

Summary of results. We analyzed 98 patients: 77 males (78.6%) and 21 females (21.4%). Mean age was 36.0 ± 12.4 years. 54.1% of cases were blunt and 45.9% – penetrating trauma. 26 patients (26.5%) had preoperative or intraopera-

tive indications for the use of damage control. ASA median (4 vs 3, $p < 0.001$) and trauma severity evaluated by ISS (27.27 +/- 12.32 vs. 12.71 +/- 6.63, $p < 0.001$), RTS (7.123 +/- 1.107 vs. 7.713 +/- 0.391, $p = 0.002$) and TRISS (0.882 +/- 0.193 vs. 0.980 +/- 0.039, $p < 0.001$) were significantly worse in “DCS” group. Operative times in “DCS” group were longer (153 +/- 80 vs. 98 +/- 40, $p = 0.001$) and more units of packed RBC (5.6 +/- 4.6 vs. 3.0 +/- 2.0, $p = 0.005$) and intravenous fluids in milliliters (5960 +/- 2587 vs. 3321 +/- 1575, $p < 0.001$) were used for restoration of physiology. “DCS” patients had significantly longer hospital stay (17.4 +/- 15.2 vs. 7.5 +/- 5.4, $p = 0.001$) and postoperative complications, including surgical site infection (15.4% vs. 0%, $p < 0.001$) and wound dehiscence (11.5% vs. 0%, $p = 0.004$) were more common. Survival rate was higher in “TL” group (96.2% vs. 100%, $p = 0.096$).

Conclusions. Young males were most common among trauma patients. Overall survival rate was 99% and postoperative complication rate was 6.1%. Approximately quarter of all patients had indications for use of DCS. We can speculate that application of DCS in these cases can be beneficial and result in shortened hospital stay as well as less fluid volume replacement.

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109. HybridLab: the new blended learning platform for self-directed medical simulation in the effective development of the technical and non-technical competences

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Introduction. HybridLab is a fusion of distance learning and medical simulation that allows residents to train 24/7 at their work place without presence of the instructor and/or technician.

Aim. To evaluate the effectiveness of the newly developed self-directed learning platform in terms of competence enhancement, skill retention, satisfaction and agreement between the assessors present during the training sessions and reviewing the video recordings.

Methods. In 2014 original trauma course developed on the new HybridLab learning platform was evaluated. Twenty-seven surgical residents of Lithuanian University of Health Sciences were enrolled. Skills were grouped into 7 categories according to ABCDE principles and were independently evaluated by reviewers. Progress of the student was assessed immediately and 6 months after the course.

Results. Analysis of practical skills evaluation showed a 2.5-fold increase in the overall performance score during course (from 35% to 89%). Re-evaluation 6 months after the course showed only slight decrease in the overall performance score (from 89% to 82%). The minimum score before the course was only 15% (maximum score – 64%). After the course the minimum score increased to 72 % (maximum score – 98%). Six months after the course the minimum score decreased to 53 %, but maximum score remained as high as 92%. During the post-course survey 92% of the participants stated that they found the acquired knowledge and skills clinically relevant and applicable.

Conclusions. HybridLab is an effective medical simulation based tool for development of the technical and non-technical competences. In order to achieve better agreement, we must more clearly define the rules of the skills evaluation.

110. Therapy results of acute mesenteric embolism and trombosis in Stradins University hospital in year 2014–2017

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Introduction. Acute mesenteric ischemia (AMI) defined as a sudden interruption of the blood supply to a segment of the small intestine, leading to ischemia, cellular damage and intestinal necrosis [1].

AMI may be non-occlusive (NOMI) or occlusive, with the primary etiology defined as mesenteric arterial embolism (50%), mesenteric arterial thrombosis (15–25%), or mesenteric venous thrombosis (5–15%) [2, 3]. There are no laboratory studies that are accurate to identify the presence of ischemic or necrotic bowel. D-dimer has been reported to be an independent risk factor of intestinal ischemia. No patient presenting with a normal D-dimer had intestinal ischemia and D-dimer >0.9 mg/L had a specificity, sensitivity, and accuracy of 82, 60, and 79%, respectively [4]. According to literature data for AMI diagnosis best option is computed tomography angiography (CTA) – specificity 100%; sensitivity 74–100% [5]. Depending on AMI type different therapy methods and their combinations are being used. Recommended therapy for AMI is intravenous heparine and broad spectrum antibiotics (1B), urgent laparotomy if positive peritoneal symptoms (1A), endovascular methods (1C), second-look laparotomy after 48 h [5].

Aims of the study. 1. Collect data about AMI treated patients in Stradins university hospital. 2. Form literature review about AMI diagnostics and treatment options. 3. Make analysis of patients' lab tests, treatment methods and outcome. 4. Sum up literature and practical data.

Materials and methods. Retrospective study of acute mesenteric embolism and trombosis based on literature and patients' data analysis. In the survey 250 medical histories were checked out. Patients' selection criteria were AMI proven by CTA or during laparotomy – fits 105 cases. Patients' divided into three groups by type of treatment – trombectomy (n = 20), conservative (n = 50) and symptomatic (n = 35).

Results. Average patients' age is 80 years. Patients' breakdown by sex corresponds to Latvia population stratification data. Average D-dimer serum level in patients' with bowel necrosis was two times higher (18.8 mg/L) than in patients without it (10.0 mg/L), leucocytes count was 16.1 and

14.0×10⁹/ml, respectively. Only to 20 patients was possible to make trombectomy. In trombectomy group dead 6 patients (30%), in conservative – 24 (50%). Death causes in TE group was profuse bleeding (n = 1); total small intestine necrosis (n = 2); cardiovascular insufficiency (n = 3). Bowel resection was done for 2 trombectomy patients (survived 2) and for 11 patients in conservative group (survived 10). Conservative treatment schemes: LMWH (39 patients – survived 21); heparine (1 – survived); heparine and LMWH (5; survived 2); heparine, papaverine and LMWH (1 – dead).

Conclusions. AMI is severe condition occurs often in emergency department. Most popular types of AMI are AMS embolism (50%) and trombosis (25%). Standard diagnostics for AMI is CTA. AMI is not associated with patients' sex. D-dimer serum level is significant bowel necrosis indicator. Trombectomy group patients' had lower mortality than in conservative group. For endovascular treatment is important patient selection. Bowel resection still is essential in patients' survival. The study represents that in Latvia is lack of unitary and evidence based AMI treatment guidelines.

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111. Possibility of implementation of the enhanced recovery after surgery concept in the surgical treatment of elderly and senile age patients with acute obstructive colorectal cancer

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Objective. To study applicability, safety, and efficiency of the enhanced recovery after surgery (ERAS) concept in the surgical treatment of elderly and senile age patients with acute obstructive colorectal cancer.

Methods. The study included 65 patients aged 61–90 years. Did not include patients with widespread peritonitis, multiple organ dysfunctions and associated complications of a malignant neoplasm. The patients of the enhanced recovery group (ERAS group, $n = 31$, middle age 75 years) and control group ($n = 34$, middle age 73,5 years) were matched for sex, ASA, CR-POSSUM, duration of obstruction, location of tumor and type of surgical procedure (right hemicolectomy or left obstructive hemicolectomy). Treatment of patients in the ERAS group in the pre-operative period included: patient information and psychological training, prevention of post-operative pain, nausea and vomiting, thromboembolic and infectious complications. Intraoperative activities included: local anaesthesia of the skin along the line of laparotomy access, decompression of the colon and small (under indications) intestine, the small intestine lavage, temporary installation of a polyurethane catheter for early enteral feeding, embryology oriented surgery and D3-lymphadenectomy, rectus sheath catheterization to carry out rectus sheath block, drainage in the lesser pelvis. During the postoperative period, early mobilization, early removal of the urinary catheter and drainage were performed after the patient was transferred from the intensive care unit. Targeted infusion therapy was terminated upon beginning early enteral feeding. The criteria for comparative assessment: the pain syndrome level (numerical rating scale), needs in analgesics, terms of enteral insufficiency events relief terms, the occurrence of postoperative complications and fatal cases, duration of the post-operative period.

