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DEVELOPMENT OF LAPAROSCOPIC OPERATIONS IN URGENT SURGERY.

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Abstract: As part of general scientific and technical progress, the constant introduction of new technologies makes them an integral part of a particular field of medicine. A modern trend in the development of surgery is to reduce the invasiveness and trauma of surgical interventions. In connection with the development of surgical technologies, one of the main tasks in surgery is to minimize surgical trauma and the subsequent reduction in the number of postoperative complications and mortality, as well as the duration of inpatient treatment of patients while maintaining the quality of surgical care. This goal in abdominal surgery can be achieved with the wide and widespread introduction of endosurgical technologies into everyday practice.

Relevance: Despite the wide range of non-invasive research methods, diagnostics of acute surgical diseases of the abdominal organs in some cases is very difficult. In this situation, the use of laparoscopy allows for timely diagnosis and determination of surgical tactics. A comprehensive analysis of the use of laparoscopic operations in emergency abdominal surgery and their improvement are an urgent task of modern clinical surgery. With the development of laparoscopic surgery and the accumulation of experience, the interest of many surgeons in the use of this method in emergency surgery is expanding. As part of general scientific and technological progress, the constant introduction of new technologies makes them an integral part of one or another field of medicine. Today, emergency surgery can no longer be imagined without

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laparoscopy. In many complex cases, laparoscopy remains irreplaceable, as it allows for a direct visual assessment of the pathological process, reveals its prevalence, performs a targeted biopsy and conducts instrumental palpation. It can be said with confidence that the number of urgent operations performed by the laparoscopic method is steadily increasing. This circumstance requires the development of clear recommendations for the use of laparoscopic technologies in emergency surgery. The method allows for more informative diagnostics, and when pathology is detected in the abdominal cavity, it provides the opportunity to transform diagnostic manipulation into therapeutic one. In the clinic of surgical diseases and resuscitation of the Bukhara State Medical Institute, from 2019 to 2025, out of 9461 emergency abdominal surgeries performed, laparoscopic technique was used in 2479 (26.2%) cases. The following laparoscopic surgeries were performed: laparoscopic cholecystectomy (LC) for acute calculous cholecystitis was performed in 1984 (80%) patients, diagnostic and therapeutic laparoscopy - 49 (1.9%), diagnostic and therapeutic thoracoscopy in 32 (1.3%) patients, laparoscopic appendectomy - 18 (0.7%), suturing of perforated gastric ulcer and duodenal ulcer (DU) - 15 (0.6%) patients, laparoscopic cystectomy (gynecology) - 112 (4.5%), laparoscopic tubectomies - 181 (7.3%), laparoscopic adhesion dissection - 24 (0.9%) and laparoscopic ureterolithotomy - 64 (2.6%) patients.

Laparoscopic cholecystectomy.

The leading operation in terms of the number of operations performed is laparoscopic cholecystectomy (LCE) - 1984, which is 80% of all laparoscopic operations. Our clinic, since the introduction and development of the laparoscopic cholecystectomy technique, has been an active supporter of LCE in an emergency, including in destructive forms of acute cholecystitis.

The treatment tactics for acute cholecystitis were determined depending on the severity of the patient's condition, determined by the severity of both the underlying and concomitant diseases. All patients admitted with a diagnosis of acute cholecystitis were initially prescribed conservative treatment. The main criteria for the effectiveness

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of the therapy were the data of the clinical examination and ultrasound of the abdominal cavity, performed dynamically from the moment the patient was admitted to the hospital. If conservative treatment was ineffective, the issue of further treatment tactics was decided. Patients without pronounced concomitant diseases admitted early from the onset of the disease, according to urgent indications, underwent laparoscopic cholecystectomy.

