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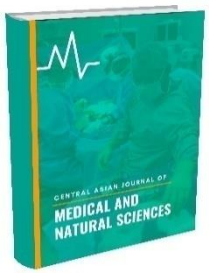

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Experience of using Minimally Invasive Interventions in Patients with Closed Trauma of the Abdominal Organs

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Annotation: Despite the improvement of clinical diagnostic methods for abdominal trauma, the creation and increasing use of clinical electronic standards by surgeons, the high capabilities of modern ultrasound devices and computed tomography, the problem of diagnosing acute surgical pathology of the abdominal organs remains extremely urgent. The frequency of erroneous laparotomy in acute surgical pathology is, according to various authors, from 15 to 45%, significantly increasing with wounds and injuries. At the same time, mortality after exploratory laparotomy is in the range of 35–45%.

Key words: Closed trauma, abdominal organs, laparoscopic operations.

Introduction

It should be emphasized that among the published works, only a few are devoted to the peculiarities of therapeutic and diagnostic tactics for abdominal injuries in victims with concomitant trauma. In particular, there are no clear criteria in determining the sequence of diagnostic measures, specific indications for conservative treatment of damage to parenchymal organs. At the same time, the severity of the condition of victims with concomitant trauma to the brain, chest, pelvis, extremities makes strict requirements for the choice of the scope of diagnostic and therapeutic measures. There is a steady increase in the frequency of traumatic liver injuries, as a rule, combined with damage to other organs and systems: trauma to the chest (67-27.5%), skull (54-22.2%), pelvis (37-15.2%), upper and lower extremities (82–33.7% and 5–2.0%, respectively), spine (11–4.5%).

Purpose of work

To study the effectiveness of using minimally invasive operations in patients with closed trauma to the abdominal organs.

Materials and research methods

Over the past 10 years, 767 patients with severe concomitant and multiple trauma of the abdominal organs have been admitted to the emergency abdominal surgical department of Ferghana Branch of the Republican Scientific Center for Emergency Medical Aid of the Republic of Uzbekistan. All patients underwent conventional diagnostic methods according to the algorithm we developed: X-ray of the

chest and abdominal cavities, head and extremities, ultrasound of the abdominal organs, laboratory research methods.

The purpose of the ultrasound examination was to: detect and assess the localization and amount of free fluid in the abdominal cavity; assessment of the state of the parenchymal organs; identification, localization and determination of the volume of retroperitoneal hematoma. In the absence of indications for emergency surgery, patients underwent a mandatory dynamic ultrasound examination. The time interval between examinations was determined individually, depending on the data obtained during the primary ultrasound examination: if an injury to the abdominal organs was suspected, an ultrasound examination was performed every 0.5-1 hour. Even in the absence of clinical and instrumental data for possible damage to the abdominal organs, the ultrasound examination was repeated without fail 12-24 hours after the initial examination.

Ultrasound diagnostics of the abdominal and thoracic cavities was performed in 387 (50.5%) patients. Of these, 137 (17.9) underwent dynamic ultrasound monitoring of the state of internal organs for 1-3 days. In addition, in 182 (23.7%) patients, in addition to ultrasound examination, we performed contrast-enhanced computed tomography on a device. This research method has a high diagnostic value, but it is not always applicable due to the high cost of the examination. As an alternative to CT, patients underwent magnetic resonance imaging (MRI). The main advantages of the MRI method include: non-invasiveness, no radiation exposure, the ability to obtain an image in any plane and perform three-dimensional reconstructions, the absence of artifacts from bone structures, high resolution in visualization of various tissues, and almost complete safety of the method. Of the total number of 319 (41.6%) patients as a result of examination, in 147 (19.1%) patients with stable hemodynamics and no signs of peritonitis, computed tomography and ultrasound revealed minor injuries of the abdominal cavity and chest organs, which made it possible to conduct such patients conservatively without performing minimally invasive and traditional surgical interventions. In 67 (8.7%) patients, after ultrasound examination, puncture of the abdominal cavity was performed using the "ball catheter" method, followed by draining of the abdominal cavity through the trocar with a PVC tube and injecting up to 300 ml of aseptic fluid. However, this research method has a large percentage of errors and the risk of organ damage in the presence of adhesions in the abdominal cavity and other reasons. The most informative method for diagnosing injuries of the abdominal organs is laparoscopy. A qualitatively new stage is video laparoscopy with the use of additional 2-3 ports, through which laparoscopic instruments are introduced into the abdominal cavity, allowing a detailed examination of all organs, establishing and assessing the nature of injuries, and also performing minimally invasive laparoscopic interventions in some cases. All laparoscopic examinations were performed using general anesthesia. In case of severe concomitant trauma, we necessarily performed an X-ray examination of the chest before video-laparoscopic examination of the patient. In the presence of hemopneumothorax, we performed preventive puncture of the pleural cavity with subsequent drainage of the damaged half of the chest according to Bulau. In the presence of multiple rib fractures and hemopneumothorax of a significant volume, we performed thoracoscopy followed by drainage of the pleural cavity. In case of shock and coma, we carried out anti-shock measures, infusion therapy aimed at restoring the volume of circulating plasma, and artificial ventilation of the lungs.