Results. The results of the pain syndrome and duration of the post-operative period assessment are presented as the median (Me) (Q1; Q3). ERAS group: the post-operative pain syndrome was 4 (3,5; 4) points in the first day, with gradual regression up to 1 (1; 2) point by the fourth day. There were no needs in opioid analgesics. 24 (77,4%) patients had no nausea and vomiting; they began to receive enteral feeding in 24–36 hours after the surgery; intestinal peristalsis sound appeared within 12–24 hours, gases discharge – in 24–36 hours and stool discharge in the first 48 hours after the surgery, respectively. Six patients (19,4%) had postoperative complications (Clavien-Dindo grade I-IIIa – 5, IIIb-V – 1), three patients (9,7%) died. Duration of the post-operative period was 8 (5,5; 12,5) days. Control group: the post-operative pain syndrome was 6 (5; 6) points in the early postoperative period, which required the use of opioid analgesics for 12

(35,3%) patients in the first two days. 21 (61,8%) patients had nausea and vomiting during the first two days after the surgery, however, events of postoperative intestinal paralysis were eliminated by the 4–5 th day. Eleven cases (32,4%) of postoperative complications were recorded (Clavien-Dindo grade I-IIIa – 7, IIIb-V – 4). Four patients (11,8%) underwent relaparotomy. Seven (20,6%) patients died. Duration of the post-operative period was 13 (9,5; 18) days.

Conclusion. Application of the ERAS concept is safe and effective due to improving the immediate results of surgical treatment of elderly and senile age patients with acute obstructive colorectal cancer.

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112. Transcatheter arterial embolization for upper gastrointestinal tract bleeding

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Introduction. Transcatheter arterial embolization is a possible treatment for patients with recurrent bleeding from the upper gastrointestinal tract after failed endoscopic manage-

ment and is also an alternative to surgical treatment. The purpose of this study is to analyze the outcomes of transcatheter arterial embolization and identify the clinical and technical factors that influenced the rates of morbidity and mortality.

Materials and methods. A retrospective analysis was carried out, based on the data of 36 patients who had undergone transcatheter arterial embolization for acute nonvariceal upper gastrointestinal bleeding in 2013 to 2015 in our center. An analysis was performed between early rebleeding rates, mortality and the following factors: patient sex, age, number of units of packed red blood cells and packed plasma administered to the patients, length of hospital stay, therapeutic or prophylactic embolization.

Results. The technical success rate of the embolization procedure was 100%. There were 15 (41.70%) therapeutic embolizations and 21 (58.3%) prophylactic embolizations. There was a 77.8% clinical success rate. Following embolization, 10 patients (27.80%) had repeated bleeding and 9 (25.0%) patients died. Significant associations were found between rebleeding and prophylactic embolization (OR 10.53; $p = 0.04$) and between mortality and prophylactic embolization (OR 10.53; $p = 0.04$) and units of packed red blood cells (OR 1.25; $p < 0.01$).

Conclusions. In our experience, transcatheter arterial embolization is a safe treatment method for acute nonvariceal upper gastrointestinal bleeding and a possible alternative to surgery for high-risk patients.

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113. Evaluation of the polytrauma patients

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Introduction. Analysis of polytrauma patients treatment is required to achieve better future treatment results. Different criteria, based on both quality and quantity evaluations of the patients physiological and anatomic state are used. A combined scale of anatomic evaluation scale (Injury Severity Score, ISS), physiological parameters scale (Revised Trauma Score RTS) and a combined scale of a patient (Trauma – Injury

Severity Score, TRISS) are the three systemic elements with the patient, who suffered a polytrauma. The purpose of this study was to evaluate anatomic and physiological trauma severity estimations and treatment results in polytrauma patients.

Patients and methods. In this retrospective study all polytrauma patients, who were treated in Republican Vilnius University Hospital from January 1 to December 31, 2017 are analysed. Patients clinical data, ISS, RTS, TRISS and treatment results were evaluated. Results. 219 patients were included: 50 (22,8%) women and 169 (77,2%) men. 99 (45,2%) of the patients were involved in transport accidents, while 2 (0,9%) rode bicycles (collision and falling), 107 (45,7%) fell from heights and 1 (0,5%) suffered injuries due to hits and domestic violence. 7 (3,2%) suffered due to pressure heavy weights falling upon them and 2 (0,9%) – due to unknown circumstances. 19 patients (8,7%) died, mean age was 55,7 years (21–84 years), 13 (68%) of those had a severe head trauma (AIS=>3). Mean ISS was 29.8 (11–57; ISS < 20: 5 patients), RTS – 5,51 (2,63–7,84), TRISS – 58,22 % (3,5–96,2%; > 50%: 11 patients, 25–50 %: 3 patients.

114. Percutaneous transhepatic variceal embolization in esophageal variceal bleeding: case report

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Introduction. Variceal hemorrhage is a lethal complication of cirrhosis, particularly in patients with hepatic function deterioration with 12–22% mortality rate.

The aim of this report is to present case-report of our first experience in percutaneous transhepatic embolization for gastroesophageal varices bleeding.

Patients and methods. 51-year-old female with the medical history of chronic alcohol abuse and subsequent cirrhosis (Child C), MELD 27 was admitted to Republican Vilnius university hospital, because of the decompensated liver disease. Laboratory analyses were as follows: hemoglobin 89 g/l, platelet count $46 \times 10^9/l$, MCV 107 fl, SPA 22%, INR 2.38, creatinine 50 $\mu\text{mol/l}$, potassium 2.98 mmol/l, sodium 141.5 mmol/l, total-value bilirubin 158.3 $\mu\text{mol/l}$, direct bilirubin 89.1 $\mu\text{mol/l}$, ALT 25 U/L, AST 100.6 U/L, ŠF 69.7 U/L, GGT 107.1 U/L, CRB 8.72 mg/l, albumin 20.42 g/l. The tense ascites was drained and citology of ascites

revealed no sign of spontaneous bacterial peritonitis. After several days of treatment the patient presented with massive hematemesis and was transferred to intensive care unit. Urgent endoscopy revealed active bleeding from esophageal varices (F3 by Beppu criteria). Sengstaken-Blakemore tube was inserted to achieve hemostasis, but after deflating of esophageal balloon the patient experienced rebleeding. Endoscopic treatment was uneffected and percutaneous transhepatic variceal embolization (PTVE) was performed. Percutaneous transhepatic puncture of the left portal branch was done using 18 G needle under sonoscopic guidance. 5F introducer was advanced into the trunk of portal vein. 5F Cobra shaped catheter was introduced over a 0.035 guide hydrophilic wire to the far end of right and left gastric veins as supplying vessels of the varices. The venography was performed while injecting 10 ml Omnipaque 300 contrast. Right and left gastric veins were embolized superselectively using hydrogelic coils (Terumo Azur 8 pieces) and coils covered with splint (COOK Nester). The patient was discharged from the hospital after 23 days of hospitalization.

