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OPEN AND CLOSED TRAUMA OF THE DUODENUM

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Resume. Results of surgical treatment of 112 patients with injuries of the duodenum were analyzed. The most frequent causes of the injury were stab-incised wound of the abdomen 64 patients), gunshot wounds (6 patients), closed injury of the abdomen. Postoperative complications developed in (26%) cases. Lethality was 17.8%. The authors discuss questions of the special diagnostics and surgical strategy for open and closed injuries of the duodenum. Causes of the development of unfavorable outcomes were pyoseptic complications associated with progressing retroperitoneal phlegmons, peritonitis, development of traumatic pancreatitis, incompetent sutures of the duodenum with a formed duodenal fistula. Therefore, the effective prophylactics of incompetent sutures of the duodenum is its decompression with aspiration of the duodenal contents as well as decreased secretion by means of drainage of the bile excreting ducts and medicamental suppression of synthesis of the digestion enzymes of the pancreas and duodenum.

Key words: trauma, duodenum, diagnostics, surgical treatment, complications.

Introduction. The relatively low frequency of duodenal injuries (from 0.2 to 5% of all abdominal injuries) complicates their analysis and systematization, which leads to the absence of a unified approach in the treatment and diagnosis of patients with this injury. Mortality for isolated injuries of this organ ranges from 11.8 to 30.5% and from 52 to 80% for combined injuries. This is due to anatomical as well as physiological characteristics. The retroperitoneal location of the organ limits the effectiveness of certain diagnostic methods.

Materials and Methods. A retrospective analysis of 112 patients with duodenal trauma, who were treated at the multidisciplinary clinic of Samarkand State Medical University from 2010 to 2026, was summarized. Based on the data, it was concluded that the number of patients with duodenal injuries (knife wounds - 64 people, 6 — gunshot wounds) prevailed over patients with closed trauma (42 people). There were 34 specific duodenal injuries and 78 combined and multiple injuries.However, the severity of injuries in closed trauma is significantly greater than in duodenal injuries, and the mortality rate is more than three times higher (37.5% and 11.1%, respectively). Patients with duodenal injuries were admitted to the hospital sooner after sustaining the injury: 68 out of 70 were admitted within 6 hours; patients with closed trauma: only 18 out of 42 were admitted within the first 6 hours after injury, and 13 were hospitalized later than 24 hours. Of all the severely injured, 83 (74.1%) were delivered in critical condition, of which 38 (33.9%) were in a state of shock of varying severity. In open trauma, the severity of condition was most often associated with blood loss, while in closed trauma it was due to the development of peritonitis or retroperitoneal phlegmon. These differences require a differentiated approach in the tactics of diagnosis and treatment for patients with open and closed duodenal trauma.

Results and Discussion. The factor of not detecting any pathognomonic symptom complicates the verification of duodenal injury at the preoperative stage. In cases of abdominal

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wounds, the main diagnostic method was primary surgical wound management, during which the penetrating nature of the wound and indications for surgery were determined. In 86 (76.7%) of the victims, duodenal trauma was combined with injuries to other organs (liver, stomach, small intestine). Diagnostic laparoscopy performed at early stages allows suspicion of retroperitoneal duodenal injury if a hematoma, yellow-green infiltration of the retroperitoneal space in the subhepatic region, and along the right flank are detected. A more precise diagnostic method is fibrogastroduodenoscopy (FGDS), which allows establishing a topical diagnosis, as well as radiocontrast methods of abdominal examination, in particular, computed tomography of the abdomen with a water-soluble contrast agent.The results of our study show that 91.7% of patients had duodenal injuries of grade I–III severity. The extent of surgical intervention was determined depending on the location of the duodenal injury, the degree of damage, the time elapsed since the injury, the presence or absence of complications, as well as the severity of the patient's overall condition and the identified associated injuries. The reliability of the surgical procedure is aimed at reducing the likelihood of duodenal suture failure, which acts as a collector of digestive secretions. The main type of surgical intervention was suturing of the duodenal wounds with a double-row suture after preliminary mobilization of the intestine, supplemented by nasoduodenal intubation of the intestine with placement of a tube past the suture line for its decompression, aspiration of duodenal contents, and postoperative tube feeding, performed in 56 victims.The operation to disconnect the duodenum was performed on 2 patients due to a high risk of suture failure of the intestinal wall defect, with the creation of a gastroenterostomy. In 3 cases, suturing of the duodenal injury was combined with the placement of a decompressive cholecystostomy to reduce the volume of duodenal contents and prevent suture failure of the duodenal wall. In 2 patients with crushing of the duodenal wall, resection of the damaged area with the creation of a duodenojejunostomy was performed. Each operation ended with drainage of the abdominal and retroperitoneal spaces. Duodenal trauma is accompanied by a large number of postoperative complications. The most common complications of duodenal trauma were traumatic pancreatitis (24.6%), retroperitoneal phlegmon (14.5%), and duodenal fistula (13.4%).

The above-mentioned factors are an indication for 'bypassing' the duodenum with the formation of a gastroenteroanastomosis. Also, a method for preventing the development of duodenal suture failure is the drainage of the bile ducts. Death occurred in 20 (17.8%) patients. The most common cause of death was combined pancreaticoduodenal trauma (7 cases) leading to multiple organ failure; 3 patients died from the progression of retroperitoneal phlegmon; 4 patients with duodenal fistulas died from sepsis, wound depletion, and multiple organ failure.

Conclusions. The diagnosis of duodenal injuries remains a challenging task to this day and requires an active approach using modern examination methods. 2. Suturing of the duodenal defect with its decompression is effective for both open and closed injuries within 12 hours from the time of injury. Under such conditions, the surgery of choice is 'disconnection' of the duodenum or resection of the damaged segment. The main cause of fatal outcomes is purulent-inflammatory complications: progressive retroperitoneal phlegmon, traumatic pancreatitis, peritonitis. An effective measure to prevent duodenal suture failure is decompression with continuous aspiration of duodenal contents, as well as drainage of the biliary tract.

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