For acute calculous cholecystitis, laparoscopic surgery was started in 1984 patients, in 16 of whom (0.8%) cholecystectomy was completed by the traditional method due to pronounced inflammatory infiltrate in the hepatoduodenal ligament zone. There were 1408 women (71%) and 576 men (29%). Catarrhal cholecystitis was detected in 632 patients (31.9%), phlegmonous cholecystitis in 1109 (55.8%), and gangrenous cholecystitis in 243 (12.2%). Mechanical jaundice was detected in 181 patients (9.1%) upon admission. Endoscopic retrograde cholangiopancreatography (ERCP) identified its causes: choledocholithiasis in 127 (70.2%) patients, stenosing papillitis in 29 (16%), and a combination of choledocholithiasis and stenosing papillitis in 25 (13.8%) patients. All patients with mechanical jaundice underwent endoscopic papillosphincterotomy (EPST) before laparoscopic cholecystectomy and biliary hypertension was eliminated. Acute pancreatitis in the form of an attack of severe girdle pain in the abdomen, accompanied by vomiting and amylasemia, developed in 2 (1.1%) patients after EPST. After conservative measures (fasting, detoxification therapy, administration of protease inhibitors and somatostatin), the attack was stopped. Among emergency laparoscopic cholecystectomies for acute calculous cholecystitis, the catarrhal form was present in 418 patients or 21.1%, with acute phlegmonous cholecystitis 1023 or 51.6%, and with gangrenous cholecystitis 543 patients or 27.3% (Table 3).Таблице 3

Form of cholecystitis Quantity	Form of cholecystitis Quantity
acute catarrhal 418(21.1%)	acute catarrhal 418(21.1%)

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acute phlegmonous 1023(51.6%)	acute phlegmonous 1023(51.6%)
acute gangrenous 543(27.3%)	acute gangrenous 543(27.3%)

Of 1984 cholecystectomies, 16 were converted. The reason for conversion in laparoscopic cholecystectomy was hemorrhage from the gallbladder bed in 7 cases, dense infiltrate in the area of Calot's triangle - 9. Technical difficulties arose with pronounced adhesions, infiltrate in the area of the bladder neck, thick bladder wall without a clear border with the liver. The operation was necessarily completed with lavage and thorough sanitation of the gallbladder bed and right hypochondrium, drainage of the subhepatic space. The duration of the operation is about one hour. Postoperative hospital stay is 3.7. After the manipulations, the patients immediately noted subjective improvement: pain in the right hypochondrium disappeared, body temperature and blood picture gradually normalized, the infiltrate determined through the abdominal wall disappeared. Considering the advanced age of the patients and the presence of severe concomitant diseases, their treatment continued according to the generally accepted scheme, and when the inflammation was completely eliminated, they were discharged from the hospital without surgery.

Thus, it is obvious that laparoscopy in the treatment of acute cholecystitis is highly effective.

Laparoscopic suturing of perforated ulcers of the stomach and duodenum. One of the unsolved problems of surgical gastroenterology is gastric ulcer and duodenal ulcer complicated by perforation. The relevance of the problem is also explained by the fact that this pathology mainly occurs in young and middle-aged patients. According to the literature, gastroduodenal ulcers are complicated by perforation in an average of 10-15% of cases. To date, this complication is one of the unsolved problems of surgical gastroenterology. Numerous surgical methods are known, but with the development and introduction of minimally invasive and

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endovideosurgical methods into surgical practice, wide opportunities have opened up for the diagnosis and treatment of perforated ulcers. In connection with the advent of modern highly effective antiulcer drugs, suturing of the perforation is currently considered the operation of choice for perforated ulcers. This surgical intervention, the purpose of which is to save the patient's life, is technically easy to perform and provides favorable immediate results for patients. Indications for diagnostic laparoscopy in patients with suspected perforated ulcer are unclear clinical and instrumental picture, which does not allow to exclude the diagnosis of perforation of a hollow organ (severe pain syndrome, presence of ulcerative defect in the gastrointestinal zone according to EGDS data, absence of pneumoperitoneum in control radiography after EGDS). Contraindications to laparoscopy were considered to be clinical and instrumental picture of widespread peritonitis. In diagnostic laparoscopy indications for conversion were: widespread peritonitis; size of perforation in the wall of the duodenum more than 1.0 cm in diameter; combination of perforation with other complications of peptic ulcer disease (bleeding, stenosis, penetration). A diagnosis of a perforated ulcer verified at the stage of clinical and instrumental examination and confirmed intraoperatively in the absence of contraindications was considered an indication for suturing the perforation. Laparoscopic suturing of perforated ulcers was performed in 15 patients with perforated gastroduodenal ulcer. There were 12 men (80%), 3 women (20%). The ulcer was localized in the stomach in 1 patient (6.7%), in the duodenum - in 14 patients (95.3%). The age of the patients ranged from 15 to 62 years. The period from the moment of perforation to the operation ranged from 2 to 12 hours. The suturing of perforated ulcers began with a survey video laparoscopy, with the purpose of specifying the degree of prevalence of peritonitis (the amount and nature of pathological exudate), localization, assessment of the type and shape of the ulcer, the size of the perforation. The infected effusion was evacuated and the exudate was taken for bacterial examination and determination of sensitivity to antibiotics. According to the nature of the exudate, peritonitis was serous in 12 (80.0%) patients, and in the remaining 3 (20.0%) cases, serous-fibrinous peritonitis was