Conclusion. Percutaneous transhepatic variceal embolization (PTVE) – an alternative treatment modality that can be used for variceal bleeding treatment, when TIPS and endoscopic management fails or is contraindicated.

115. A prospective study comparing 5-year results between diabetic and non-diabetic patients after laparoscopic adjustable gastric banding

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Introduction. Diabetes is one of the most detrimental effects on health having comorbidity associated with morbid obesity. The rates of improvement or remission vary greatly following different bariatric/metabolic operations. We used our prospectively collected data to compare the effectiveness of laparoscopic adjustable gastric banding between diabetic and non-diabetic patients regarding weight loss, complications, resolution of comorbidities, and quality of life.

Aim. We aimed to compare the results between diabetic and non-diabetic morbidly obese patients 6 years following laparoscopic adjustable gastric banding.

Methods. Between January 1, 2009 and January 31, 2010, 103 morbidly obese patients underwent LAGB. Weight loss,

comorbidities, long-term complications, and quality of life were evaluated after 5 years. Summary of results: A total of 103 morbidly obese (36 diabetic and 67 non-diabetic) patients underwent laparoscopic adjustable gastric banding. The mean age at the time of surgery was 45.9 ± 11.7 years, 69 (67 %) patients were female, and 34 (33 %) were male. The mean preoperative BMI was 47.5 ± 7.3 kg/m². A total of 90 of 103 patients (87.3%) completed the 6-year follow-up. The average % EWL after 5 years was 47.4%. Complications consisted of 5 band erosions, 4 port-related complications, 3 band slippages, and 3 band intolerances. Six years following LAGB, the resolution or improvement of arterial hypertension was observed in 35 (53%) patients, cardiovascular disease in 7 (50%), dyslipidemia in 44 (78.5%), GERD in 21 (67.7%), and degenerative joint diseases improved in 23 (40.3%) patients. The average Moorhead-Ardelt questionnaire score significantly improved from 0.02 ± 1.2 points at baseline to 1.0 ± 1.2 after 5 years.

Conclusions. There were no differences between the two groups regarding the weight loss, resolution of comorbidities, morbidity, and quality of life.

116. Laparoscopic gastric greater curvature plication in the treatment of obesity – long-term results

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Abstract / Background. Laparoscopic gastric greater curvature plication (LGGCP) is a novel bariatric procedure. Few studies have presented intermediate or long-term results [1, 2].

The aim of this prospective study was to investigate intermediate results after LGGCP.

Methods. Between October 2011 and November 2013, 61 patients underwent LGGCP and were followed up to 54 months after operation. Demographics, comorbidities, complications, and percentage of excess body mass index loss were analyzed [3]. Logistic regression analysis was used to determine independent risk factors for weight loss failure 3 years after LGGCP.

Results. Forty-eight women and 13 men with an average age of 47.7 ± 10.3 years and preoperative BMI of 46.3 ± 5.8 underwent LGGCP. Follow-up rate was 95%, 91.7%, 88.3% and 85% after 1, 2, 3 and 4 years, respectively. Average mass index loss after 1 year was 47.25 ± 21.6 , 44.8 ± 25.9 after 2 years, 41.9 ± 25.6 after 3 years, and 35.99 ± 28.03 after 4.5 years. Gastroscopy 3 years after LGGCP demonstrated intact plication fold in 55% of cases. Preoperatively GERD was present in 46% of patients. Prevalence of GERD 3 years after LGGCP was 34.6%. Remission rate of type 2 diabetes mellitus and hypertension were 27.8% and 38.3%, respectively [4]. Higher postoperative hunger sensation was found to be an independent factor (OR 1.6, 95% 1.141–2.243; $p = 0.002$) associated with unsatisfactory weight loss after LGGCP.

Conclusions. Intermediate results after LGGCP is similar to those achieved by gastric banding operation. Long-term follow-up data are needed to define the role of LGGCP in the treatment of morbid obesity.

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117. Predictors of preoperative anxiety among elective surgical patients in Kaunas teaching hospital

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Background. Surgery and hospitalization are one of the biggest factors that lead to the experience of considerable anxiety in patients [1]. Preoperative anxiety has significant influence on anesthesia management as well as on the recovery from surgery and procedure outcome [2–3]. There is paucity of information about preoperative anxiety and its predictors in Kaunas region.

Aim. The aim of this study was to measure preoperative anxiety in patients in Kaunas region before elective surgery and find the main factors for state anxiety.

Methods. A cross-sectional study was accomplished with 129 patients scheduled for elective major and minor surgeries in Kaunas clinics teaching hospital from September 1, 2017, to January 1, 2018. The day before surgery, patients were asked to complete three-part questionnaire consisted of socio-demographic data, predictors of preoperative anxiety and State-Trait Anxiety Inventory questionnaire (STAI). The data were measured with SPSS for Windows version 22.0 and deive, simple and multiple logistic regression analyses were performed. Data differences were statistically significant, when $p < 0.05$.

Results. A total 129 patients participated in the study. One patient was excluded from the study because of previous significant head trauma. Their mean age was 57.44 ± 16.61 years (range 23–88 years). 64,1% of them were males. 82.8% of all patients had significant high preoperative anxiety. The most common reasons for high preoperative anxiety were associated with fear of unsuccessful surgery 67,2%, fear of complications 51.6% and fear of heavy treatment expenses 48,4%. Older patients over 60 years old were associated with lower risk for preoperative anxiety ($p < 0.003$).

Conclusions. The occurrence of preoperative anxiety in our population is high (82,8%). Fear of unsuccessful surgery was the most common factor that lead to anxiety. Factors which correlated with higher anxiety levels were male gender, trait anxiety, current medications, major surgery, general anaesthesia. Older age reduce preoperative state anxiety. Our health professionals should take note of high anxiety levels in our population and find the ways to reduce it before surgery.

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118. The nurse's attitude to the surgery patients teaching

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The teaching of patients is essential in nurses' work. The patients teaching of preoperative care and postoperatively can reduce a risk of complications, it allows patient to be more independent or recover much faster [1, 2]. Sometimes it is difficult to achieve such results, as teaching of the patients is not the main concern nurses have [3, 4]. Thus, it is very important to know what the attitude of the nurses about the teaching process is collaborative as it can affect the quality of treatment.

The aim of study – analyse the nurse's attitude to the surgery patients teaching.

Methods. The study was done in hospital of Lithuanian University of Health Sciences, Kauno klinikos, 12/2017–01/2018. A 70 nurse from the 5 different surgery departments: hearth, blood vessels, chest, urology and general surgery were included in the study. The nurses were assessed using questionnaire that was constructed by researches. The difference considered statistically significant when $p < 0.05$.

Results. Majority of the nurses ($n = 56$; 80%) confirmed, that it is their responsibility to teach patients and their relatives. A 60 (86%) nurses have knowledge how to apply a teaching of the patient, thus only 41 (59%) nurses prioritizes it in the daily work.

Nurses teach patients significantly more often after the operation rather than before it. A 53 nurses (76 %) applies teaching always or often before the operation and 17 (24 %) rarely does it. Thus, 66 nurses (92 %) teaches patients always/usually after the operation and 4 (6%) nurses does it rarely ($p < 0.05$). Before the operation patients are taught pre-operation hygiene, informed to take off all the jewellery, tooth prosthesis etc. After the operation, patients are taught postoperatively hygiene, movement and wound care.

