

## MODERN DIAGNOSTIC AND THERAPEUTIC POSSIBILITIES OF ENDOVIDEOLAPAROSCOPY IN COMBINED ABDOMINAL INJURY

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**Relevance** . In recent years, there has been a steady increase in injuries worldwide. Technogenic and natural disasters, local military conflicts, transport and industrial accidents in 50-60% of cases of all injuries lead to combined and multiple damage to the organs and systems of the human body, and, as a result, to high sanitary losses in the first hours and days (1, 12, 20, 21, 30, 31). Combined injury is the simultaneous damage to two or more of the seven anatomical regions of the body by one traumatic agent. Among the causes of deaths from injuries, the share of combined traumatic injuries accounts for more than 60%, although they account for 8-10% of inpatients with injuries (1, 2, 10, 39,).

Abdominal injuries account for 1.5 to 36.5% of peacetime injuries, but their frequency and severity continue to increase. According to (18), almost 30% of victims have injuries to the abdominal organs in severe concomitant trauma. Such an injury, due to the severity of damage to internal organs and the difficulties of diagnosis, is characterized by a high rate of complications and mortality, which, according to various authors, ranges from 25 to 65%. According to Shapot Yu.B. (1990) and Afonina A.A. (1998), with an isolated injury of one abdominal organ, mortality ranges from 5.1 to 20.4%, and with a combined injury, from 18.3 to 64% (3, 6, 7, 18, 35, 37, 38).

Closed abdominal injuries in concomitant trauma are accompanied by a large number of complications and high mortality due to diagnostic difficulties and frequent combination with injuries to other organs and systems (4, 5, 16, 17, 26, 27). A special problem is the diagnosis and treatment of concomitant closed abdominal trauma accompanied by shock. Hospital mortality in this variant of pathology ranges from 17.3 to 72.7% (8, 9, 13, 14, 30, 31). Over the past 5 years, mortality from road accidents in Russia has increased by 65%, and the number of deaths, according to the traffic police, reaches 33-35 thousand people a year (19, 25, 29, 31, 36).

In Uzbekistan, more than 800 thousand people annually receive various injuries. 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, they are responsible for almost a quarter of cases of disability and one in three deaths.

According to E.Yu. Valieva (2010), concomitant trauma is one of the three causes of mortality in the population. The proportion of deaths at working age is 27%, the

average age is 38.5 years. Patients with combined trauma account for 8-14% of all inpatients and account for more than 60% of all deaths from injuries (11,12,23,24,35,36).

**Material and methods.** The treatment of victims with severe concomitant abdominal injuries was carried out in the conditions of round-the-clock emergency surgical care in the Samarkand branch of the Republican Scientific and Practical Center for Medical Emergencies in Samarkand.

For the period from 2009-2019. 2645 people with combined abdominal trauma and retroperitoneal space organs were admitted to the Samarkand branch of RRCEMMP.

Among 478 victims, 447 (93.5%) were operated on. Of these, a lethal outcome was observed in the control group - out of 208 in 119 (57.21%), and in the main group - out of 270 - 88 (32.59%). Conservative therapy was performed in 31 (11.48%) patients with abdominal injuries (liver in 25 and spleen in 6) in the presence of a combined injury.

The cause of the injury in most cases was a traffic accident ( n = 358 - 74.89%), in 51 (10.66%) victims, the cause of admission to the intensive care unit was an unlawful

injury (conflict situation), in 61 (12.76% ) catatrauma (Table 1).

**Table 1.****Distribution of patients by type and mechanism of injury**

| Mechanism<br>injury                        | Type of injury      |       |                |       | Total<br>sick |       |
|--|---------------------|-------|----------------|-------|---------------|-------|
|  | household<br>injury |       | work injury    |       |               |       |
|  | Number<br>sick      | %     | Number<br>sick | %     | Number        | %     |
| Hit by vehicles                            | 200                 | 41.84 | 80             | 16.73 | 280           | 58.57 |
| Fall from a height                         | 41                  | 8.57  | 20             | 4.18  | 61            | 12.76 |
| Shot down by rail<br>transport             | 50                  | 10.46 | 28             | 5.85  | 78            | 16.31 |
| With the pressure of a<br>big load         | 6                   | 1.25  | 2              | 0.41  | 8             | 1.66  |
| Hit in the stomach with<br>various objects | 31                  | 6.48  | 20             | 4.18  | 51            | 10.66 |
| Total                                      | 328                 | 68.6  | 150            | 31.4  | 478           | 100.0 |

Alcohol intoxication was observed in 257 (53.76%) victims.

The severity of shock was assessed using the Algover-Gruber index (shock index).

Among 478 patients with combined abdominal trauma in 261 cases (54.6%), the prevailing injury was abdominal trauma, in 131 cases (27.4%) - CCT, in 60 patients (12.5%) - chest injuries and in 26 (5, In 5%) cases, concomitant injuries were detected.

Most often, abdominal injuries were combined with cranio -cerebral and thoracic trauma (263 - 55.02% of cases).