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diagnosed. The suturing was performed with atraumatic thread 3.0 through all layers of the organ wall with the application of interrupted or U-shaped sutures, with suturing of a strand of the greater omentum to the perforation site. The size of the perforation hole varied from 2-3 to 10 mm. In 1 patient, a callous ulcer of the anterior superior wall of the duodenal bulb with a perforation hole more than 1 cm in diameter was found, which required switching to an open operation. In 9 patients, one interrupted suture on the perforation hole was sufficient to achieve tightness, in 6 patients this required 2 interrupted sutures. The stage of suturing the perforation hole lasted on average 20 minutes. Most of the time was spent on sanitizing the abdominal cavity. In 8 patients, combined laparoscopic and endoscopic suturing of the ulcer was performed. During laparoscopic suturing, videotelegastroscopy allowed us to determine the tightness of the sutures, the degree of deformation and the obstruction of the duodenum. Then, we performed thorough sanitation and drainage of the abdominal cavity. The volume of contents in the abdominal cavity varied from 300 to 1200 ml. Usually, the effusion spread to the subhepatic space, the right lateral canal and the cavity of the small pelvis. Depending on the prevalence of peritonitis, 2-4 drains were used to drain the abdominal cavity. Even with minor effusion, we installed at least 2 drains (in the cavity of the small pelvis and the subhepatic space). Laparoscopic suturing of perforated gastroduodenal ulcers is indicated in the absence of widespread peritonitis in combination with paralytic intestinal obstruction, with the size of the perforated defect no more than 1 cm, in the absence of anamnestic, clinical and laparoscopic signs of other complications of peptic ulcer disease. Patients after endovideosurgical suturing were active by the end of the first day, they had virtually no pain syndrome, analgesics were administered to them only on the first day, they got out of bed independently after 36 hours. The duration of the patients' stay in the hospital was from 3 to 5 days. In our observations, complications arose in one (6.7%) - suppuration of the postoperative trocar wound. In all cases, a positive result of the operation was noted. Contraindications for laparoscopic surgery were giant ulcers with callous edges, peritonitis in the terminal stage, the impossibility of performing a full sanitation of the

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abdominal cavity. Laparoscopic suturing of perforated ulcers facilitates timely diagnostics of covered and atypically occurring perforated gastroduodenal ulcers and can take the main place in the treatment of perforated pyloroduodenal ulcers. The surgical technique using laparoscopic techniques for perforated gastroduodenal ulcers allows to reduce the surgical trauma to a minimum and in most cases ensures hermetic suturing of the perforation and sanitation of the abdominal cavity.

Laparoscopic suturing of perforated ulcers has made it possible to reduce the length of hospital stay for patients, to avoid prescribing narcotic analgesics, to activate patients early after the intervention with a good cosmetic effect.