The nurses are spending significantly more time for the postoperatively teaching than before the operation ($p < 0.05$). Before the operation, majority of the nurses ($n = 33$; 47%) takes only 5 minutes of teaching, 27 (39 %) up to 10 minutes, and only 8 (11 %) nurses do it for 20 minutes. Likewise, after the operation, as 29 (41%) nurses spend only 10 minutes on teaching patients, 19 (27%) do it for 5 minutes, and 17(24%) up to 20 minutes. The results of experiment showed, that teaching of patients before and after operation is not documented (93% and 96% respectively)

The main issues that occur: lack of time (64%), old age of the patients (45%), health issues (43%), or no cooperation with patients (41%).

Conclusions. Nurses are aware of the importance of teaching; however the main issues that occur are lack of time, old age of the patients, health issues, or no cooperation with patients. The teaching of the patients is implementing after the operations as there is much more time than doing it before the operation.

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119. Non-pharmacologic pain management for patients after the operations

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About from 20% to 80% of the patients feels regular or strong pain after the operation [2]. Inappropriate postoperative pain relief can causes physiological, psychological and socioeconomic consequences [1]. Even though medicines are the most efficient treatment to manage the pain, studies showed, that is still not enough. [3]. Treatment for post-operational pain could be improved by giving required medicines and using it with non-medicine treatment method [4].

The aim of study was to determine nonpharmacological pain management for patients after the operations.

Methods. The study was done in the Hospital of Lithuanian University of Health Sciences Kauno klinikos, 11/2017–01/2018. The questioned a 61 nurses from surgery and urology departments and 92 patients after operations of groin, stomach, diaphragmatic hernia, bladder, appendix, gastrectomy and gall bladder tumour resection. Patients were questioned 2–3 days after the operation. Patients and nurses were assessed using questionnaire that was constructed by researches. The difference considered statistically significant when $p < 0.05$.

Results. The first day after the operation pain was relieved by the Ketanov 30 mg/ml (21.6%) and Dolsin 50 mg/ml (17.3%), to a quarter of patients. Following the second and third day after the operation, the need for medicines decreased. More than half of the patients (67.3%) after the operation felt moderate pain, 12% of patients had severe pain and 20.7% had mild pain.

Most patients (76.1%) and nurses (88.5%) agreed that pain can be reduced by providing both of nonpharmacological and pharmacological analgesia methods. Only 34.8% of patients agreed to use only nonpharmacological analgesia.

The opinions of patients and nurses were statistically significantly different when applying nonpharmacological analgesia methods having different levels of pain. The nonpharmacological analgesia methods would like to have significantly more patients (60.9%) for moderate pain and significantly more nurses (59.0%) would recommend these methods for mild pain ($p = 0.007$, $\chi^2 = 9.963$).

At the early postoperative stage, the most frequent nonpharmacological analgesia method is communicating with medical personnel (88%) or communication with relatives (97.3%). The most frequently used method for kinesiotherapy is by walking or pressuring the postoperative wound. Also, to reduce the pain, patients are using other methods, such as listening to music 64.1%, or 52.2% playing games on smartphones. Respondents did not apply any physiotherapy methods, thus 45.7% used spiritual and 59.8% used music therapies.

Comparing the opinions of patients and nurses about the nonpharmacological methods, we can conclude that significantly more patients rely on them, as it is more efficient ($p = 0.036$; $\chi^2 = 4.932$), cheaper ($p = 0.024$; $\chi^2 = 5.109$), does not cause consequences ($p = 0.004$; $\chi^2 = 8.136$). Thus, it is harder to customize it at a health care institution ($p = 0.039$; $\chi^2 = 4.265$). The patients more trust nonpharmacological methods than nurses do ($p = 0.015$; $\chi^2 = 5.974$).

Conclusion. For the postoperative pain management patients would like to use nonpharmacological and pharmacological analgesia methods. Patients would like to have nonpharmacological pain relief methods while having a moderate pain. Patients used nonpharmacological analgesia methods after operation such as: communication, walking, pressuring the postoperative wound. The patients more trust nonpharmacological methods than nurses do.

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120. Surgery nurses competencies and roles in education

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Surgery nurses competencies and roles in education. Kristina Zolmane Clinical Centre "Gailezers", Riga, Latvia Latvia University of Agriculture, Jelgava, Latvia Background. Teaching is a major aspect of the nurse's professional role. The current trends in health care are making it imperative that nurses in the workplace be accountable for the delivery of high-quality care [1.]. Nurse educators are looming due to a number of reasons: 1) The population of nursing faculty is aging, and 2) there aren't enough nurses prepared educationally to take their place. 3) The number of graduate programs that focus on nursing education is also decreasing [7.]. This question is also relevant to me, because I am studying pedagogy and I plan to teach nurses. Research question – what should be the interest in nurses education?

Materials and Methods. Selection and analysis of scientific literature. A reflection of my experience of nursing competencies, roles and adult pedagogy.

Results. The text is being reviewed: roles of licensed practical / vocational nurses [2.], Surgical nurses competencies [11.], Competencies for the Academic Nurse Educator [10.]: Facilitate Learning; Facilitate Learner Development and Socialization; Use Assessment and Evaluation Strategies; Participate in Curriculum Design and Evaluation of Program Outcomes; Function as a Change Agent and Leader; Pursue Continuous Quality Improvements in the Nurse Educator Role; Engage in Scholarship; Function Within the Educational Environment. The Competencies are organized into four domains [4.]: Cognitive Domain / need to know, Intrapersonal Domain / need to process, Interpersonal Domain / need to relate, Instructional Domain / need to do. Knowles' 5 Assumptions Of Adult Learners [5.]. Knowles suggested 4 principles that are applied to adult learning [6.] and William Glasser learning pyramid. [9.]

Conclusions. There is a need to provide a system to educate teachers. Improving and maintaining the qualities and competencies of nurse educators requires keeping pace with shifting health-care expectations, evolving practice requirements, new information technologies, and rapidly expanding evidence-based health services. These challenges call for reformed approaches on the part of health professionals and educators alike. Key words: Nurses roles, nurse educator competencies, adult pedagogy.

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121. The significance of hand hygiene training of medical staff in the formation of proper hand hygiene skills

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Key words: hand hygiene, hand hygiene mistakes, hygiene training.

Research objectives. To analyze hand hygiene mistakes made by medical staff and to evaluate the importance of train-

ing in the formation of proper hand hygiene skills. Research material and methods. The research was performed for three years in one of the Lithuanian hospitals. The monitoring method was chosen, medical staff was the focus group of the survey (n = 272). Every employee was monitored 6 times in a year before the intervention procedure was performed. After the monitoring, once in a year (in total 2 times), hand hygiene training was performed. Staff hygiene skills were assessed before and after the training according to seven criteria: work clothing, hand jewellery, condition of hand skin, hand washing, drying, antiseptics, and compliance to hygiene rules.

Results. The most commonly observed hand hygiene mistakes of medical staff: hand jewellery (34.4%), work clothing (22.8%), non – compliance to the rules (21.0%), hand washing (19.3%). Every year the number of hand hygiene mistakes made by medical staff was decreasing (p = 0.001). After the first hand hygiene training of the staff the number of mistakes decreased from 15.5% to 9.9%, after the second training – up to 7.6%.

Conclusions. Hand hygiene training of the medical staff had the considerable significance in the formation of practical hand hygiene skills – the number of hand hygiene mistakes has decreased twofold.

