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LAPAROSCOPIC OPERATIONS PERFORMED IN URGENT SURGERY*Makhmanazarov O.M.*<https://rcid.org/0009-0003-9231-7186>*Bukhara State Medical Institute named after Abu Ali ibn Sino*

Summary: It is safe to say that the number of urgent operations performed using the laparoscopic method will steadily increase. Laparoscopic examinations under local anesthesia have been replaced by video laparoscopic examinations under combined endotracheal anesthesia. Over time, laparoscopy has evolved from a diagnostic procedure into a diagnostic method that allows one to perform a full-fledged surgical operation (Urokov Sh.T. 2014).

Key words: Acute abdomen, Diagnostic laparoscopy.

Relevance: In addition to expanding the range of operations and improving the skills of surgeons, the number of technical innovations in laparoscopic surgery is also growing, which were once more appropriate in science fiction novels than in the operating room, and now they can be considered the near future of video laparoscopic surgery. In 1989, P. Mouret and Namir Katkhouda began performing laparoscopic operations for duodenal ulcer (trunk vagotomy) [16], and in 1992, P. Goh and CK Kum performed laparoscopic resection of 2/3 of the stomach using the Billroth technique 2 [10]. The development and implementation of laparoscopic operations in the treatment of hernias of the anterior abdominal wall is associated with the works of Ralph Ger [17]. In 1989, he and his students performed laparoscopic intraperitoneal closure of the neck of the hernial sac in an experiment on dogs.

The founders of laparoscopic operations for hiatal hernias are Alfred Cuschieri, LK Nathanson and S. Shimi, who performed gastropexy of the round ligament of the liver in 1991 [18]. At the same time, B. Dallemagne performed the first laparoscopic Nissen operation [19]. For the first time, laparoscopic cholecystectomy in the Republic of Russia, which marked the beginning of the rapid advance of laparoscopic technology on traditional operations, was performed by Yu.I. Gallinger in 1991 at the Scientific Center of Surgery of the Russian Academy of Medical Sciences. And in the Republic of Uzbekistan, the first operation using laparoscopic technology was performed by Akbarov M.M. at the Republican Specialized Scientific and Practical Medical Center for Surgery named after Academician V. Vakhidov. A group of doctors in 1991, under the leadership of Professor O.E. Lutsevich, for the first time in Russia, the following were performed: laparoscopic hernioplasty; thoracoscopic pericardiectomy; thoracoscopic sympathectomy; laparoscopic anterior seromyotomy with posterior

truncal vagotomy; suturing of a perforated duodenal ulcer; laparoscopic appendectomy for destructive appendicitis using a stapler; laparoscopic cholecystectomy for acute gangrenous cholecystitis complicated by diffuse peritonitis. [44,51, 55,66,68]. In 1993-1994 E.I. Segal reported thoracoscopic removal of mediastinal tumors and lobectomy. In 1993, for the first time O.E. Lutsevich performed laparoscopic gastrectomy according to Billroth 1, and later according to Billroth 2 and Roux. In 1993, Professor V.P. Sazhin performed a laparoscopic resection of the sigmoid colon, and in 1995 a laparoscopic gastrectomy. In 1995 I.S. Malkov performed laparoscopic choledochoduodenostomy. In 1996, Professor S.I. Emelyanov performed a laparoscopic adrenalectomy. In 1996 A.A. Gulyaev reported on thoracoscopic esophagectomy. In 1998 O.E. Lutsevich is the first in Russia to perform radical nephrectomy for kidney cancer, and in January 2007 I.E. Khatkov performed the first laparoscopic pancreatoduodenectomy in Russia for cancer of the head of the pancreas [20]. Coloproctology is today one of the fastest growing areas of endovideosurgery. Laparoscopic colorectal surgery originated in the early 90s. XX century, when Moises Jacobs in Miami, Florida, in June 1990 performed the world's first laparoscopically-assisted right hemicolectomy with the formation of an extracorporeal anastomosis through a minilaparotomy incision [21]. In the same year, P. Lahey performed a resection of the sigmoid colon, and D. Flower performed a left-sided hemicolectomy for cancer. Subsequently, reports on the performance of laparoscopic interventions for inflammatory and tumor diseases of the colon increasingly began to appear in the literature. In 1994, W Geis developed a classification that reflects the degree of complexity of the technical execution of operations in increasing order: right hemicolectomy, resection of the sigmoid colon, Hartmann's operation, resection of the rectum, abdominal-anal resection of the rectum, left-sided hemicolectomy, resection of the transverse colon. The author identified 3 main stages of the operation: endoscopic mobilization, isolation and ligation of feeding vessels, formation of an anastomosis [22].

