

Relevance and current state of the problem of diagnosing liver damage in closed abdominal trauma

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Abstract. We analyzed the results of treatment 134 victims with a closed abdominal trauma with liver damage. Diagnosis of closed abdominal injuries with damage to the liver was performed in the operating room, and wore a complex character. Compulsory execution of CT of the brain, in patients with concomitant trauma, reduced the mortality rate from swelling and the dislocation of the brain at traumatic brain injury. In assisting the victims with a closed abdominal trauma with damage to the liver was used individualized treatment and diagnostic program takes into account the scale of the VPH - MT, as well as the degree of liver damage classification E.Moore et al. (1990). In this case, Assisted Surgery hemostasis ran only hemodynamically stable victims with severe injuries of the abdomen on a scale of VPH-MT for isolated lesions of the liver I-II degree classification E.Moore (1990). During laparotomy for I-III degrees of liver damage on the classification of E. Moore (1990), hemodynamically stable victims with severe and extremely severe injuries of the abdomen on a scale of VpH-MT is the primary suture of liver injury. Atypical resection of hepatic lobe is indicated for IV-V degrees of liver damage in patients with severe injuries of the abdomen on a scale of VPH-MT, as well as admissible in grade IV liver injury in hemodynamically stable victims of extremely severe injuries of the abdomen on a scale of VPH-MT.

1 Introduction

Grouting of liver injury in the tactics of “Damage control” is shown for any damage of the liver in hemodynamically unstable patients with extremely severe injuries of the abdomen on a scale of VPH-MT. The application of this individualized surgical approach with closed abdominal trauma with liver damage possible reduce the mortality rate.

Currently, there is an increase in the number of traffic accidents. At the same time, damage to parenchymal organs in the structure of abdominal trauma is 56-66.8%. The data of scientific publications indicate that traumatic injuries of the abdominal organs are accompanied by a high level of disability, and mortality remains unacceptably high,

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amounting to 30-44% without a tendency to decrease. A complicated course is noted in 37-45% of cases. Improving the results of diagnosis and treatment of patients with closed liver injuries by developing and implementing diagnostic and therapeutic algorithms in the conditions of the Fergana branch of the Republican Scientific Center for Emergency Medical Care [1, 2].

2 Materials and methods

The results of surgical treatment of 134 patients with closed abdominal trauma and liver damage, hospitalized in the surgical departments of the FFRRCEMMP from 2005 to 2020, were analyzed. The victims were aged from 16 to 74 years: up to 40 years old - 107 (79.8%) people, from 41 to 55 years old - 20 (15%) victims, from 56 to 74 years old - 7 (5.2%) patients. At the same time, 81% were men. In 47 (35%) cases, the criminal nature of liver damage was noted. Most of the victims were hospitalized within the first 6 hours from the moment of injury, which amounted to 114 (85%) victims ; within the next 7-24 hours, 14 (10.4%) patients were delivered to the hospital; more than a day later, another 6 (4.6%) victims applied. In a state of shock, 78 (58.2%) patients were delivered : I degree shock was noted in 17 (12.7%) cases; grade II shock was diagnosed in 21 (15.7%) cases; III degree shock was detected in 40 (29.8%) patients. 48 (10.7%) patients were delivered in the terminal state. 16 (3.6%) people were hospitalized in a state of endotoxic shock [3-6].

X-ray method for closed abdominal trauma was used in 96 (72%) cases. The sensitivity of the method was only 30%. Ultrasound examination (ultrasound) of the abdominal organs was performed in 127 (95%) cases, which, in addition to the clinical picture, made it possible to suggest liver damage in 127 victims. The sensitivity of the method was 86%. Diagnostic laparoscopy was performed in 83 (62%) patients. At the same time, in 72 (86.7%) cases, indications for laparotomy were presented.

All victims depending on the time of hospitalization were divided into 2 groups. The first group included victims from 2005 to 2010, the second - from 2011 to 2020.

3 Results and discussion

In 7 (5.2) observations during diagnostic laparoscopy, liver damage of I - II degree was detected with ongoing bleeding from the parenchyma, which was stopped using endovideosurgical techniques. In 9 (6.7%) patients, liver damage was diagnosed without ongoing bleeding, which made it possible to confine ourselves to drainage of the abdominal cavity. In 6 (4.5%) observations during diagnostic laparoscopy, it was not possible to detect damage due to damage to hard-to-reach segments of the liver. The main reasons for the "blurring" of the clinical picture should be considered a severe concomitant injury, damage to other anatomical areas, as well as exogenous intoxication, which was noted in 36 (26.9%) cases.

Combined liver damage was detected in 87 (65%) cases. Multiple nature was established in 48 (36.1%) patients, which caused a greater severity of this type of damage and "masked" the clinical picture of liver injuries. Damage to the right lobe of the liver was noted in 109 (81.4%), the left - in 21 (15.7%) cases.

Damage to the VI - VIII segments of the liver dominated, which in total amounted to 95 (70.9%) of the victims. Most often, damage to the abdominal organs was combined with a chest injury - 68 (50.8) cases and with a craniocerebral injury - 19 (14.2%) victims.