Laparoscopic appendectomy. Acute appendicitis (A) often occurs with latent or atypical symptoms. The need to provide emergency care to patients, the risk of developing severe complications if it is not provided, require surgeons to use all possible methods of emergency diagnostics, including invasive ones. Diagnostic laparoscopy is the most effective study, the invasiveness of which is fully justified by its high information content. Currently, it is possible to perform appendectomy laparoscopically. Therefore, the logical conclusion of laparoscopy in situations where the study confirms the diagnosis of A.A. The requirements for the diagnostic stage of the intervention increase significantly, since it is necessary not only to accurately determine the presence of the disease, but also to objectively assess the possibility of performing the intervention laparoscopically. In acute appendicitis, 18 (0.7%) laparoscopic appendectomies were performed. Laparoscopic appendectomy was performed using the F. Gotz technique proposed in 1993. Morphological changes in the vermiform appendices in acute appendicitis removed laparoscopically were as follows: catarrhal form - 7 (38.9%), phlegmonous - 8 (44.4%), gangrenous - 3 (16.7%) observations. Indications for the laparoscopic method were the clinical picture of acute appendicitis, as well as the need for differential diagnostics with other diseases of the abdominal organs with an unclear diagnosis. Contraindications to laparoscopy in patients with a presumptive diagnosis of acute appendicitis were considered to be clinical and instrumental pictures of widespread peritonitis or appendicular infiltrate.

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Indications for conversion during diagnostic laparoscopy included: widespread peritonitis requiring open nasointestinal intubation; appendicular infiltrate; fragmentation of the appendix, making its traction and mobilization impossible; pronounced adhesions in the abdominal cavity. Depending on the intraoperative situation, both antegrade and retrograde laparoscopic appendectomy were performed. Bipolar electrocoagulation was used to mobilize the appendix as the safest method. To treat the stump of the appendix with an unchanged base, the ligature method using Raeder loops was used in 16 patients. In the presence of inflammatory changes in the dome of the cecum in the region of the base of the appendix in 2 patients, the immersion method was used with the formation of a B-shaped suture according to Rusanov. The frequency of postoperative complications was 1.2%.