Laparoscopic surgery in oncoproctology has a number of technical features: the need for visualization of several parts of the abdominal cavity at once, the possibility of moving the mobilized intestine from one field of action to another, the need for a wide dissection of the peritoneum and mobilization of the intestinal mesentery and its tissue with regional lymph nodes. In almost all operations there is a need to cross the intestine and form an interintestinal anastomosis.

The expansion of the range of laparoscopic instruments and the development of new methods of surgical interventions currently make it possible to perform over 80% of abdominal operations using laparoscopic technologies. Such advantages of laparoscopic operations as small incisions and punctures of the abdominal wall, less intensity of pain after the intervention, rapid restoration of the functions of the digestive tract, shorter duration of treatment for the patient in the hospital, and rapid rehabilitation

of patients have created a kind of advertising for such operations. Patients often insist on using these minimally invasive surgical methods for their treatment. This, of course, contributed to the rapid development of new surgical technology, however, at the same time, it contributed to the desire of some surgeons to resort to inadequate laparoscopic interventions, often going beyond the established indications and neglecting generally accepted contraindications and principles for choosing the method of intervention.

Advantages of laparoscopic surgery compared to open interventions:

- reduced surgical trauma, less blood loss, less severity of postoperative pain syndrome, absence of a large incision in the abdominal wall;
- reduction in the frequency of complications, in particular, long-term postoperative intestinal paresis, the formation of adhesions, and infectious complications; prevention of such severe postoperative complications as eventration, extensive postoperative hernia of the anterior abdominal wall;
- reducing the duration of treatment of a patient in hospital after surgery by 2-3 times;
- reducing the duration of the rehabilitation period and restoration of performance by 3-4 times;
- better cosmetic effect;
- reducing the cost of treatment by reducing hospital expenses.

However, laparoscopic operations, like any other surgical treatment methods, have some disadvantages that limit their use:

- lack of possibility of direct visual control (two-dimensional image on the monitor);
- limited possibility of tactile assessment of the condition of organs (consistency, presence of tumors, etc.);
- the positions of the optical axis and the angles of action of the instruments have a relatively fixed coordinate system;
- as a rule, the duration of large-scale laparoscopic operations is longer compared to similar open interventions;
- for manipulations in the abdominal cavity, its volume is artificially increased by creating pneumoperitoneum, which negatively affects the state of the cardiovascular and respiratory systems, and this, under certain conditions, increases the risk of performing surgical intervention (the method of gasless “lifting” laparoscopy is now being actively developed, when mechanical abdominal wall lifts are used instead of pneumoperitoneum).

Although laparoscopy is classified as a minimally invasive, low-traumatic technology, its use may result in severe intra- and postoperative complications. Conventionally, they can be divided into two groups:

1. Specific complications inherent only in laparoscopic interventions.
2. Complications caused by the nature of the pathological process and the type of

surgical intervention, which can occur both after laparoscopic and after similar open interventions.

Specific complications of laparoscopy include:

- subcutaneous emphysema, pneumoperitoneum (injection of gas into the greater omentum), pneumomediastinum, pneumothorax, which can occur during insufflation of gas into the abdominal cavity;
- damage to the vessels of the anterior abdominal wall by a Veress needle or trocars;
- damage to internal organs or blood vessels by a Veress needle or trocars;
- thromboembolic, ischemic complications, gas embolism caused by pneumoperitoneum, limited respiratory excursion of the lungs, impaired venous outflow from the abdominal organs as a result of increased pressure in it, etc.

Laparoscopic surgery places more stringent requirements for preoperative examination and preparation of the patient for surgery, which is due to a certain limitation in the possibilities of revision of the abdominal organs during laparoscopy. When preparing a patient for laparoscopic intervention, it is necessary to carefully prepare the intestines, perform pneumatic compression or bandage the lower extremities; Gastric drainage and bladder catheterization are mandatory. When performing laparoscopic operations, it is possible to perform intra-abdominal ultrasound, intraoperative contrast cholangiography and other studies

Conventional intraoperative non-invasive monitoring involves: a constant recording of intra-abdominal pressure;

- determination of heart rate, blood pressure;
- ECG;
- control of respiratory rate, tidal volume, etc.;
- determination of CO₂ pressure at the end of exhalation;
- determination of oxygen saturation (SaO₂).

The priority of laparoscopic surgical interventions is indisputable. However, in some situations, continuing and completing the operation laparoscopically may not be possible for a number of reasons. In such a situation, the surgeon resorts to conversion - switching to open intervention. Timely, reasoned adoption by the surgeon of such a decision is very important in preventing the occurrence of extremely severe intraoperative complications. The eminent European surgeon J. Perissat (France) believed that the decision to convert is based on three main questions: why switch to conversion, when to switch and how to switch?

