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Modern Laparoscopic Methods of Diagnosis and Treatment of Acute Abdominal Diseases

Nurboboyev Adhambek Uygunovich
Bukhara State Medical Institute

Abstract
standardization of the use of diagnostic and therapeutic laparoscopy is becoming one of the priorities of modern 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. Within the framework of general scientific and technological progress, the constant introduction of new technologies makes them an integral part of a particular field of medicine. In 2018 – 2020, 20493 operations were performed in the Bukhara hospital, of which 9461 (12.1%) were cavity operations. The examined group consisted of 2,479 (26.2%) patients with urgent diseases of the abdominal cavity, among all the abdominal operations performed in the period from 2018 to 2020 using laparoscopic technologies.

Keywords: laparoscopic equipment, abdominal cavity, abdominal surgery, abdominal trauma, fibro esophagogastroduodenoscopy.

Relevance: The current trend in the development of surgery is to reduce the invasiveness and traumaticity 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. Today, emergency surgery is impossible to imagine without laparoscopy. Despite the wide arsenal of non-invasive research methods, the diagnosis of acute surgical diseases of the abdominal cavity in some cases is very difficult. In this situation, the use of laparoscopy allows timely diagnosis and determination of surgical tactics. A comprehensive comprehensive analysis of the use of laparoscopic operations in emergency abdominal surgery and their improvement is 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. Within the framework of

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general scientific and technological progress, the constant introduction of new technologies makes them an integral part of a particular field of medicine. Today, emergency surgery is impossible to imagine without laparoscopy. In many complex cases, laparoscopy remains indispensable, as it allows you to give a direct visual assessment of the pathological process, identify its prevalence, perform a targeted biopsy and perform instrumental palpation. The use of the laparoscopic method in emergency abdominal surgery improves the quality of diagnosis and treatment compared to open methods and in most cases becomes the operation of choice for acute surgical diseases of the abdominal cavity. However, currently there are mixed opinions about the indications and contraindications for laparoscopy in acute diseases of the abdominal cavity. This circumstance requires the development of clear recommendations on the use of laparoscopic technologies in emergency surgery. Thus, standardization of the use of diagnostic and therapeutic laparoscopy is becoming one of the priorities of modern surgery. The aim of the study is to improve the results of surgical treatment of patients with acute surgical diseases of the abdominal cavity by improving diagnostic and therapeutic laparoscopy. Materials and methods of research: The work was performed in the Bukhara city Hospital on the basis of surgical departments. In 2018 – 2020, 20493 operations were performed in the Bukhara branch, of which 9461 (12.1%) were cavity operations. The examined group consisted of 2,479 (26.2%) patients with urgent diseases of the abdominal cavity, among all the abdominal operations performed in the period from 2018 to 2020 using laparoscopic technologies. The paper analyzes the results of a parallel comparative study of laparoscopic and open methods of surgical treatment. All the admitted patients were subjected to a comprehensive clinical study according to the generally accepted scheme using traditional laboratory and radiological methods, general clinical and biochemical studies were conducted; in-depth study of the coagulation system; overview radiography of the abdominal cavity, radiopaque studies of the gastrointestinal tract (gastrointestinal tract); computed tomography (CT), including with contrast, ultrasound examination (ultrasound) of the abdominal cavity and pelvis, magnetic resonance imaging in rare cases - to clarify the diagnosis; endoscopic studies of fibroesophagogastroduodenoscopy.According to the indications, patients with cholelithiasis underwent endoscopic retrograde pancreato-cholangiography, supplemented, if necessary, by endoscopic papillosphincterotomy. The patients subjected to laparoscopic examination and surgical treatment were aged from 23 to 77 years, while there were 961 patients older than 60 years (38.7%). The following laparoscopic operations were performed: laparoscopic cholecystectomy (LCE) 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 perforative ulcers of the stomach and duodenum (DPC) - 15 (0.6%) patients, laparoscopic cystectomy (gynecology) - 112 (4.5%), laparoscopic tubectomy -181 (7.3%), laparoscopic dissection of adhesions - 24 (0.9%) and laparoscopic ureterolithotomy - 64 (2.6%) patients. Table No. 1

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Types of laparoscopic operations in Bukhara Regional Hospital 2018-2020

Operations by year	2018	2019	2020	2018-2020
Diagnostic and therapeutic laparoscopy	12	21	16	49(1,9%)
Laparoscopic appendectomy	5	6	7	18(0,7%)
Laparoscopic cholecystectomy	603	708	673	1984(80%)
Laparoscopic suturing of perforations. ulcers	4	5	6	15(0,6%)
Laparoscopic dissection of adhesions	4	8	12	24(0,9%)
Laparoscopic cystectomy (gynecology)	35	30	47	112(4,5%)
Laparoscopic tubectomy	72	74	35	181(7,3%)
Diagnostic and therapeutic thoracoscopy	2	8	22	32(1,3%)
Ureterolithotomy			64	64(2,6%)
Total laparoscopic operations	737	860	882	2479

To assess the effectiveness of the technique of surgical intervention, the following indicators were evaluated: the duration of surgery, normalization of body temperature, the need for medical stimulation of the intestine, the recovery time of intestinal peristalsis, the time of activation of the patient, the volume of intraoperative blood loss, the duration of hospitalization, the need and duration of stay in the intensive care unit (ICU), the need and duration of the use of analgesics, the number and the severity of the intra- and postoperative complications, cosmetic defect after surgery, the need for repeated surgical interventions, the number of conversions.