It is important to mention the fact that in 94.1% of cases, injuries of two or more anatomical regions were identified.

The most common cases were injuries to the small and large intestines (265), spleen (167), liver (131 cases), duodenal injury (18), pancreas (15), stomach (54), mesentery ruptures (89), omentum (59 ), bladder (37) and kidney (45 patients). The total number of abdominal injuries detected in 478 patients was 880. In addition, 275 patients had extra-

abdominal damage. ( Table 2).

**Table 2.**

**Frequency and nature of concomitant ( extra-abdominal )  
injuries among 478 patients**

| Nature of damage   | Total patients |       |
|--|----------------|-------|
|  | Number         | %     |
| Multiple rib fractures sternum fracture                              | 19             | 3.97  |
| Lung damage  | 52             | 10.87 |
| Contusion of the heart damage to the aortic arch and pericardium     | 8              | 1.67  |
| Pelvic fracture  | eleven         | 2.30  |
| Fracture of the bones of the lower extremities                       | 22             | 4.6   |
| Fracture of the bones of the upper limbs of the scapula and clavicle | 17             | 3.55  |
| Dislocation of large joints of the limbs                             | 4              | 0.83  |
| Multiple bruises and abrasions of the body                           | 96             | 20.08 |
| Extensive soft tissue wounds   | 46             | 9.62  |
| Total  | 275            | 57.53 |

**Results and discussion.** In these observations, we noted two prevailing syndromes: the syndrome of developing peritonitis and the syndrome of intra-abdominal hemorrhage. The syndrome of developing peritonitis occurs when traumatizing hollow organs.

Intra-abdominal hemorrhagic syndrome is observed in case of injury to the parenchymal organs or blood vessels of the mesentery and omentum, retroperitoneal space. At the same time, changes in hemodynamics were characteristic, as well as a decrease in a number of hematological parameters (hemoglobin, hematocrit, erythrocyte count), oliguria and leukocytosis with spleen ruptures (167).

We adhere to the following treatment tactics: with a clear clinical picture of internal hemorrhage and acute peritonitis, an emergency operation (in 232 patients). In the absence of confidence in the presence of internal bleeding and peritonitis, together with antishock therapy, such diagnostic methods as pleural puncture (in 31), laparocentesis (in 40), laparoscopy (in 127), R-graphy: skulls (in 51 ) , pelvis (in 30), spine (in 37),

retrograde cystography (in 15), ultrasound (in 201) and computed tomography (in 40 patients).

The use of laparoscopy for both diagnostic and therapeutic purposes has opened up new perspectives in the development of injury surgery. The use of diagnostic laparoscopy in trauma was first reported by A. Gazzaniga in 1976 (28). Despite such a long history, the issues of indications and contraindications, possibilities and limitations of the method still remain debatable.

According to our experience, the most reliable signs of damage to the abdominal organs during laparoscopy are hemoperitoneum in 110 patients, and the presence of intestinal contents in the abdominal cavity in 17 patients.

The most common in combined abdominal trauma was damage to parenchymal organs 298 (62.34%) in combination with damage to the intestines (44), bladder (15), kidney (12). At the same time, the fact that trauma to the liver, spleen, kidneys, extensive retroperitoneal hematomas were more often observed with damage to the chest, pelvis and spine was taken into account. Upon admission, symptoms of internal bleeding were noted in 250 (52.3%) patients and 48 (10.0%) patients with symptoms of peritonitis.

The main cause of death among the 478 patients analyzed by us was the combination of injuries in 127 (shock and blood loss) victims (26.56%). Complications were an equally important cause of death. Among the patients who had injuries of the abdominal organs, they were observed in 80 (16.73%) in the postoperative period.

### **Conclusions:**

1. The most reliable diagnostic method for closed abdominal injuries is ultrasound, and its information content was up to 100%. Ultrasound revealed 30-50 ml of fluid in the abdominal cavity, assessed the contours of parenchymal organs, and subjectively determined the amount of blood loss. For both diagnostic and therapeutic video laparoscopy, its resolution is 98%.

2. Analyzing the experience of laparoscopic treatment of traumatic injuries of the abdominal cavity, we noted a decrease in the number of postoperative complications and mortality, a significant reduction in the length of stay of patients in the hospital and shorter rehabilitation periods for patients.

3. Despite a number of complex and unresolved tactical and technical issues, laparoscopic surgery of abdominal injuries seems to be an extremely interesting and promising direction in the development of modern surgery. Issues of indications and contraindications for the use of laparoscopy, as well as the technical capabilities of the method require further careful study and development of methodological aspects. Prospects for the development of the direction lie in the improvement of surgical instruments, advanced training of medical personnel, organizational transformations of

the surgical service.

4. The main cause of postoperative complications requiring repeated laparotomy was peritonitis and intra-abdominal ulcers. The most important in the treatment of postoperative peritonitis with relaparotomy is a correctly chosen surgical tactics, the most important element of which is the elimination of the source of peritonitis or its delimitation from the free abdominal cavity. Laparostomy, according to our clinical experience, is one of the best ways to timely diagnose and treat diffuse peritonitis.

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