



DIAGNOSIS AND TREATMENT FOR COMBINED ABDOMINAL TRAUMA

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ABSTRACT

The results of diagnostics and treatment of 855 persons with combined trauma of the abdomen and retroperitoneal space admitted to Samarkand branch of RSCEMA during the period from 2009-2019 have been presented in the article. Of them 790 (92.3%) were operated on with closed combined trauma of the abdominal cavity. In 65 observations conservative treatment was used. The age of examined patients ranged from 17 to 89 years(33.8±13.4), with this the persons of working ability age (to 55 years), mainly men, made the majority of victims (n=426-49.82%). The cause of the trauma in most cases was a road event (n=270-31.57%) and catatrauma - (n=50-5.84%). In 320 (37.42%) victims closed combined abdominal trauma was accompanied by CCT. Alcohol intoxication was observed in 174 (20.3%) victims. Of 790 patients operated, 31 (3.9%) died.

Relevance. One of the pressing modern medical problems is severe mechanical combined injury, the number of which increases from year to year both in frequency and severity of injuries [14,15,23,24,25,26]. In the general structure of peacetime injuries, the share of combined injuries ranges from 12 to 36% [6,7,12,13]. The plague of the 20th century is called road traffic injuries. Every year, more than 10 million people suffer severe mechanical injuries as a result of motor vehicle accidents. The number of natural disasters in the world is not decreasing [1,2,5,8,9,10,11].

In Uzbekistan, more than 800 thousand people receive various injuries every year. It has been established that injuries due to road traffic accidents account for about 5% of all injuries. But these injuries are the most severe in their consequences, causing almost a quarter of cases of disability and every third case of mortality [12,16,17].

According to [4], combined trauma is one of the three causes of mortality in the population. The proportion of people who died of working age is 27%, the average age is 38.5 years. Patients with associated trauma account for 8-14% of all inpatients and account for more than 60% of all deaths from injuries [18,19,20].

Materials and methods. For the period from 2009-2019. 855 people with combined trauma of the abdomen and retroperitoneal organs were admitted to the Samarkand branch



of the Russian Research Center for Emergency Medicine. The age of the studied victims ranged from 17 to 89 years (33.8 ± 13.4), while the majority of victims ($n = 631 - 73.8\%$) were people of working age (up to 55 years), mostly men ($n = 426 - 49.82\%$). Of the 855 victims, 790 (92.3%) were operated on. Of these, 31 (3.62%) victims died. 65 (7.6%) patients with abdominal injuries due to combined trauma were treated conservatively.

In 320 (37.42%) patients, closed combined abdominal injuries were accompanied by TBI. The cause of injury in most cases was a road traffic accident ($n=224 - 70.0\%$), in 46 (14.3%) victims the reason for admission to the intensive care unit was unlawful injury, in 50 (15.6%) catatrauma. Alcohol intoxication was observed in 174 (20.3%) victims.

Results and its discussion. Most of the victims had no history of chronic diseases; 9 elderly victims suffered from type 2 diabetes mellitus, 15 from coronary heart disease, 5 from hypertension.

264 (30.87%) victims were admitted in a state of severe and decompensated shock. Hospitalized within 3 hours of injury ($n=621 - 72.63\%$). Moreover, in the first hour after the injury, only 137 (16.02%) were injured.

Of the 790 patients with combined abdominal trauma, in 423 (53.5%), the dominant injury was the abdominal injury, in 164 (20.7%) cases - TBI, in 61 (7.7%) - chest and in 142 (17.9%) cases were a combination of injuries. It should be noted that 855 victims had damage to two or more anatomical areas (880 organs). The most common injuries were the liver (131 observations), spleen (167), small and large intestine (265), damage to the duodenum (18), pancreas (15), stomach (54), rupture of the mesentery (89), omentum (59), bladder (37) and kidney (45 victims).

In our observations, we identified two predominant syndromes: the syndrome of developing peritonitis and the syndrome of intra-abdominal blood loss. The syndrome of developing peritonitis was observed in 101 victims with injuries to organs.

