

## LAPAROSCOPIC AND OPEN REPAIR OF PERFORATED DUODENAL ULCER

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**Introduction.** Perforation is a dangerous complication of peptic ulcer disease and requires immediate surgical intervention in most of the cases.

Perforation occurs in 2-10% cases of peptic ulcer disease with high risk of mortality, especially in the elderly. The mortality rate of PUD perforations reaches up to 10-40%. Seventy percent of deaths in patients with PUD are attributed to perforation, in-hospital mortality rates vary from 5-24%. Emergency operation is the treatment of choice for perforated duodenal ulcer. Simple closure with or without omental patch is the most common and favored emergency procedure in many centers. In last decades laparoscopic repair of duodenal perforation is widely used in many clinics of USA, Western Europe and Asia with encouraging results

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

of 0-3. 51 (Boey 0 - 26, Boey 1 - 25) patients were operated by laparoscopy and 34 (Boey 0 - 9, Boey 1 - 25 patients) patients by laparotomy.

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

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

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

## ROLE OF ULTRASOUND IN DIAGNOSIS OF INFRINGED HERNIAS OF ANTERIOR ABDOMINAL WALL

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The results of treatment of infringed, especially recurrent and repeated recurrent hernias depend on timely and accurate diagnosis. Therefore, before the surgical intervention it is necessary in addition to determining the size of the anterior abdominal wall, the external parameters of protrusion, the nature of the contents of the hernia bag, etc., to clarify the morphofunctional state of the anterior abdominal wall, as well as all those anatomical structures, the tissues of which can be used in the execution of hernioplasty.

In order to clarify the size of the anterior abdominal wall and the external parameters of the protrusion, the condition and func-

tion of the abdominal wall and to select the method of surgical treatment, we have carried out an ultrasound examination of the anterior abdominal wall before surgery and in the postoperative period in 228 patients with ventral hernias.

The obtained results confirmed that ultrasound examination of the anterior abdominal wall is an accessible, non-invasive and highly informative method in diagnosis of abdominal hernia. It can become a key diagnostic method, on the basis of which it is possible to determine the size and localization of hernia's defect with a high degree of certainty, to make an idea of the contents of the hernia bag, to establish anatomical and functional state

of the anterior abdominal wall, clearly determine the width and thickness of direct abdominal muscles, as well as all those anatomical structures, the tissues of which are used in performance

of hernioplasty. Ultrasound examination assisted in the planning of the term, access for intervention, the determination of the appearance and the choice of the method of operation.

**Key words:** ultrasound, hernioplasty, infringed hernia

## IMPROVEMENT OF DIAGNOSIS OF ACUTE INTESTINAL OBSTRUCTION

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Diagnosis and treatment of acute intestinal obstruction also nowadays continues to be one of the actual problems of surgery. Clinical symptoms of this disease are relatively late indefinable into the clinical complex, which in some cases causes delays in surgical intervention and its unsuccessful outcome. Postsurgical lethality level remains high.

A complex of medical and preventive measures began to be carried out in all 267 patients with suspicion of intestinal obstruction in the reception room. Diagnostic algorithm in case of intestinal obstruction includes: a carefully collected anamnesis, an examination of the patient, an urgent dynamic ultrasound examination, a radiography of the abdominal organs, the dynamics of Barium passage in the gastrointestinal tract. In case of suspicion of large intestinal obstruction patients were irrigoscopy and colonoscopy.

It has been established that ultrasound examination allows to assess the effectiveness of conservative therapy in short period of time and to predict the further course of the disease. Sensitivity of ultrasound method of research in patients with suspicion of intestinal obstruction was 86%, specificity-95%, accuracy-88.8%.

The analysis of obtained data shows that the application of the algorithm developed by us in case of intestinal obstruction allowed to detect pathology quite efficiently, at a high technical level and timely. Determination of the range of diagnostic capabilities of ultrasound examination, development of indications for its dynamic implementation and introduction into daily clinical practice improves the results of treatment of this heavy contingent of patients.

**Key words:** acute intestinal obstruction, ultrasound, radiography, irrigoscopy and colonoscopy

## LAPAROSCOPY AND ANTIADHESIVE BARRIERS IN TREATMENT AND PREVENTION OF ACUTE ADHESIVE SMALL BOWEL OBSTRUCTION

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**Introduction.** Acute adhesive small bowel obstruction is a serious problem in emergency surgery and often requires repeated surgical interventions. Acute adhesive obstruction constitutes up to 50-60% of all cases of acute mechanical intestinal obstruction. This condition requires the choice of more sparing interventions. Laparoscopic adhesiolysis in a number of cases is effective and safe method of surgical treatment of adhesive intestinal obstruction. There are reports of laparoscopic resolution of acute adhesive small bowel obstruction in 80-90% of cases.

**Materials and methods.** In the Clinic of Surgery of the Republican Medical Center "Armenia" 96 laparoscopic interventions were performed for acute adhesive small bowel obstruction in period from April 2009 to May 2017.