Laparoscopic intervention was performed in a limited hermetic space (in the abdominal, thoracic cavity), which was created by the introduction of gas. A certain level of intra-abdominal pressure (12-15 mmHg) was created by introducing carbon dioxide into the abdominal cavity and was stably maintained throughout the operation, which provided favorable conditions for performing the necessary manipulations under the control of a laparoscope. The gas was injected through a Veresh needle by puncture of the anterior abdominal wall. The air cushion obtained in the abdominal cavity prevented damage to its organs during the introduction of trocars. A Veresh needle was inserted into the abdominal cavity through a small incision (up to 1 cm) in the umbilical region along the white line of the abdomen. To prevent damage to internal organs or vessels with a Veresh needle, the anterior abdominal wall was gripped with a brush into a longitudinal fold or a clamp and lifted up. After the creation of the pneumoperitoneum, trocars were inserted into the abdominal cavity, starting with the paraumbilical, through which a laparoscope was inserted into the abdominal cavity. Other trocars were administered under visual laparoscopic control. Laparoscopic instruments were introduced through trocars, with the help of which laparoscopic intervention was performed.

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Results and discussions:

As a result of 1984 laparoscopic cholecystectomies (LCE), complications of LCE for acute cholecystitis were observed in 14 (0.8%) patients. Parenchymal bleeding from the gallbladder bed was observed in 11 (0.6%) patients; in all, bleeding was stopped by laparoscopic coagulation (Table 4.). Damage to the extrahepatic bile ducts occurred in 3 (0.2%) patients and required laparotomy. In 2 observations, a lateral lesion of the choledochus was sutured. Completely crossed hepaticocholedoch 1 patients were restored on the drainage of the Kerus.

Table No. 2. Intraoperative complications of laparoscopic cholecystectomy

Types of complications	Number of abs patients (%)
Bleeding from the gallbladder bed	11 (0,6%)
Damage to extrahepatic bile ducts	3 (0,2%)
Total	14 (0,8%)

Damage to the bile ducts is facilitated by various anatomical variants of the structure and mutual disposition of the tubular structures of the hepatoduodenal ligament. An extremely dangerous situation is when the common hepatic duct is attached directly to the neck of the gallbladder, and the latter has a short duct. We have repeatedly encountered similar cases, but in one of them we could not avoid a complete intersection of the common bile duct.

Damage to the hepaticocholedocha can also occur in the absence of anatomical prerequisites, if the technique of performing the operation is violated. These are the so-called “classic” cases of duct injury. They occur when excessive traction of the gallbladder is created. In order to prevent complications in the isolation of the cystic duct and artery, we use the following technique: using an electric hook, we dissect the peritoneum from the lateral side of the gallbladder to the level of the confluence of the cystic duct into the common hepatic duct, then we isolate the medial wall of the gallbladder with mandatory tissue preparation behind the cystic duct. Thus, the shape of the neck is created according to the type of “elephant trunk”, which makes it easy to differentiate the cystic duct to the confluence with the common hepatic duct. If damage to the hepaticocholedochus is detected during surgery, it is advisable to apply its primary suture with a duct width of at least 5 mm with a sufficient wall thickness. Reconstructive surgery requires an experienced surgeon, the necessary tools and suture material.

In the postoperative period, complications occurred in 22 (1.1%) patients: bile drainage from the abdominal cavity — in 8 (0.4%), subhepatic abscess in the bed of the gallbladder — in 2 (0.1%), suppuration of epigastric puncture was observed — in 12 (0.6%) patients. (table.3.)

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Table 3. Complications after laparoscopic cholecystectomy

Types of complications	Number of abs patients (%)
Bile drainage from the abdominal cavity	8 (0,4%)
Subhepatic abscess in the bed of the gallbladder	2 (0,1%)
Suppuration of the epigastric puncture	12 (0,6%)
Total complications	22 (1,1%)8

Laparoscopic interventions made it possible to reduce the length of stay of patients in the hospital (by 22.2 - 37.5%), reduce the percentage of unnecessary laparotomies (by 15-25%), shorten the time of diagnosis, eliminate the occurrence of postoperative hernias, reduce the appointment of narcotic analgesics, transfer patients to enteral nutrition at an earlier date.

Laparoscopic interventions for major urgent diseases of the abdominal cavity are highly effective, having 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

The developed and applied therapeutic and diagnostic algorithms for urgent diseases make it possible to determine therapeutic tactics, indications and contraindications, choose a method of surgical treatment and set deadlines for diagnostic and therapeutic laparoscopic interventions.

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