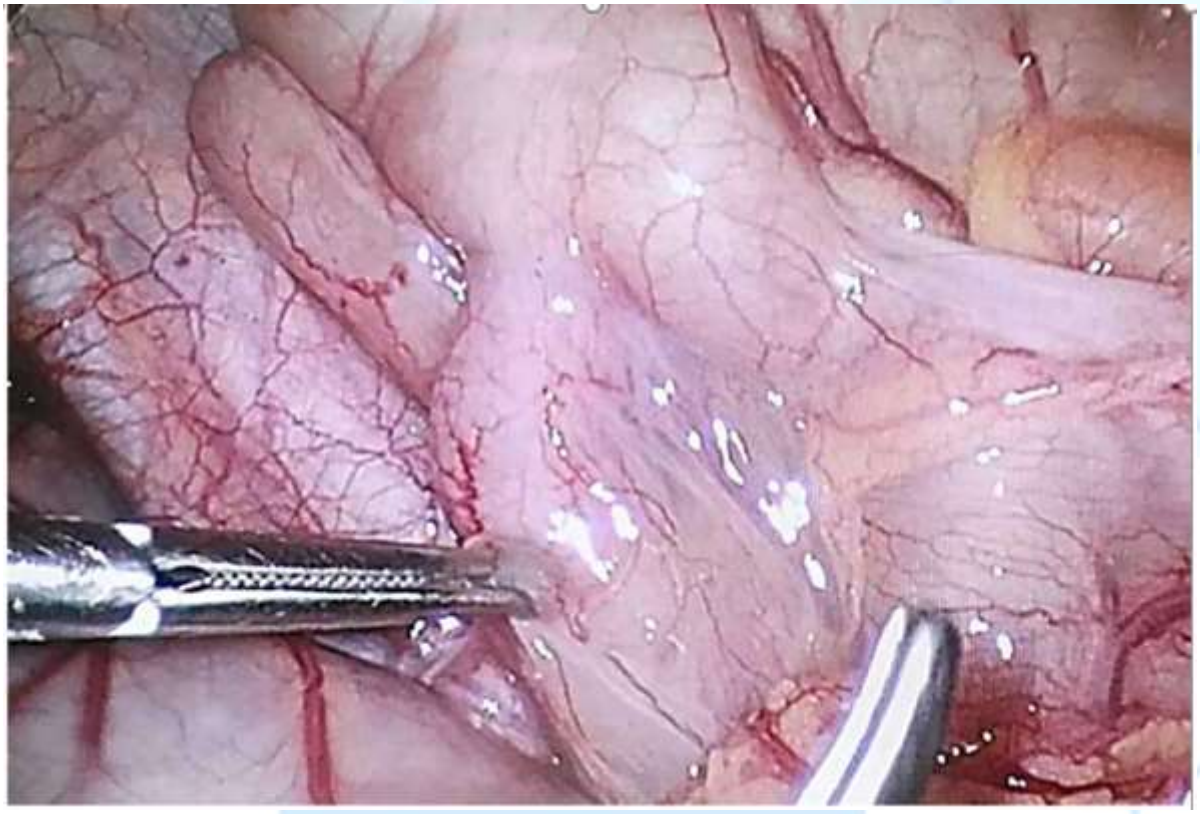

Figure 3.2. Emergency form of acute appendicitis

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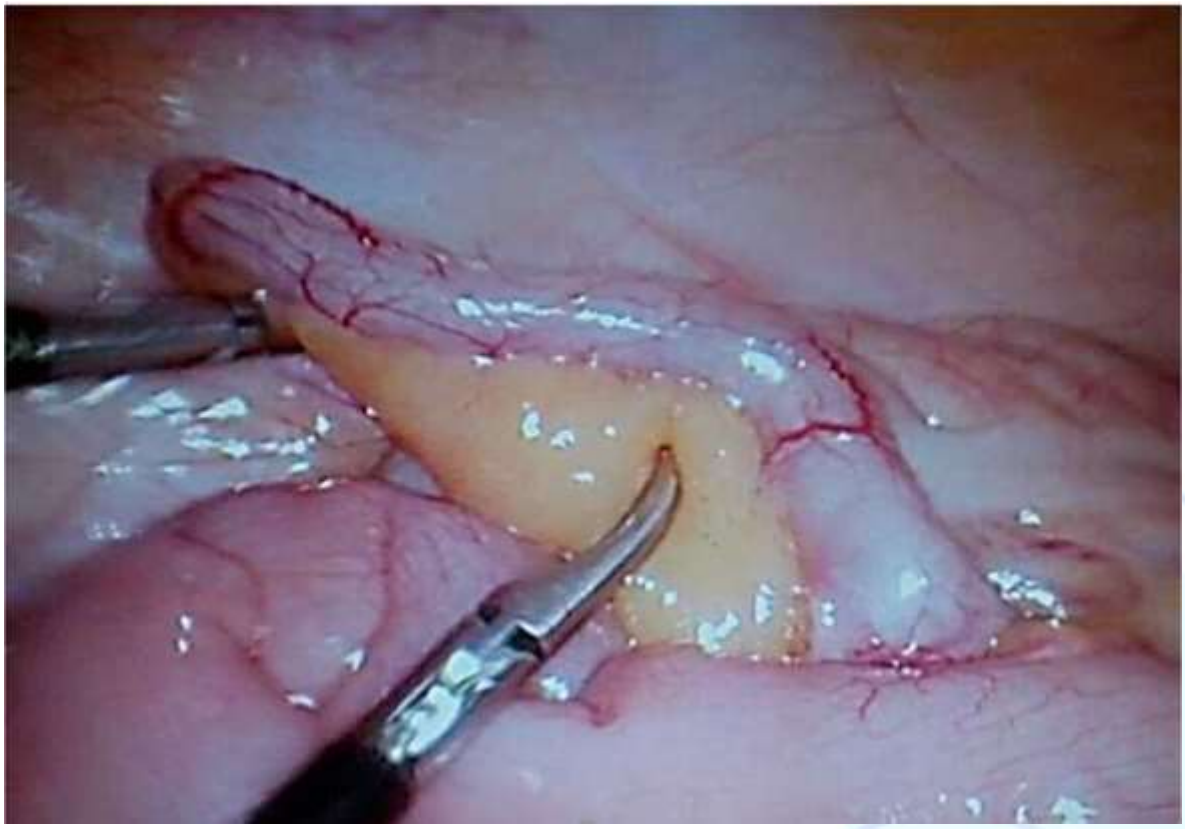