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122. Parent’s knowledge about burns prevention of their children

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Background. Burns are global public health problem, accounting for an estimated 180 000 deaths annually [2]. Thermal burns of children are a cause of death all around the world. Despite of various prevention measures and health care methods the number of injuries is constantly rising. Supervision, or lack of, is often cited as a primary contributor to childhood injuries [1]. To avoid such injuries, attention has to be paid to prevention first of all [3]. The studies on thermal injuries of children conclude that the danger of injury is linked to the lack of parental knowledge. Thus prevention must be concentrated in an effort to protect children as they are the largest and the most affected population of thermal injuries.

Aim. The purpose of this study was to assess parents’ knowledge about thermal injury prevention after their children experienced thermal injuries.

Methods. Anonymous questionnaire survey was conducted at Lithuanian University of Health Sciences Hospital. Parents of children who experienced burn injuries answered the close ended questions about thermal injury prevention. SPSS 22.0 Statistical Package and the following statistical methods were used for the data analysis: non parametric Chi-square (χ^2) and Kruskal-Wallis criteria, correlation analysis methods (Spearman and Pearson correlation coefficients).

Results. Statistically significant ($p < 0.05$) parents often chose the answer “never” to the statement “You leave your kid alone without the supervision of adults” comparing to

other statements. Parents leaving their children alone without supervision were over 30 years old, with primary education, unemployed. Significantly ($p < 0.05$) women 44,7 % ($n = 34$) answered more often than men that they always check the temperature of the water before bathing children. Parents that never drink hot liquids while holding children more often have had higher education 69,7 % ($n = 23$) than primary education 35,2 % ($n = 19$).

The **results** also revealed that larger part of parents knew about the most common causes of burns, did not let their kids near the oven when food is being prepared, and knew the safe way to bath children. The majority of parents whose children experienced burns stated that they do not get enough information about thermal injury prevention.

Conclusions. An amount of children burns can be avoided developing parents’ habits of safe behavior and increasing of their knowledge about burns prevention. As children suffer burns rather early in their life (under 3 y.) parents should be informed about the prevention means to avoid thermal burn injuries in a right time. Babies and children most often suffer burns at home so it is important to assess the safety of their surrounding and eliminate dangers in time.

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123. Innovation of preoperative preparation for cardiac surgery

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Introduction. During current years the number of heart surgeries keeps increasing. It is a good alternative for treating a lot of heart diseases, which in the European Union countries (including Lithuania) is still the main reason for patients’ deaths, despite big advantages of medical science. Every heart surgery is a big challenge for patients and for medical staff as well, because these surgeries have a very complicated course, post-surgery time is not always smooth – often with complica-

tions. The success of surgeries highly depends on preparation of the patients for the intervention, also on the factors inflaming the patients' condition: age, side diseases. 60% of heart surgeries are performed on elderly (more than 65 years old) people, who often have a complicated post-surgery time (Post-surgery complications for elderly patients occur 35–63%), often ends with death (mortality is 5,7 – 15 % [1],[2]).

The aim of presentation – to get acquainted with innovation of preoperative preparation for cardiac surgery.

In order to upgrade the post-surgery time for elderly people and decrease the risk of complications multicomponent preparation of the patient is applied: detailed investigation on patient's physical and psychological health, frailty evaluation, treating side diseases, improving of the overall condition, psychological preparation of the patient, teaching the patient.

Frailty – it is a syndrome which defines a higher vulnerability of organism, misbalanced system of most of the organism systems, decreased physiological resources and lower abilities to recover from various interventions [3]. For diagnosing frailty these methods are used: one-factor frailty test (Barther index, the amount of Albumin in blood serum, Brighton movement scale, Katz index, Speed walking test) [4]; Multi-factor frailty test. During this test are evaluated: the loss of weight, exhaustion, weakness, low physical activity (hypo-mobility), decreased speed of walking. The multi-factor frailty test is being used more often. Each from 5 criteria's are valued from 0 to 5 points. With 0-1 points – the patient is not frail, 2-3 points – medium frail, 4-5 points – frail patient [5].

In many studies performed there was found a statistically significant connection between frailty and complicated post-surgery time. The frequency of complications after major surgical interventions are: 43,5% – for frail patients, 33,7% – for medium frail patients, 19,5 – for not frail patients. Main post-surgery complications for frail patients are: delirium (14,7 – 46%), depression (10 – 37,7%), bed sores (10,6 – 18%), hospital infection (8,3–54,5%), arrhythmias (5 – 24%) [2],[4].

Conclusions. The measurement of frailty is very valuable for selection of the patients for heart surgeries. Fragile patients might be strengthened, prepared for heart surgeries. When the frailty is diagnosed for the patient, up-front plan for an intensive treatment and nursing might be applied.

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124. Infection control in the operating room

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Key words: risk factors, needle stick injuries, medical staff.

Introduction. Risk factors in operating theatres are related to intervention procedures [1]. Cases of micro traumas frequently occur when using and handling medical devices [2,3]. Such injuries of the operating theatre staff as incisions, puncture, profuse bleeding are regarded as an infection case [4,5]. A safe use of work equipment and objects, training of operating theatre staff is one of the preventative measures preventing a spread of infection [6].

Aims. To analyse cases of micro-traumas and to assess the importance of training in their prophylaxis.

Material and methods. The research was carried out at one of the Lithuanian hospitals for the period of two years. The monitoring and survey method was chosen, the medical staff was a focus group of the survey (n = 150). The employees were interviewed every time following the micro-trauma, training was provided once per year (all in all, once). Cases of micro-traumas of the personnel were assessed according to four criteria: the nature of work, profession, work equipment, the distribution of the objects, and the place of contact.

Results. The sore point of the risk is operating theatres (66.0%), the most frequent cases of micro-traumas have been established for the staff of the operating theatre (62.0%). The surgeons run the greatest risk (32.6%). The residents have less working skills and a higher risk of injury to needles (25.3%). The cause of micro-traumas of the operating theatre nursing staff is handling of medical devices (16.0%). The following devices incur the greatest risk of injuries: needles (72.0%), scalpels (12.6 %), and press-buttons (10.0%). Fingers of the left hand are the most common place of contact with the objects

for the operating theatre staff ($p = 0.035$). The number of cases of micro-traumas was on a decrease with every year ($p = 0.05$). After training the number of cases of micro-traumas for the operating theatre staff decreased from 33.3% to 28.6%.

Conclusions. Training in safe intervention procedures had a great significance to prophylaxis of micro-traumas of the operating theatre staff, in cases of supervision of medical devices in particular. The number of injuries has decreased by as much as one and a half times.

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125. Personal leadership as a tool for coping with contemporary nursing challenges

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Background. It appears that nurses have always been concerned with defining and measuring the level of quality of their actions. In the past, the responsibility of nurses in patient safety was restricted to a few aspects of care [1]. However, the passage of new laws, national standards regarding delegation, and the recommendations for nursing is changing

[2]. The way nurses were trained in the twentieth century no longer meets the healthcare needs of the 21st century. The complexity of patients' needs and healthcare environments brings new challenges for nursing [3]. Revealing those challenges empowers coping with them.

Aim. The aim is to report on a systematic review of the research literature pertaining to contemporary nursing challenges.

Methods. A systematic review from the following information sources: PubMed, Academic Search Complete, Health Source: Nursing/Academic Edition and MEDLINE, using the keyword Nursing Challenges. In order to orientate the analysis of the literature, two questions were asked: what are the challenges for contemporary nursing and what are the strategies for coping with those challenges?