With a clear clinical picture of internal bleeding and acute peritonitis, emergency surgery was performed on 201 victims. If there is no certainty about the presence of internal bleeding and peritonitis, along with anti-shock therapy, such diagnostic techniques as puncture of the pleural cavity (in 31), laparocentesis (in 40), laparoscopy (in 25), radiography of the skull (in 51), pelvis (in 30), spine (in 37), retrograde cystography (in 15), ultrasound (in 201) and computed tomography (in 40 patients).

Most often, with closed abdominal trauma, damage to parenchymal organs was noted 298 (34.85%) in combination with damage to the intestines (44), bladder (15), and kidneys (12). Moreover, damage to the liver, spleen, kidney, and extensive retroperitoneal hematomas were more often observed with damage to the chest, pelvis and spine. Upon admission, signs of internal bleeding were noted in 105 (35.32%) victims and 26 (8.72%) patients with signs of peritonitis.

Of these, 298 (34.85%) with damage to the liver and spleen, management tactics were determined depending on the severity of the patient's condition, the volume of hemoperitoneum, the intensity of blood loss, and hemodynamic parameters.

Out of 131 operated patients, in 10 people with liver ruptures of degrees IV and V according to Moore, the bleeding was stopped using "Damage control". They underwent a second operation 3-4 days after hemodynamic stabilization, in 9 patients the liver ruptures



were sutured, and in 1 patient a repeat "Damage control" was applied, followed by 72 hours of surgery, the liver rupture was sutured with a favorable outcome. The following methods were used to stop bleeding from liver wounds: suturing the wound, tamponade with an omentum on the leg, surgical treatment of the wound followed by suturing it. In all cases, the area of the sutured liver wound was drained with a vinyl chloride tube.

All patients required transfusion of cryoprecipitate of the corresponding blood group on average 3.5 ± 0.3 doses, 12 patients - fresh frozen plasma 350.80 ± 55.8 ml for each patient, and 7 patients - 250.5 ± 40.0 ml of donor erythrocyte masses.

By the 7th day of treatment, sonography and computed tomography revealed no free fluid in the abdominal cavity.

The use of modern technologies (ultrasound, CT, video laparoscopy) makes it possible to successfully carry out conservative treatment of liver and spleen injuries in hemodynamically stable patients. There were no complications or deaths associated with the use of conservative therapy.

Mortality among 131 operated patients with injuries of parenchymal organs was 1.53% (2 patients).

Of the 18 patients with trauma and injuries to the duodenum, 2 (11.1%) patients were limited to applying a primary suture. In 6 (33.3%) cases, the primary suture of the duodenum was supplemented with cholecystostomy and drainage of the omental bursa, a decompressive probe was installed transnasally in the duodenum for active aspiration, and an intestinal feeding tube was passed through the ligament of Treitz. In case of damage to more than half of the circumference of the duodenum, the primary suture was supplemented by simple diverticulization of the duodenum (1 case), in 2 cases, diverticulization of the duodenum was performed according to Donovan-Hagen (antrumectomy, truncal vagotomy, gastroenteroanastomosis on a long loop, cholecystostomy), in 3 cases patients were subjected to nutritional jejunostomy according to Witzel. In case of hematomas of the duodenum, they were limited to evacuation of the hematoma with subsequent drainage of the retroperitoneal fat - 2 (11.1%) cases. In 2 cases, due to late presentation and the development of diffuse peritonitis, the operations were completed with laparostomy for programmed sanitation of the abdominal cavity. In the last 3 (16.6%) cases, a long loop duodenojejunostomy with Brown's anastomosis was applied to the damaged area of the duodenum using prolene atraumatic threads, and a decompressive probe was installed transnasally in the duodenum for active aspiration. In the last 3 cases, no complications from the anastomosis were observed in the postoperative period.

