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Emergency Surgical Tactics in Case of Damage to the Duodenum

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Abstract : The paper presents modern data of domestic and foreign literature on modern methods of diagnosis and treatment of patients with duodenal trauma. As a result of the introduction of new diagnostic methods, the use of somatostatin analogues, antibacterial drugs, immunotherapy, some improvement in treatment results is noted, however, mortality in case of damage to the duodenal intestine remains at a rather high level - 30.5-80.0%, and with the development of complications reaches 100.0%

Key words: trauma, duodenum, diagnosis, surgical treatment, complication.

Duodenal injury is one of the most severe in terms of both diagnosis and treatment. The issues of diagnostic and therapeutic tactics still cause many disagreements and questions among modern surgeons.

Epidemiology. Among the victims with injuries of the abdomen and waist injury duodenal found in 2.11 % of cases. The isolated duodenal injury is extremely rare. In 88.7 % of cases damage to the duodenum combined with pancreatic lesions, liver, stomach, spleen, small and large intestines . Mortality in case of damage to the duodenum according to domestic data reaches from 16.6 to 90.5%. According to a number of authors, the share of mechanical damage to the duodenum in the structure of trauma to the digestive system is about 10%. Other researchers believe that that the share of damage to this organ accounts for from 0.4% to 6.5% of observations. Analysis of the literature showed that damage to the duodenum in men is recorded much more often - from 71 to 97 %, in women - from 3 to 36%. Thereareobservations in which there were only men among the victimsA.Kh. Davletshin notes that the ratio of men and women with duodenal injury is 10: 1. According to A.S. Novikov, more than 90% of the victims were under the age of 50. Mechanisms of damage to the duodenum In closed injuries to the duodenum, a strong blow to the anterior abdominal wall or the lumbar region with a blunt object is usually Open injuries to the duodenum are found in abdominal injuries, including gunshot wounds. Stab wounds to the duodenum are characterized by isolation of injuries, in contrast to gunshot injuries, which differ in a large area of destruction and multiplicity of damage. Iatrogenic injuries observed with endoscopic papillosphincterotomy; In retrograde cholangiopankreatography (ERCP) duodenal damage observed in 1.0% of cases. Described rare cases chemical damage duodenum, when burns nitric acid and alkali, which were used either by accident or with suicidal purpose classification In the present time the standard is the classification of lesions Duodenum of scale Organ injury scale (OS) of the American Association surgeons traumatologists, created under the guidance E.E. Moore.

Diagnosis. There are no pathognomonic symptoms of damage to the duodenum, therefore the diagnosis of such damage presents certain difficulties. The most informative methods for diagnosing duodenal lesions are: computed tomography (CT), fibrogastroduodenoscopy (FGDS), X-ray methods, ultrasound (ultrasound), laparoscopy, and laboratory tests. CT is the most sensitive method for detection in the retroperitoneal space, air or blood. In order to increase the diagnostic capabilities of CT, a water-soluble contrast is injected into the duodenum, and it becomes possible to determine the release of the contrast beyond the duodenum through a defect in its wall. EGD is one of the most informative methods of instrumental diagnostics of duodenal lesions. In case of retroperitoneal duodenal lesions, duodenoscopy is the only method of accurate and rapid topical diagnosis. In the literature, there are only a few works on the use of gastroduodenoscopy in the diagnosis of closed damage to the duodenum. Plain X-ray of the abdominal organs provides the detection of the presence of free gas and free fluid in the abdominal cavity, indirect signs of inflammation and damage (emphysema of the retroperitoneal space), increased clarity the right contour of the kidney, abrasion of the borders of the right psoas muscle. Ultrasound of the abdominal cavity (UAC) and retroperitoneal space allows detecting the presence of even a small amount of fluid in the abdominal cavity, while the discrepancy of the sheets of the parietal and visceral peritoneum is recorded. Laparoscopy is used in the absence of sufficient signs as a result of the use of non-invasive methods. In patients with stable hemodynamic parameters, laparoscopy can be effective and can detect intestines in the abdominal cavity content, greenish staining along the right lateral canal in the presence of a defect in the posterior wall of the duodenum, foci of steatonecrosis, gas bubbles under the parietal peritoneum, yellowish-green tissue soaking against the background of extensive retroperitoneal hematoma in the duodenum zone. The sensitivity of the X-ray method in diagnosing duodenal lesions is 14.7%, ultrasound - 1.5%, EGD together with laparoscopy - 100%.

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Treatment: So far, there are no unified algorithms and tactical approaches in the treatment of patients with this type of injury. However, all surgeons agree that treatment of duodenal lesions is only operative, regardless of the period since the injury with peritonization of the suture line with a free section of the parietal peritoneum, a strand of the greater omentum.Available with Reports on the use of three-row and single-row sutures. Wound suturing is usually performed in the transverse direction. However, if crushing of the duodenal wall occurs, the latter must be excised. It is possible to use a serous-muscular-submucosal flap of the greater curvature of the stomach on a vascular pedicle when suturing duodenal wounds or peritoneisation of the suture line. According to PKAK Ivanov et al. closure of the duodenal wound is optimal within 6 hours from the moment of injury. The formation of gastroenteroanastomosis (GEA) with Brown's enteroenteroanastomosis is proposed as a method of decompression, as well as in deformations and stenosis of the intestinal lumen resulting from suturing of the defect [38]. If the upper horizontal part of the duodenum is completely ruptured or the stomach is detached from the duodenum, gastric resection is performed according to the Billroth-2 method modified by the Hofmeister-Finsterer. When massive damage pancreatoduodenal zone not subject conserving surgical correction illustrated implementation pancreatoduodenal resection (DA).

Complications: In the postoperative period, the percentage of complications ranges from 25% to 72.5%. With closed injuries of the duodenum, postoperative complications occur in 61.9% of cases, while with open injuries - 33.3%. This is explained by the different time elapsed from the moment of injury to the moment of hospitalization of the patient, as well as the presence of a “period of imaginary well-being” with a closed duodenal injury . The most common of them are duodenal fistula, retroperitoneal phlegmon, peritonitis, pancreatonecrosis. In case of retroperitoneal ruptures of the duodenum, complications are divided into preoperative (phlegmon of retroperitoneal tissue) and postoperative (incompetence of sutures and duodenal fistulas). Also, the literature mentions pancreatitis, progressive exhaustion, septic pneumonia with bilateral pyopneumothorax, inconsistency of sutures, published observations of intra-abdominal abscess, bleeding from arrosed splenic vein, pancreatonecrosis, cicatricial stenosis of the duodenum after closure of duodenal ulcer wounds, mesenteric gastroesophageal duodenal ulceration and even neuroleptic malignant syndrome (NMS). Thus, the treatment of patients with wounds and trauma to the duodenum remains a complex problem requiring further study in modern surgery. As a result of the introduction of new diagnostic methods, the use of somatostatin analogues, antibacterial drugs, immunotherapy, there is some improvement in the results of treatment, however, mortality in case of damage to the duodenum remains at a rather high level - 30.5-80.0%, and with the development of complications it reaches 100.0 %.

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