Figure 3.3 Uncomplicated acute appendicitis

Figure 3.4 Complicated form of acute appendicitis - appendicular peritonitis

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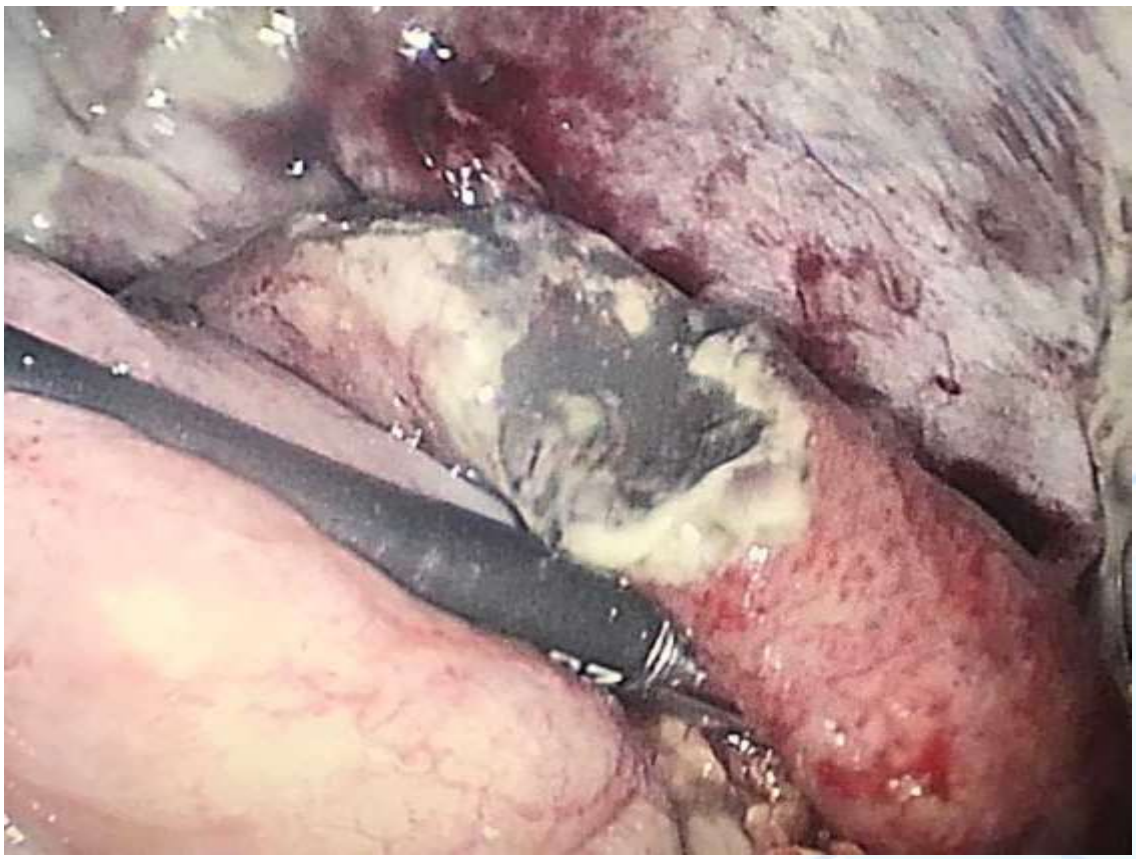

Figure 3.5 Complicated form of acute appendicitis - appendicular peritonitis

Our experience shows that contraindications to laparoscopic appendectomy in complicated forms of acute appendicitis are: dense appendiceal infiltrate, periappendiceal abscess, widespread purulent-fibrinous peritonitis accompanied by intestinal paresis and dense fibrinous adhesions with multiple interloop abscesses. We adhered to the following principles in determining indications, contraindications and choosing a surgical approach in patients with acute appendicitis: an indication for diagnostic laparoscopy was a clinically and instrumentally confirmed diagnosis of acute appendicitis, as well as the impossibility of excluding acute appendicitis during dynamic observation; a contraindication to laparoscopic appendectomy was an intraoperative picture of widespread diffuse peritonitis (which occurred in only 2.2% of cases); clinically and instrumentally confirmed appendicular infiltrate was a contraindication to surgical intervention; in the presence of an appendicular abscess, its drainage was performed under ultrasound guidance; intraoperatively detected appendicular infiltrate was a contraindication to appendectomy (in 0.5% of cases).