The absolute indication for conversion is the presence of a complication that cannot be eliminated laparoscopically (bleeding, damage to abdominal organs - intestines, stomach, ureter, extrahepatic bile ducts, etc.).

The second absolute indication for conversion should be considered damage to the laparoscopic complex or instruments, which makes it impossible to continue the

laparoscopic intervention.

The transition to conversion “according to common sense” should be considered absolutely justified in case of significant technical difficulties in performing the operation, primarily in the presence of pronounced inflammatory and infiltrative changes in the operated and surrounding organs and tissues, a large abscess, etc. A very common reason for conversion is insufficient experience of a laparoscopic surgeon. The conversion rate is determined not only by the experience of the laparoscopic surgeon, but also by the complexity, nature of the pathological process, and other factors. When performing laparoscopic cholecystectomy for uncomplicated cholelithiasis, conversion is used 2.5-4 times less often than during operations for acute cholecystitis (in 8-10% of cases), the technique of which is much more complex in conditions of the inflammatory process. The experience of the clinic of surgical diseases and intensive care of the Bukhara State Medical Institute convincingly demonstrates the advantages of laparoscopic operations compared to open ones, which is reflected in the qualitative characteristics of the postoperative period:

- refusal of narcotic analgesics after surgery;
- reducing the frequency of postoperative complications, especially those associated with prolonged intestinal paresis and prolonged physical inactivity, infection of the surgical wound;
- reducing the duration of postoperative treatment of patients in the hospital (for example, after cholecystectomy, in the absence of complications, young and middle-aged patients are discharged the next day after surgery);
- a significant reduction in the duration of medical and social rehabilitation of patients (1.5-2 times).

The main directions of its development should be:

- differentiated use of laparoscopic technologies depending on the stage of development of the inflammatory process in the abdominal cavity (acute cholecystitis, pancreatitis, peritonitis);
- development and implementation of a set of measures to prevent and prevent complications of the underlying disease;
- widespread introduction of programmable relaparoscopy for dynamic monitoring of the affected organ.

Repeated dynamic laparoscopy is absolutely indicated for acute purulent-inflammatory diseases of the abdominal organs, which are accompanied by peritonitis and severe endogenous intoxication, which is an important measure to prevent the development of multiple organ failure.

Today, the range of laparoscopic surgical interventions on organs located in the retroperitoneal space is somewhat limited (up to 3%). Video review of the retroperitoneal space allows you to perform puncture, drainage, opening of abscesses,

drainage of pancreatic cysts, operations - video endosurgical sympathectomy, kidney resection for cysts, adrenalectomy and others.[14.25,72,76].

The rapid development of laparoscopic surgery after a period of mastering almost all types of surgical interventions has not exhausted all its potential capabilities and requires improvement in new areas of surgery:

- further reduction in the morbidity of laparoscopic interventions due to the use of laparoscopic instruments with a diameter of 2.5 mm;
- the ability to perform combined surgical interventions (with manual assistance), expanding their range;
- differentiated use of laparoscopic technologies, in particular, in the gastric cavity in the event of ulcerative bleeding, in the presence of polyps complicated by bleeding, in cases of early forms of cancer;
- reducing the duration of performance and increasing the reliability of laparoscopic operations due to the introduction of new technologies, development and implementation of new instruments and devices;
- improving the quality and increasing the reliability of coagulation through the introduction of new types of coagulators.

Recent advances in science and technology can significantly expand the capabilities of laparoscopic surgery. Thus, modern developments in the electronics and television industry have just been realized in the creation of video systems with color images in three dimensions, which helps to avoid the problems associated with two-dimensional images of the surgical field on a conventional video monitor. Virtual computer technologies facilitate the training of surgeons, help them quickly master the methods of laparoscopic operations using video simulators, as well as conduct an objective examination of their technical skills.

Computer reproduction of the shape and structure of organs based on the results of endoscopic, x-ray, ultrasound and other research methods makes it possible to design a future operation on a computer screen (like a virtual game), and then, as if using a template, perform it in reality. In this direction, the greatest achievements have been made by scientists from the European Institute of Telesurgery (Strasbourg, France). They created a system for constructing a computer template of the liver and virtual design of a method for its resection, and more.