Results. Contemporary nursing challenges:

- Dynamic factors in contemporary health environments challenge traditional nursing roles. Nurses' perceptions of their role are influenced by societal attitudes, government policies, and trends in professional issues;
- The patient education meets the lack of resources and educational tools, lack of enough time, inadequate knowledge and skills of the nurse, and lack of patient readiness both physically and psychologically;
- The nurses must attend to varying levels of health literacy among patients and families when leading and advocating for global health competencies;
- The dealing with social inequalities, social and cultural minorities;
- Communication challenges with patients whereas communication include exchanging information, building a relationship, and engaging in shared decisions;
- challenges of limited time and resources, and multiple documentation requirements;
- Challenge concerned the difficulty of transferring available knowledge for clinical practice;
- Challenge of continuing skill development and improvement, and occupational professionalism.

In order to cope with these challenges, it is proposed to improve personal communication skills (both verbal and non-verbal), to develop empathy and emotional intelligence, to continuously develop professional competencies, to strive for the quality of the activities, to be interested in innovations and to seek to implement them in the professional activities, to improve motivation abilities and to develop personal charisma.

Conclusions. The contemporary definition of personal leadership is associated with certain personal qualities and competencies that can influence others. They are the ability to

communicate and collaborate, to continuously develop competencies and raise qualifications, empathy and emotional intelligence, the ability to motivate self and others, the pursuit of quality of work and the desire to be a role model for others. And these are the skills that are offered as a way to cope with the challenges of nursing. Thus, the development of personal leadership can be seen as a way of coping with contemporary nursing challenges.

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126. Patients information needs about surgery

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Background. Patients with gastro-intestinal cancers that are engaged in active treatment are most concerned with information about their medical illness and management plan as well as how the illness will affect them physically. (1) Pre-surgical education classes reduce for patients undergoing RALP help reduce patient anxiety and manage expectations regarding the surgical procedure and subsequent outcome. (2) The information is very important to patients for choosing a hospital. Differences among patients as to what factors are important when choosing a hospital provider and what information and support they access suggest there needs to be a variety of information sources and support available to promote choice. Greater shared decision making through active involvement and support by GPs or booking advisors may be required if they are to make choices in line with their preferences. (3)

Aim. The aim of the research was to find out what kind of information the patients need before or after the surgery.

Methods. An exploratory descriptive study design using the topic list was carried out in two multi-disciplinary

hospitals in Western Klaipėda. The data were collected from patients (n = 86) of the hospitals performing digestive tract surgeries in 2015 January – March, 2015.

In the data analysis, the answers were divided into the following categories: physical, psychological and social information. A main issue was to describe the logic in how categories, subcategories and themes were abstracted, understood, and connected to the aim and to each other. The used coding unit was either a word or a phrase. The coded responses were divided into meaning units after thorough reading of the codes. The meaning units were then divided to sub themes and further gathered under themes.

Results. Patients lack information about surgery, treatment and nursing. The patients would like to know who will perform the operation, how long the operation will continue, what kind of complications may occur during the surgery, what they can do after the surgery. They also lack information about nutrition, physical activities, medication and rehabilitation after the surgery.

Conclusions. Patient oriented education and information are needed before and after the surgery.

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127. Occupational prestige of nursing in Lithuania: review of study results

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Background. Occupational prestige of nursing directly influences the social health of nurses [1]. It is important that the occupation holds a respectable professional image in a society and hence invokes an array of positive psychophys-

ological effects on nurses [2], such as stronger professional identity and motivation to work to higher standards, as well as encourages the younger generation to choose a nursing career. The latter is of particular importance nowadays, since due to various demographic processes, the shortage of nurses increases. Therefore, identifying and understanding the current public opinion on the occupational prestige of nursing in Lithuania, as well as the factors influencing it, are paramount for further social opinion's improvement.

Aim. The aim of this research was to determine how the society perceives nursing in terms of prestige.

Methods. An anonymous questionnaire survey was conducted at Lithuanian university, republic and regional level hospitals as well at universities educating healthcare students in January and February 2018. The study enrolled 736 people (nurses, physicians, patients, and students) who filled in the questionnaire of Nurse image, using 5 points Likert scale. SPSS 21.0 Statistical Package was used for data analysis [3].

Results. The society perceives the social prestige of nurse profession as average. It is strongly believed that nursing is hard work (range 4.48), an admirable profession (range 4.46), a highly qualified profession (range 4.50), and a profession with great responsibilities (range 4.66). It is agreed that nursing is a calling (range 4.22). Participants do not agree with the statement, that nursing does not require much education (range 2.09), however, they strongly agree that nursing is poorly paid (range 4.74).

Nursing is more positively perceived by younger nurses and health care students. They are more likely to support the statement, that nurses require much education, nursing is a highly qualified profession (range 4.50), and a profession with great responsibilities. In contrast, older nurses are likely to doubt the need for education and are more likely to support the statement that nursing requires physical work.

Conclusions. The results of the survey show that younger generation more often consider nursing as a prestigious profession. They understand the importance of a professional calling, education and professional responsibility, which are the factors of strengthening the quality of nursing and improving the social opinion on occupational prestige. However, stakeholders should make efforts to promote non-material rewards of nursing as well as remuneration, which is often linked to the prestige of the profession.

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128. Preparing for ostomy surgery: role of nurse

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During the last decade in Lithuania the strong improvement was made in the operation technique and supply of stoma care appliances, but the care of stoma patients before operation is still insufficient. These patients do not get adequate information about stoma, possible body changes. The optimal stoma site is not selected before operation as well. Nursing staff usually have no enough knowledge how to inform and educate patients before operation. Nurses have no experience in preoperative stoma siting. Ostomy patients experience a number of physical, psychological, social problems that influence their quality of life.

Aim. To assess if preoperative stoma siting and adequate patient's teaching by the nurse can affect the postoperative patient's quality of life.

Patients and methods. The study was performed in university hospitals of Lithuania. Patients were asked to answer the questionnaires the day before the stoma creation operation and two months after the operation. Patients suffering from colorectal cancer were prospectively randomized into three groups: I group – 40 patients with the preoperative stoma siting and adequate preoperative and postoperative teaching. II group – 37 patients who had received teaching after operation but without preoperative stoma siting. III (control) group – 40 patients without preoperative stoma siting and adequate teaching.

There were used questionnaires EORTC QLQ-C30, EORTC QLQ-CR38 and 10 supplementary questions. Non-parametric statistics were used in analysis: Wilcoxon matched pair test when comparing quality of life results of first and second groups before operation and after that. Mann-Whitney U test was used comparing results between separate groups. The

difference considered statistically significant when $p < 0.05$.

Results. 117 patients were included in our study. There were 66 male and 51 female patients after stoma creation operation due to colorectal cancer. There were 60 ileostomy patients and 57 colostomy patients. Mean age of the patients was 66.9 (SD±10,3) years.

The financial problems of the patients who received adequate education and preoperative stoma siting (group I) were significantly less than in the control group after operation ($p < 0.05$). Stoma related problems were less in group I and II when compared with the control group ($p < 0.05$). The quality of the patients' teaching, adequacy and comfort of stoma site and satisfaction with the medical staff were significantly better in the group I and group II when compared to control group ($p < 0.05$). The quality of patients teaching, adequacy and comfort of stoma site were significantly higher for patients who received adequate education and preoperative stoma siting comparing with patients who were only taught after the operation (group II) ($p < 0.05$).