Research results and their discussion

Of 237 (30.9%) video laparoscopies performed in 63 (8.2%) patients during the production of diagnostic laparoscopy, liver damage of grade 3-4 was revealed. by LIS. All these patients underwent conversion and laparotomy operations with suturing of liver wounds were performed **.** Of 160 (20.9%) liver operations in 52 (6.8%) cases, we performed suturing of a liver rupture using an endoscopic suture. The rupture line after suturing was sealed with Tachocomb. In 11 (14.3%) cases, with small ruptures of the parenchyma, the line of liver rupture was coagulated using both mono- and bipolar

electrocoagulation. In 34 (4.4%) cases, we used argon plasma coagulation to stop bleeding. In two cases, when the liver rupture line passed in the III-IV segments and the gallbladder was damaged, laparoscopic cholecystectomy was performed, followed by suturing or coagulation of the rupture line. In 41 cases with liver injury grade III on the scale (LIS), when there was a subcapsular hematoma of more than 25-50% of the liver surface with ongoing bleeding. The abdominal cavity was necessarily drained in the right hypochondrium with polychlorinated vinyl drainage. In 30 (3.9%) cases, in addition to liver damage, injuries to other abdominal organs were diagnosed: - stomach - 7 (0.9%) cases; - small intestine - 11 (1.4%) cases; - intestinal mesentery - 17 (2.2%) cases; - spleen - 5 (0.6%) cases; - bladder - 2 (0.2) cases. In 7 (0.9%) cases with a penetrating abdominal injury, a stomach injury was diagnosed in the area of the anterior surface of the stomach body, closer to the greater curvature in the first case and in the cardiac part of the stomach. -muscular sutures on the line of damage, followed by sealing the sutures with an omentum. In 17 (2.2%) cases, minor bleeding from mesenteric ruptures was diagnosed, which were stopped by bipolar coagulation, and in 15 (2%) cases by suturing the bleeding vessels. In 11 (1.4%) cases, with small intestinal wounds, 1-2 sutures were applied to the intestinal wound. In 2 (0.3%) cases, a slight damage to the intraperitoneal part of the bladder of II – III grade was diagnosed. (UBIS). The damaged bladder wall was sutured with intracorporeal sutures, followed by an epicystostomy. The possibilities of laparoscopic techniques for spleen injury are assessed in different ways. There is an opinion that their use should be recognized as inappropriate. Some surgeons perform organ-preserving endovideo-laparoscopic interventions if the spleen is damaged or ruptured. For spleen surgery, we use the SIS scale. In two cases, organ-preserving laparoscopic interventions were performed in patients with closed trauma. Laparoscopy revealed full, up to 0.3-0.5 cm deep, small up to 0.8 cm ruptures of the parenchyma, from which, after removal of blood clots, slight bleeding was noted. The rupture of the spleen belonged to the 1st century. on the SIS scale. Two patients underwent electrocoagulation with the achievement of reliable hemostasis and subsequent fixation to the rupture line "Tachocomb". After draining and washing, the abdominal cavity was drained through a counterperture in the left hypochondrium in the subphrenic space. No recurrence of bleeding was observed. In the long-term period, the condition of the patients remains satisfactory. With injuries of the spleen III, IV, V grade on the SIS scale, laparoscopic stopping the bleeding fails, and we performed a laparotomy. In the early postoperative period, we identified the following complications after laparoscopic operations (the number of operations - 237 (30.9%)): intraoperative bleeding - in one case. As a consequence of the impossibility of reliable stopping of bleeding, we performed a conversion - a transition to laparotomy with suturing of the vessels and stopping bleeding. In addition, in the postoperative period, we noted the following complications out of 237 operated patients: bile leakage - 3 (0.4%); intrahepatic abscess - 1 (0.1%); pancreatitis - 5 (0.7%); - wound infection - 3 (0.4%); - pneumonia - 9 (1.1%). In 63 (8.2%) patients during the production of diagnostic laparoscopy, liver damage of grade 3-4 was revealed. by LIS. All these patients underwent conversion and laparotomy operations with suturing of liver wounds were performed. Thus, out of 767 patients admitted to the clinic with severe concomitant trauma, with the prevalence of trauma to the abdominal cavity and chest organs, as a result of the diagnostic algorithm, using laboratory research methods, ultrasound, CT. in 175 (22.8%) patients, no significant damage to the abdominal cavity was revealed, the hemodynamic state remained stable. These patients underwent conservative therapy and dynamic observation. In 190 (24.7%) patients, the examination revealed unstable hemodynamics, massive bleeding, severe trauma to the abdominal organs, which required an emergency laparotomy operation. Of 767 patients, 237 (30.9%) underwent laparoscopy, during which 47 (6.1%) did not find any damage to the abdominal organs and the operation was completed with drainage in the abdominal cavity in 25 (3.2%) cases. In 190 (24.8%) patients, laparoscopic operations were performed on the liver, spleen, mesentery of the small and large intestine, and pancreas.

Conclusions

Video laparoscopic examination of the abdominal organs allows avoiding unnecessary laparotomies, which significantly reduces mortality in patients with severe concomitant trauma and concomitant somatic pathology. Laparoscopic operations in patients with polytrauma with liver damage are a highly effective, low-traumatic surgical technique and significantly reduce mortality in this severe category of patients.

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