It can be summarized that the main factors that make it possible to widely use laparoscopic access in the treatment of acute surgical diseases and injuries of the abdominal organs are: the organization of technical support and the inclusion in the duty team of a surgeon who knows the basics of endosurgical techniques; strict adherence to indications and contraindications for the use of the technique in order to avoid its discredit; continuous training and improvement of specialists, which makes it possible to meet global surgical standards. The use of laparoscopy is accompanied by a

significant reduction in the incidence of postoperative complications and deaths, a reduction in the length of hospital treatment and rehabilitation, and improves the quality of life of patients. It can be noted that today video laparoscopic surgery is one of the most dynamically developing areas of modern medicine. The vast majority of surgical procedures can be performed laparoscopically. Small surgical access, low tissue trauma, abacteriality of the operation, wide possibilities for instrumental revision, gentle technique, reduced risk of various postoperative complications, short periods of rehabilitation, return to a normal lifestyle and ability to work, as well as a pronounced cosmetic effect are the factors that have become determining for the introduction of video laparoscopic interventions in clinics around the world.

However, in recent years there has been a tendency to increase the share of laparoscopic operations, which ranges from 7% to 65% for various nosologies, reaching 35-76% in leading emergency clinics [3,14,20, 51,53,59, 79 , 82]. There is also a clear tendency towards expanding indications and narrowing contraindications for each nosology, for example, destructive perforated appendicitis was recently considered a contraindication for LAE, and now many authors successfully treat these forms laparoscopically, etc. [81] Despite a number of complex and still unresolved issues of surgical tactics and surgical technique, laparoscopic surgery is an extremely interesting and pressing problem of modern surgery, requiring comprehensive study and development of its methodological aspects.

There is no doubt that the accumulation of scientific and practical experience will show the advantages and disadvantages of these methods and will make it possible to determine in detail the indications and contraindications, possibilities and limitations of these methods. However, even at this stage of development of emergency endoscopic surgery, it becomes obvious that the use of these methods significantly changes our ideas about traditional tactics and techniques of urgent surgical interventions. New technologies on which the laparoscopic method is based determine its main differences from the traditional surgical method [27, 33, 38, 59, 71]. Among the many requirements, the requirement to ensure maximum safety for the patient should be highlighted. From this point of view, it is impossible to bypass such a concept specific only to laparoscopic surgery as conversion (from the Latin *Sopuegao* - change, transformation). This is a transition from the laparoscopic method of performing an operation to the traditional open one in order to eliminate errors or complications made during the operation [8, 229, 338]. Despite the improvement of surgical techniques and the introduction into practice of new techniques aimed at preventing intraoperative complications, the problem of switching to laparotomy during laparoscopic operations does not lose its relevance today. In this regard, the question arises of predicting a non-standard intraoperative situation based on the analysis of data from a physical examination of the patient, laboratory parameters and the results of laparoscopic revision of the abdominal

cavity. And the study of the immediate and long-term results of laparoscopic operations, analysis of the nature and causes of complications of this operation, will allow us to systematize the approach to choosing the method of operation for urgent diseases of the abdominal organs. Many authors provide for the following points in improving the organization of emergency laparoscopic care: 1. Further development of the material and technical base of emergency clinics. 2. Conducting scientific research on the use of laparoscopic methods in emergency abdominal surgery. 3. Improving the quality of training of surgeons for the profiling of intraluminal endoscopic and laparoscopic care, and the creation of specialized laparoscopic teams [69]. At the present stage, new requirements are being placed on the training of surgical specialists, caused by a significant increase in the share of minimally invasive interventions in clinical practice. To date, there are more and more reports in the literature on the use of laparoscopic interventions in emergency abdominal surgery, on the basis of which it is not always possible to objectively evaluate all the positive and negative aspects of the laparoscopic method, their diagnostic value and effectiveness in the treatment of major urgent diseases [32,48,59].

Thus, by the end of the 20th century, most traditional operations became possible to perform using the endovideosurgical method. Laparoscopic operations turned out to be the most effective in cases where the trauma of access to the lesion was many times greater than the volume and trauma of the main stage of the intervention. The numerous advantages of laparoscopic access have even made it possible to classify a number of operations as the “gold standard”. Currently, endovideosurgery is one of the advanced and dynamically developing areas of modern surgery, which makes it possible to significantly improve the quality of medical care provided and improve the rehabilitation of patients.

To summarize, it can be noted that 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 organs [26]

However, at present, there are controversial opinions about the indications and contraindications for laparoscopy for acute diseases of the abdominal organs. This circumstance requires the development of clear recommendations for the use of laparoscopic technologies in emergency surgery. Thus, standardization of the use of diagnostic and therapeutic laparoscopy becomes one of the priorities of modern surgery.

Therefore, research aimed at improving the results of surgical treatment of patients with acute surgical diseases of the abdominal organs, by improving diagnostic and therapeutic laparoscopy, is relevant for solving the above problems and improving the results of surgical treatment of patients with acute surgical diseases.

Conclusion: Laparoscopic interventions for major urgent diseases of the

abdominal organs 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

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