Conclusion. The preoperative teaching of the patients as well as the preoperative stoma siting is carried out by the nurses. This helps patients to gain better experience in self-stoma care hence reducing the psychological, financial and stoma – related problems.

129. Final data of LiverMetSurvey.org in Klaipėda University Hospital

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Background. LiverMetSurvey (www.livermetsurvey.org) is an international registry of patients who have undergone surgery for colorectal liver metastases. It was founded in 2004 and worked until the end of 2017. The LiverMetSurvey registry aims to prospectively analyse the results of surgically treated patients with the broader goal of establishing guidelines of optimal treatment and therapeutic strategy, especially

in clinical situation that remain controversial with respect to the benefit of surgery or its adequate combination with other therapies

Methods: We analyse our data from 2009 to 2017 in order to illustrate the outcomes of surgical treatment of colorectal liver metastases in Klaipėda University Hospital. Our data are compared with those of the LiverMetSurvey centers such that treatment quality in our center can be compared to international standards. Data are entered in the registry using a standardized questionnaire that was formulated by a scientific committee.

Results: We compare 201 patients operated in our center with 22340 operated in other 59 LiverMetSurvey centers. Majority of our patients were females (62% vs. 34% in LiverMetSurvey). The average age of our patients was 64 years vs. 72 in LiverMetSurvey. In our center the primary tumor was localized in the rectum- 39% of all cases and according to the international register data-31%. Additional special technologies were used to increase resectability in 14% of our patients while in the international study group 22,6%. Unilateral localization of metastases were in 35% of our patients vs. 37% in the international group. Our patients had an average 2,4 metastases vs. 2,1 in LiverMetSurvey group. The average size of metastases were similar in both groups (4,2cm vs. 3,8 cm). Concomitant extra hepatic disease had 9% of our patients vs. 14% in the international study group. Major hepatectomy rate was 32% in our center vs. 52% in LiverMetSurvey.

Survival data are available for 199 (98%) patients. After a median follow-up 48,2 months, the 3-, 5- and 9- year survival rates of patients who underwent resection were 60%, 43% and 13%, respectively. (vs. 60%, 41%, 23% in LiverMetSurvey group). Postoperative mortality 0,5% in our center vs. 2,6% in the LiverMetSurvey group.

Conclusions: LiverMetSurvey allowed us to participate in the largest international prospective study and to compare our results to international. Our approaches to the treatment of colorectal liver metastases correspond to the international protocol. Five years survival rate was 43%. And it was not inferior to international study data.

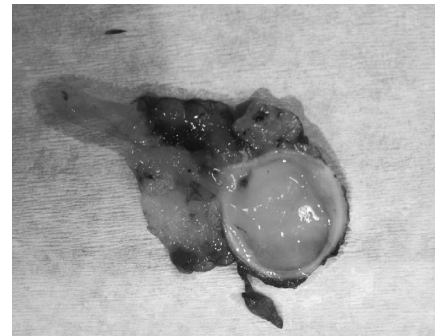
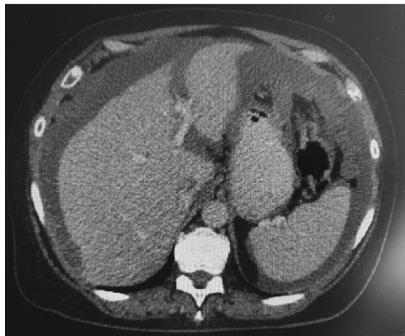
Early data of patients with pseudomyxoma peritonei from appendiceal origin treated by a strategy of cytoreductive surgery and hyperthermic intraperitoneal chemotherapy

Algirdas Šlepavičius, Vaidotas Turskis, Vitalijus Eismontas, Vitalija Nutautiene, Alvydas Česas

Klaipėda University Hospital

APPENDICEAL PSEUDOMYXOMA

- Pseudomyxoma is a clinical syndrome in which a mucinous neoplasm grows within peritoneal cavity causing mucinous ascites and peritoneal implants
- If an appendectomy shows a mucinous neoplasm what has ruptured, the term PMP should be used if there is evidence of spread beyond the right lower quadrant of the abdomen



Epidemiology

- Incidence: 2 cases per million population per year
- It is an unexpected finding in about every 10 000 laparotomies
- About 20% of patients with mucinous neoplasm of appendix develop PMP

Chua et al. (2012 m.) – largest multi-institutional registry study)

16 specialised center (2298 patients) – underwent CRS + HIPEC for PPM from appendiceal origin:

- Treatment related mortality – 2%
- Major operative complications – 24%
- The median survival rate 196 months. (16.3 years)

Multivariate analysis identified independent predictors for poorer progression free survival

- Prior chemotherapy treatment ($p < 0,001$)
- Peritoneal mucinous carcinomatosis (PMCA) histopathologic subtype ($p < 0,001$)

- Major postoperative complications ($p = 0,008$)
- High peritoneal cancer index ($p = 0,013$)
- Completeness of cytoreduction CCR 2 or 3 ($p < 0,001$)
- Not using HIPEC ($p = 0,030$)

Inclusion criteria

- Patients with histologically confirmed PMP from an appendiceal mucinous neoplasm who underwent CRS/HIPEC from January 2012 to January 2018
- No any preoperative chemotherapy
- CRS/HIPEC was recommended if complete cytoreduction was deemed feasible

Exclusion criteria

- Patients with extra-abdominal metastases
- Patients deemed medically unfit to undergo radical surgery based on preoperative medical assessment
- Patients whose disease was considered technically unresectable at the multidisciplinary team meeting

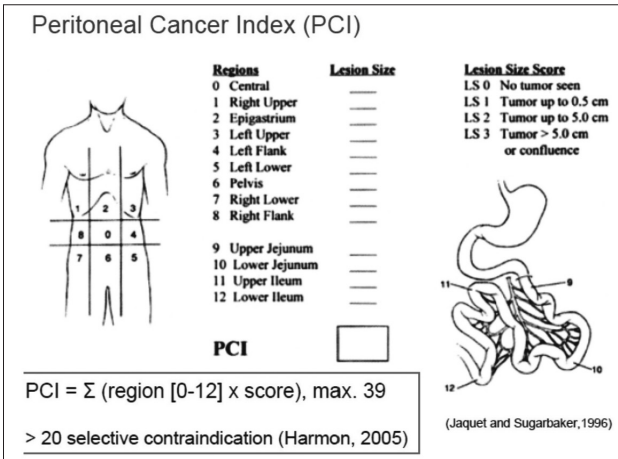
- Cases of low grade appendiceal mucinous neoplasms confined to the appendix and ileocecal area

Methods

- Ronnett's histologic classification was used for tumor grading
- Cytoreduction and HIPEC technique was as described by P. Sugarbaker
- Prior surgery score (PSS) was assessed as previously described by Jacquet et al
- Peritoneal cancer index was determined intraoperatively as described by P. Sugarbaker
- Completeness of cytoreduction was measured CCS score (CCR0 – no residual cancer remained, CCR1 $< 2,5$ mm, CCR2 2,5 mm–2,5 cm left, CCR3 nodules more than 2,5 cm remained)

Ronnett's criteria

- Disseminated peritoneal adenomucinosis (DPAM) – 60%
- Intermediate – 10%
- Peritoneal mucinous carcinomatosis (PMCA) – 30%

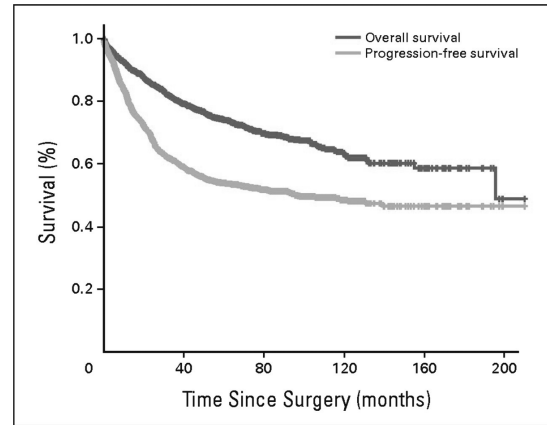


Lesion Size – pažeidimo (židinio) dydis (nematomas; iki 0,5 cm.; 0,5–5 cm.; >5 cm.)