Diagnostic and therapeutic laparoscopy in abdominal trauma. Until

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recently, the use of laparoscopy in abdominal trauma was limited to diagnostics of damage to the abdominal organs and retroperitoneal space. Today, new laparoscopic methods of final hemostasis are used with great success in parenchymatous organ damage. In abdominal trauma, laparoscopy for diagnostics and treatment was used in 49 patients with abdominal trauma, 33 of them with closed trauma. Of the 33 patients with blunt abdominal trauma, damage was found in 17 (51.5%), and in 16 (48.5%) patients, they were excluded. Of the 17, 2 patients with liver damage and 15 with omental damage achieved final hemostasis laparoscopically. In case of closed abdominal trauma, the indications for laparoscopy were: unclear peritoneal symptoms, the presence of free fluid in the abdominal cavity with a volume of less than 500 ml with a tendency to increase (according to ultrasound data). In patients with penetrating abdominal wounds and the absence of clinical and instrumental data indicating the penetrating nature of these wounds, the indications for emergency laparoscopy were: thoracoabdominal wounds on the left; multiple stab wounds of the anterior abdominal wall (more than 5); the impossibility of conducting a revision of the wound channel along its entire length during primary surgical treatment (PSD) of the wound (muscle mass of the lumbar and gluteal regions); penetrating wounds of the abdominal wall (established during PSD of the wound) without clinical and instrumental signs of damage to the abdominal organs; thoracoabdominal wounds on the right with damage to the liver and hemoperitoneum in cases where liver wound suturing was performed through thoracotomy access. Contraindications to laparoscopy in abdominal trauma were: unstable hemodynamics (systolic blood pressure (SBP) less than 90 mmHg, heart rate (HR) more than 110 beats/min); peritonitis; presence of free gas in the abdominal cavity; hemoperitoneum with a volume of more than 500 ml (according to ultrasound data); pronounced adhesive process in the abdominal cavity. Indications for laparotomy during the primary examination of the abdominal cavity were: peritonitis; hemoperitoneum more than 500 ml; gastric or intestinal contents in the abdominal

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cavity. In 44% of cases, laparoscopic revision did not reveal injuries requiring treatment, and in 39.4%, indications for laparotomy were established. Indications for open surgery during diagnostic laparoscopy were: peritonitis; necrosis or doubts about the viability of the intestine; perforation of the intestinal wall; widespread adhesions.

Based on our own experience, we have developed the following indications for emergency diagnostic video laparoscopy, which coincide with the available literature data:

- impossibility of excluding acute diseases of the abdominal organs in the process of long-term differential diagnostics

- unconscious state (due to craniocerebral injury, alcohol or drug intoxication) of the patient, which does not allow excluding acute abdominal diseases or damage to internal organs

need to clarify the nature, stage, localization, prevalence of acute pathological changes or damage to internal organs to select the optimal method of treatment

- postoperative complications in the abdominal cavity, requiring certainty in continuing conservative treatment or surgical correction.

Thus, the use of laparoscopy in abdominal trauma made it possible to avoid laparotomy in 60.6% of patients. The average hospital stay was 4.6 days. The incidence of postoperative complications was 1.9%. There were no fatal outcomes associated with the use of laparoscopy.

CONCLUSIONS

1. Laparoscopic interventions for major urgent diseases of the abdominal organs are highly effective, possessing all the advantages of minimally invasive surgery and are quite safe, accompanied by a small percentage of intraoperative and postoperative complications in accordance with the nature of the operation

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2. Developed and applied treatment and diagnostic algorithms for urgent diseases allow determining treatment tactics, indications and contraindications, choosing a method of surgical treatment and establishing the timing of diagnostic and therapeutic laparoscopic interventions.

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