Death among victims with duodenal trauma occurred in 5 patients, with a mortality rate of 27.7%. The causes of death were: severe closed head injury and MOF in 2, severe combined polytrauma with hemorrhagic and traumatic shock against the background of profuse intra-abdominal bleeding from the vessels of the pancreaticoduodenal zone - 3. In addition, all of them had concomitant pathology (coronary heart disease, chronic obstructive pulmonary disease, urolithiasis), which aggravated the prognosis.

At the present stage of treatment of victims with injuries of the duodenum remains a difficult task that requires further study.



265 patients with various intestinal injuries were operated on. 145 (54.7%) patients had damage to the small and large intestines, and in 120 (45.3%) intestinal damage was combined with injury to other abdominal organs.

The correct preoperative diagnosis of intestinal injury or combined injuries of the intestine and other abdominal organs was established in 207 (78.1%) of 265. In doubtful cases, laparocentesis and laparoscopy were widely used, the sensitivity of which was 95-97%. Preoperative preparation should be short-term (no more than 1-2 hours) and intensive. We consider midline laparotomy to be the method of choice. After laparotomy, we pay special attention to examining the abdominal organs, conducting it in a certain sequence. If there was blood in the abdominal cavity, first of all, they found the source of the bleeding and stopped it. In 147 (55.5%) cases, small intestinal injuries were multiple, so surgeons should not be satisfied with finding a single injury and carefully examine the intestine.

Suturing of the small intestinal rupture site was performed in 236 (89.1%). Resection of a damaged section of intestine extending from 30 cm before 90 cm was done in 29 patients (10.9%). At the final stage of the operation, a thorough toilet of the abdominal cavity and nasointestinal intubation of the intestine were performed. Drains were left as indicated.

In the postoperative period, the main attention was paid to the prevention and treatment of peritonitis. Mortality was 10.9% (29 cases). The causes of death in patients were: multiple and combined injuries (skull, chest), progressive peritonitis due to late presentation and late treatment, as well as pneumonia.

We analyzed 15 cases of pancreatic injuries. Closed abdominal trauma as the cause of acute traumatic pancreatitis occurred in 12 patients (direct blow to the epigastric region - 6, fall from height - 4, road traffic injury - 2). In 3 cases, the cause of AP was a stab wound. In all victims, the pancreatic injury was combined with damage to other organs and systems (liver, spleen, stomach, small and large intestines, retroperitoneal hematoma, brain and spinal cord injury, chest injury, etc.).

Acute traumatic pancreatitis developed due to general (traumatic shock) and local changes. With mechanical damage, local changes in the pancreas are caused by traumatic necrosis of the parenchyma, secondary destruction as a result of vascular damage and damage to the ducts with the flow of active pancreatic secretion.

It must be emphasized that all types of pancreatic damage require antisecretory, antienzyme, antibacterial and detoxification therapy.

Depending on the nature and location of the lesion, the following types of surgical treatment of pancreatic injuries (acute traumatic pancreatitis) are used, based on the principles of adequate drainage of the damaged area, removal of clearly non-viable gland tissue, restoration of passage or rational drainage of pancreatic juice: hemostasis and drainage of the damaged area - in 5 patients, opening and emptying of retroperitoneal hematomas - in 4, drainage of the damaged pancreatic duct - in 3, left-sided resection of the pancreas - in 2, disconnection of the duodenum - in 1 patient.

Of the 15 victims with dominant damage to the pancreas, 6 people died (40%). Of these, 5 people had severe destructive traumatic pancreatitis and 1 had parapancreatitis and peritonitis.



It should be especially noted that we see further progress in improving the results of complex treatment of acute traumatic pancreatitis in the joint work of surgeons, intensivists, gastroenterologists and researchers in various fields of medicine.

The main cause of death (35.4%) was acute massive blood loss combined with traumatic shock. Deaths due to blood loss occurred in the first hours after admission or on the first day after surgery. The second most common cause of death was purulent-inflammatory complications (25.8%) and nosocomial pneumonia (16.9%).

Conclusions. In case of combined abdominal trauma, the scope of the operation is to radically eliminate the damage and reconstruct the disturbed anatomical relationships of the abdominal organs.

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