Lesion Size Score – pažeidimas vertinamas balais (0, 1, 2, 3)

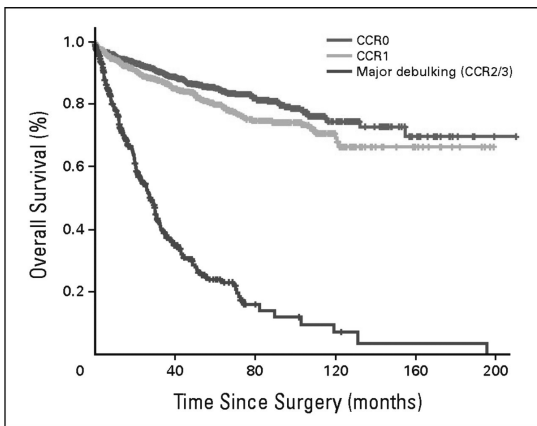
Dr. D. Sugarbaker's PCI. Naudojamas JAV ir Europos chirurgų-onkologų.

Overall survival and progression-free survival rates of 2,298 patients with appendiceal pseudomyxoma treated with cytoreductive surgery and hyperthermic intraperitoneal chemotherapy



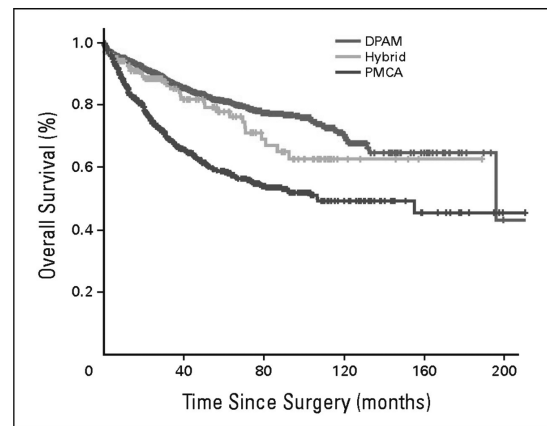
Terence C. Chua et al. JCO 2012;30:2449-2456
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Prognostic impact of completeness of cytoreduction (CCR) in surgery on overall survival (P < .001)



Terence C. Chua et al. JCO 2012;30:2449-2456
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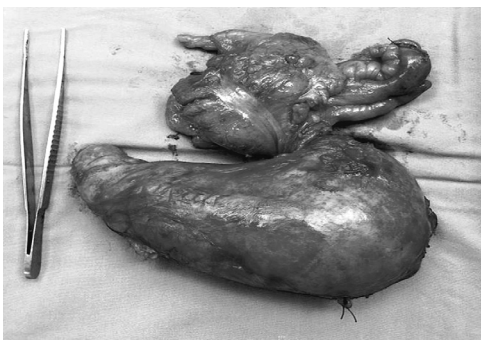
Prognostic impact of histopathologic subtype of appendiceal pseudomyxoma on overall survival (P < .001)



Terence C. Chua et al. JCO 2012;30:2449-2456
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Primary surgery

- For “Krukenberg” syndrome – **6 patients**
- For acute appendicitis – **2 patients**



Demographics, clinical and pathological characteristics of patients with pseudomixoma peritonei (PMP) from appendiceal origin treated in Klaipeda University Hospital

Characteristics	Nr.1	Nr. 2	Nr. 3	Nr. 4	Nr. 5	Nr. 6	Nr. 7	Nr. 8
Age	57	48	65	64	68	55		
Sex	Female	Female	Female	Female	Female	Female	Female	Female
ECOG score	0	0	1	1	2	0	1	0
Pathological subtype	DPAM	DPAM	DPAM	PMCA	PMCA	DPAM	PMCA	PMCA
Interval between primary and secondary surgeries (months)	5	2	2	24	2	6		
Elevated CEA, CA 19-9, CA 125	-	+	+	+	+	+	+	+
Co morbidities:								
Hypertension	+	-	+	+	+	-	-	-
Diabetes	-	+	-	-	-	-		
Prior surgical scor	2	2	2	3	3	3	3	3
PCI	16	18	14	14	12	25		

ECOG score – the Eastern Cooperative Oncology group score. DPAM – disseminated peritoneal adenomucinosis, PMCA – peritoneal mucinous carcinomatosis, PCI – Peritoneal Cancer Index

Analysis of surgical treatment

Surgery	Nr. 1	Nr. 2	Nr. 3	Nr. 4	Nr. 5	Nr. 6	Nr. 7	Nr. 8
Omentectomy	+	+	+	+	+	+		
Sentinel node biopsy (frozen section)	-	-	-	-	-	-		
Number of peritonectomy procedures	3	3	3	6	4	5		
Small bowel resection	0	0	0	1	1	2		
Cholecystectomy	+	+	+	+	+	+		
Splenectomy	+	-	-	-	+	-		
Resection of large bowel	+	-	-	-	+	+		
Resection of diaphragm	-	+	-	-	-	-		
Appendectomy	-	-	-	-	-	-	-	-
Hysterectomy	-	-	-	+	-	+		+

Perioperative data

Surgery	Nr. 1	Nr. 2	Nr. 3	Nr. 4	Nr. 5	Nr. 6	Nr. 7	Nr. 8
Omentectomy	+	+	+	+	+	+		
Sentinel node biopsy (frozen section)	-	-	-	-	-	-		
Number of peritonectomy procedures	3	3	3	6	4	5		
Small bowel resection	0	0	0	1	1	2		
Cholecystectomy	+	+	+	+	+	+		
Splenectomy	+	-	-	-	+	-		
Resection of large bowel	+	-	-	-	+	+		
Resection of diaphragm	-	+	-	-	-	-		
Appendectomy	-	-	-	-	-	-	-	-
Hysterectomy	-	-	-	+	-	+		+

CC – completeness of cytoreduction. ICU – Intensive Care Unit

HIPEC technique for PMP

- Closed technique
- Mitomycin 25 mg/m²
- Duration 90 min.
- Flow rate 1000–1200 ml/min.
- Temperature °C
Inflow 42,5 °C
Outflow 40–41 °C
Pelvic probe 40–41 °C
Subdiaphragmatic probe 40–41 °C

**Mistakes**

- Colorectal carcinoma with peritoneal spread should be treated different than appendiceal neoplasm with PSP

- Performing different surgeries in patients with PSP could result in implantation of malignant cells in retroperitoneal space and would make case more complicated

Conclusions

- Patients should be discussed in MDT and individual treatment options should be found for every patient
- PMP from appendiceal origin can be treated with curative intent in a large percentage of cases by cytoreductive surgery associated with HIPEC.
- This approach could be performed safely with acceptable morbidity and mortality in most patients treated in specialized centers

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