Men were 55, women - 41, the average age was  $49,9 \pm 13,3$  (18-76 years). Among the previous surgical procedures appendectomy, gynecological surgery were reported most frequently. Average duration of history of intestinal obstruction was  $28,4 \pm 14,8$  (8-76) hours.

Preoperative examination included X-ray of the abdomen, contrast radiography of the gastrointestinal tract, ultrasonography of the abdomen, esophagogastroduodenoscopy, CT scan. For preoperative preparation of the patients nasogastric intubation by probe and gastric lavage, bladder catheterization, analgesia with nonsteroidal anti-inflammatory drugs and infusion therapy were performed.

Laparoscopic procedures were performed using laparoscopic set of "Karl Storz" company (Tuttlingen, Germany). The first trocar was placed by open method (Hassony's technique) in the area most distant from the scar, mostly in the left mesogastric region.

Inspection of the abdominal cavity was done by the 450 telescope to assess the state of adhesions, intestinal loops. Under direct vision two 5mm trocars were introduced into the peritoneal cavity so that they could make a triangle with the trocar of telescope. Intestine was inspected with the help of atraumatic clamps, starting from collapsed loops, usually from the ileocecal junction. After adhesiolysis follow antiadhesive local barriers are

used: "Adept" – in 25 cases, "Seprafilm" – in 20 cases, "Protescal" – in 12 cases, "Mezogel" – in 10 cases.

**Results.** In 33 patients obturative and in 63 patients strangulative types of obstruction were found intraoperatively. Diagnostic laparoscopy allowed to evaluate the nature of adhesions, condition of bowels, to determine the location and nature of obstruction. In 84 cases procedure was completed laparoscopically, in 12 cases conversion performed due to dense adhesions in the abdominal cavity.

Big importance has the type of access of previous intervention, the best conditions for laparoscopic surgery are created in

wounds of limited area of the abdominal wall, especially after appendectomy and gynecological interventions

One lethal outcome were observed. There were no cases of recurrence of intestinal obstruction. No side effects were observed after use of antiadhesive means.

**Conclusion.** The laparoscopy is a possible method of examination for adhesive postoperative small bowel obstruction, and laparoscopic adhesiolysis can be successfully used in the treatment of this disease. In addition to minimally invasive interventions, to reduce the risk of postoperative recurrence of adhesion formation and adhesive bowel obstruction, antiadhesive barrier means should be applied.

**Key words:** acute small bowel obstruction, abdominal adhesive disease, laparoscopy, laparoscopic adhesiolysis, antiadhesive barriers

## OPTIMIZATION OF DIAGNOSTIC PROCESS IN CASE OF ABDOMINAL TRAUMA

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Abdominal trauma has a special place among all surgical diseases. Despite the fact that the specific weight of abdominal trauma does not exceed 20%, the vast majority of deaths occur because of this trauma.

When entering a medical institution most of the injured have combined injuries and are in a state of shock or unconsciousness, which undoubtedly, complicates the examination.

One of the reserves of improvement of outcomes of treatment of injured with cotrauma of stomach is the maximal early recognition of damages of organs of an abdominal cavity. In such conditions, the role of radiodiagnostic methods is increasing,

The analysis of results of the survey 353 injured showed that 187 had an abdominal trauma. We diagnosed damage of intraperitoneal and retroperitoneal organs with application of proposed algorithms of radiation examination in 184 (98.4%).

The algorithm developed by us is built not only on the principle "from simple to complex", but also on principle from the main to the secondary. The algorithm has flexibility depending on the clinical situation. Thus, it includes dynamic ultrasound examination, which allowed to increase the informativeness of the radiative examination to 98%. The ultrasound examination is the most rational method of screening and diagnosis in case of any pathology concerning abdominal organs and retroperitoneal space. The advantage of ultrasound examination of abdomen is the possibility of carrying it out at the bed of the injured, and the greatest value is the possibility of dynamic observation of the patient.

The optimal organization of work starting from reception to diagnostic and medical departments allows to provide timely and effective examination of injured.

**Key words:** Abdominal trauma, radiation examination, dynamic ultrasound examination

## EFFICACY OF SURGICAL MANAGEMENT OF PATIENTS WITH MALIGNANT BOWEL OBSTRUCTION USING DIFFERENT DECOMPRESSION STRATEGIES

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**Introduction.** For decades the nasogastric decompression has been used as the most effective strategy in the treatment of patients with acute bowel obstruction [1]. The decompression efficacy of these tubes is compromised by the short length decreasing the suctioning ability. Nasointestinal decompression and application of nasointestinal tubes was implemented into clinical practice in 1930s. Some clinical trials have confirmed the efficacy of nasointestinal tubes in treating adhesive small bowel obstructions [2]. A recent study showed a controversial results: efficacy after nasogastric intervention was not less efficient compared to applied nasointestinal decompression [3]. Technology advances continue to question the efficacy of described strategies. Hydro-

philic silicon triple-lumen tube used for intestinal decompression was introduced in 2003. In later years variety of modifications were introduced and applied in clinical practice [4]. In our study we attempted to compare the decompression efficacy between the modern ileus tube and the nasogastric tube used for decompression in patients with malignant bowel obstruction.