It is known that an objective assessment of the degree of damage to the organ and the severity of the combined injury is important for the diagnosis of liver damage. To determine the most optimal treatment and diagnostic program and continuity in the provision of specialized surgical care, we used a scale for assessing the severity of multiple

and combined injuries, proposed by the Department of Military Field Surgery of the Military Medical Academy named after M.V. CM. Kirov on mechanical trauma (VPKh-MT) and classification of liver damage according to E. Moore et al., in which 6 degrees of damage are distinguished. Based on the degree of liver damage according to the above classification, the victims were distributed as follows: I degree - 41 (30.6%); II degree - 46 (34.3%); III degree - 27 (20.1%); IV degree - 12 (8.9%); V degree - 8 (6.1%). We did not encounter grade VI injuries. According to the HPLC-MT scale, severe damage to the abdominal organs was noted in 70 (52.2), and extremely severe - in 64 (47.8) cases.

In 129 (96.3%) cases in the affected group, upper-middle laparotomy was used as access to the liver. In 3 (2.2%) cases, endovideosurgical access was performed, which made it possible to limit the drainage of the abdominal cavity in case of liver damage without ongoing bleeding. In 86 (64.2%) cases of liver injuries of I and II degrees, the primary suture of the liver wound was used. In more severe injuries, the liver defect was plugged - 42 (31.3%) cases, and in 4 (3%) cases, plugging was supplemented with hepatopexy. In the vast majority of cases, in the presence of intramural hematoma of the gallbladder, - conservative management tactics were preferred. Subcapsular and intrahepatic hematomas were opened in 12 (8.9%) and 4 (3%) cases, respectively, and conservative management was chosen in 9 (6.7%) cases. In addition, concomitant injuries of the abdominal organs were eliminated [7-17].

When using this surgical tactic, the following complications were noted: subdiaphragmatic abscesses - 48 (35.8%); intrahepatic abscesses - 15 (11.2%); arrosive bleeding - 16 (12%); post-traumatic cholecystitis - 12 (9%) cases, of which 9 victims subsequently required repeated surgical interventions. Complications that occurred were mostly of a combined nature.

Mortality was 51 (38%), while victims with liver damage II - IV degree prevailed - 20 (15%), 23 (17%) and 8 (6%), respectively. The causes of deaths were: trauma incompatible with life (daily lethality) - 18 (13.4%); dislocation of the brain - 23 (11.4%).

In 14 out of 23 patients who died from brain dislocation, upon receipt of clinical data for severe traumatic brain injury, no symptoms were detected, and the entire symptom complex manifested itself within the first 3 days from the moment of injury. Undoubtedly, in this group, late diagnosis of severe traumatic brain injury led to an unfavorable outcome. In addition, purulent-septic complications were noted in 7 (5.2%) cases and in 4 (3%) cases - acute cardiovascular failure.

An analysis of the results of treatment of patients in group I prompted additional studies, as a result of which diagnostic and tactical algorithms were developed and implemented to provide assistance to victims in the conditions of FFRCCEM.

All patients of group II were delivered to the operating room, where most of the diagnostic and therapeutic procedures were performed. The diagnostic standard included: clinical and biochemical blood tests, coagulogram, blood for ethanol, urinalysis, electrocardiogram, x-ray examination of the chest, pelvis, extremities (if indicated),

Ultrasound of the abdominal cavity, consultation of a traumatologist and neurosurgeon, therapist, head CT brain, diagnostic laparoscopy.

Laparotomy was also used as the main access in 114 (85%) cases, however, endovideo - surgical access was performed in 33 (13.4%) cases. In 101 (75.4%) cases, it was possible to achieve hemostasis by forming a primary suture of the liver wound, and in 4 (3%) of the victims, the primary suture was supplemented by tamponing with a napkin. In 7 (5.2%) cases, liver resection was performed, which in 2 (1.5%) cases was completed with tamponing to achieve final hemostasis after resection. Opening of intrahepatic and subcapsular hematomas was performed in 7 (5.2 %) and 15 (11.2%) cases, respectively, and conservative management was chosen in 9 (6.7%) cases. Packing of liver damage, as the main surgical technique, was used only in 10 (7.5%) cases and, as a rule, in patients with

severe concomitant injury as part of the "Damage control". In 2 (1.5%) cases, plugging was supplemented with hepatopexy. In 16 (7.5%) patients, endovideo surgical hemostasis was achieved, and in 9 (6.8%) cases, diagnostic laparoscopy revealed liver damage without ongoing bleeding, which made it possible to confine ourselves to drainage of the abdominal cavity. In case of gallbladder injury, preference was given to active surgical tactics, which consisted of cholecystectomy in 7 (5.2%) cases or cholecystostomy in 4 (3%) cases. Indications for the latter were: a hematoma occupying less than 50% of the visible surface of the gallbladder wall, and/or concomitant damage to the pancreas or duodenum [18-20].

4 Conclusion

- Mandatory MSCT of the brain in patients with concomitant trauma to the head and abdomen can reduce mortality from edema and dislocation of the brain in traumatic brain injury from 11.4 to 4.9%.
 - Endovideosurgical hemostasis is indicated for hemodynamically stable patients with severe injuries of the abdominal organs with isolated liver injuries of I - II degree.
 - During laparotomy at I - III degrees of liver damage, hemodynamically stable patients with severe and extremely severe injuries of the abdominal organs are shown the primary suture of the liver wound.
 - Plugging a liver wound as part of the " Damage " tactic control " is indicated for any liver injury in hemodynamically unstable patients with extremely severe injuries to the abdominal organs.
 - In case of damage to the gallbladder, cholecystectomy is indicated. The indication for cholecystostomy is a hematoma occupying less than 50% of the visible surface of the gallbladder wall and/or concomitant damage to the pancreas or duodenum.
 - Conservative management of intrahepatic and subcapsular hematomas is acceptable if they are not stressful.
 - The use of the proposed individual surgical tactics for closed abdominal trauma with liver damage made it possible to reduce the mortality rate.

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