**Methods:** A total of 94 patients with intestinal obstruction treated from October 2008 to May 2015 were included in this study. There was no significant difference between the two groups with regard to clinical characteristics and laboratory variables documented on admission, including age, sex, abdominal symptoms, and laboratory indexes such as CBC, ESR, CRP,

level of electrolytes in plasma ( $P > 0.05$ ). The endoscopically inserted intestinal tube was used for gastrointestinal decompression in 49 patients and nasogastric tube was applied in 45 patients. The therapeutic efficacy of applied strategies was compared between the two groups using Chi-squared test.

**Results:** Compared with the strategy applying nasogastric tubes, the group of patients treated with intestinal tube showed significantly shorter time for surgical rehabilitation ( $4.8 \pm 2.2$  d vs  $9.6 \pm 4.8$  d). Significant difference was registered in laboratory

test results ( $P < 0.01$ ). In the group treated with nasointestinal decompression, the output of drainage on the first day and the length of hospital stay were significantly shorter compared to the group treated with nasogastric decompression strategy ( $P < 0.05$ ).

**Conclusion:** Nasointestinal tube can be used for malignant bowel obstruction. Endoscopic insertion of modern nasointestinal tube is convenient and does not worthy to be promoted despite the potential risks.

**Key words:** malignant bowel obstruction, decompression, Nasointestinal tube

## THE RARE CASE OF SYGMOID COLON CANCER, COMPLICATED BY ANAEROBE FLEGMONE FORMATION IN LEFT LOWER LIMB-FEMORAL AND HIP INTERMUSCULAR AND SUBFASCIAL SPACES

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73% of patients with colon cancer, specially sigmoid and caecal origin, coming to the hospital with some complications, which has influence on outcome of disorder. Spread of the tumor on neighbor organs as well as pericancerous inflammation and perforation are very common. Sometimes few complications can be seen in one patient. In special literature we couldn't find data about invasion of colon cancer to the retroperitoneal space with subsequent flegmone formation in the hip and femur. That's why this case is very interesting.

Caucasian woman, 51 y.o, admitted to the ICU of "EREBOUNI" MC in severe condition complaining of pain in abdomen, left femur and hip, swelling of left inferior limb, nausea, vomiting, absence of stool in past 5 days. She suffered from constipation with blood in stool during last 5 years. Instrumental investigations (ultrasonography, X-ray, contrast-enhanced CT scan, colonos-

copy) revealed perforation of sigmoid cancer to the retroperitoneal space with pelvic, femoral and hip anaerobe inflammation. After laboratory investigations and preoperative treatment patient has been operated-midline laparotomy, Hartman's procedure, sanation and draining of abdominal cavity, wide-open incisions and fasciotomies, necrectomies and wound debridment in left femoral and hip regions. After 5 days relaparotomy with abdominal lavage and drainage performed. Reoperation on left femur and hip also performed. Antibacterial treatment, desintoxication, hyperbaric treatment as well as "Armenicum" topically as a wound healing methods has been used during 7 days (seen in pictures). Nevertheless sepsis developed and patient died on 20-th postop day. Thus perforation of colon cancer with anaerobe flegmone formation in the inferior limb is very rare and casuistic complication, which can have fatal outcome.

**Key words:** sigmoid colon cancer, anaerobe flegmone, antibacterial treatment, "Armenicum" topically

## THE TREATMENT OF ACUTE PANCREATITIS WITH MINIMALLY-INVASIVE SURGICAL INTERVENTIONS

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The management of acute pancreatitis has been controversial over the past decades, varying between a conservative medical approach on the one hand and an aggressive surgical approach on the other [1-2]. Most episodes of acute pancreatitis (80%) are mild and self limiting, subsiding spontaneously within 3–5 days. Patients with mild pancreatitis respond well to medical treatment, requiring little more than intravenous fluid resuscitation and analgesia [3]. In contrast, severe pancreatitis is defined as pancreatitis associated with organ failure and/or local complications such as necrosis, abscess formation, or pseudocysts [4]. Open necrosectomy, the standard surgical treatment of infected pancreatic necrosis (IPN), presents a high rate of postoperative complications and an associated mortality of 20–60%.

Results of applying minimally invasive methods in the course of treatment of patients diagnosed with pancreatitis have been analyzed. 2007 to 2017 the Astgik MC received and provided treatment to 450 patients suffering from acute pancreatitis. In 117 cases it was a destructive form. Of 117 patients 65% (76) had sterile pancreonecrosis, and 35% (41) – infected pancreonecrosis. We used minimally invasive surgical technologies to treat suppurative complications caused by the destructive pancreatitis: endoscopic papillotomy (EPT), percutaneous puncture of affluxes, drainage of pus pockets and retroperitoneal phlegmons. Minimally invasive surgery allows decreasing the overall acute pancreatitis mortality rate to 8%, and the mortality rate for its destructive forms – to 15.3%.

**Key words:** pancreatitis, endoscopic papillotomy, ultrasound and CT-controlled drainage