

ABOUT CLOSED LIVER INJURY IN AUTOMOBILE TRAUMAS WITH LETHAL OUTCOME**Khvan O.I***Republican Scientific and Practical Center for Forensic Medical Expertise
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Summary: *The article shows the data of expert evaluation of liver injuries in blunt abdominal trauma. The morphological descriptive characteristics of liver injuries are highly variable, and this is associated with different preconditions for their formation. It should be noted that, despite the diversity of liver injuries, they themselves and their combinations are traceable only in certain types of automobile trauma.*

Key words: *automobile, blunt, trauma, liver, fatal outcome.*

Резюме: *В статье приведены данные экспертной оценки повреждений печени при тупой травме живота. Морфологическая описательная характеристика повреждений печени весьма вариабельна, что связано с разными предпосылками их формирования. Следует отметить, что, несмотря на многообразие повреждений печени, сами они и их сочетания прослеживаются лишь при отдельных видах автомобильной травмы.*

Ключевые слова: *автомобиль, тупой предмет, травма, печень, летальный исход.*

RELEVANCE

Motor vehicle injuries continue to occupy one of the leading places in the structure of mortality from mechanical injuries. According to statistical data, the indicator of mortality in road traffic accidents ranks third after cardiovascular diseases and neoplasms [1, 2, 3, 4, 5, 6, 7].

Every year, about 55 million car accidents occur in the world, in which about 1.2 million people die and 8 million are injured. The economic losses of traffic accidents in some countries are estimated at 2% or more of gross national income [8, 9].

Closed liver injury with blunt objects has long attracted the attention of surgeons due to the difficulty of diagnosis, severe course and high mortality. They developed issues of diagnosis, morphology of injuries, mechanisms of their occurrence, as well as methods of surgical treatment. Unlike surgeons, forensic doctors paid unreasonably little attention to closed liver injury with blunt objects. Those few works of a forensic nature that have been published in the literature concern only certain aspects of this problem [10]. Even in solid works devoted to various types of transport injury, very little space is given to liver damage

[11, 12, 13]. The question of the frequency of closed liver injury in the literature is covered ambiguously, depending on what time the statistics refer to and what their source is.

In recent decades, the number of cases of closed liver injury began to increase markedly, which, according to many authors, is directly related to the rapid development of various modes of transport, which is the main cause of severe body injury [12, 13, 14].

The main feature of the study of closed trauma of the body with blunt objects in the forensic relation is still the diversity of research. Practically, all injuries arising from certain types of blunt trauma are studied simultaneously: transport, industrial, falling from a height, etc. However, the need for further improvement of forensic medical examination requires a more detailed and in-depth study of the nature and characteristics of closed injuries of individual organs, including the liver.

Thus, the study of the characteristics of liver damage in autotrauma is an urgent problem in medicine, in particular in the judiciary.

Purpose of the study: to investigate the features of closed liver injuries in fatal autoinjuries.

Material and methods of research: 144 conclusions of forensic medical examinations of corpses that received bodily injuries in traffic accidents from 2004 to 2013, based on the Tashkent City Bureau of Forensic Medical Examination of the city of Tashkent, served as materials for the study.

The analysis of forensic medical examinations showed that the frequency of closed liver injuries among men was much higher - 106 (73.6%) cases than among women - 38 (26.4%). Of these, 97 (67.4%) were pedestrians, 11 (7.6%) were passengers, and 36 (25%) were drivers. In 15 cases the drivers were under the influence of alcohol. Pedestrians were intoxicated in 19 cases.

Most often, closed liver injuries occurred in the age groups from 20 to 40 years (57.6%), i.e. for the most active and able-bodied age period. Among children, this type of injury occurred in 9.7% of cases.

Combined injuries of the head, chest, internal organs with fractures of the extremities were observed in the vast majority of cases (99.3%). Isolated liver damage was observed in 1 case.

Combined organ damage was also observed, such as damage to the spleen (51 cases), kidney (48 cases), small and large intestines (8 cases), bladder (3 cases), pancreas (11 cases), stomach (5 cases), lungs (87 cases) and heart (14 cases).

The largest number of traffic accidents occurred in the spring season.

Results of the study: autopsy revealed that the localization of closed liver injury in direct impact, tears and cracks in 50% of cases were on the visceral surface; in compression and as a consequence of "counter-strike" - on the upper surface accounted for 25%.

We observed arcuate ruptures of the capsule and liver tissue in 4.2% of cases when it was displaced in the direction of movement, squeezing the body of the victim, the wheel of the car. The convex surface of the tear indicated the direction in which the wheel of the car was rolling over the body of the victim, who was lying on his back.

The most characteristic damage to the liver in autotrauma is its rupture (70.8%). The breaks had a linear, arcuate, winding, spindle-shaped, tree-like, radial and other shape with a directionality, more often determined by the direction of movement of the object. The length of the breaks is from 1.5 cm to the complete division of the organ.

When hit by a vehicle from front to back, the ruptures were mainly localized on the diaphragmatic surface of the right lobe of the liver. From a blow of great force in 14.6% (21 cases), several gaps (from 2 to 5) were formed with their direction along the path of the traumatic object, up to 9 cm deep. For example, in a person who died during a car accident, from a strong blow from front to back the following liver damage: 5 linear and arcuate ruptures on the diaphragmatic surface of the right lobe, ranging in size from 1.5x1 cm to 7x0.2 cm at the border of IV, V and VIII segments of the liver, directed from front to back and somewhat from right to left. The sixth tear, 7.5x0.2 cm in size, was located on the right surface of the right lobe, with crushing of the parenchyma along the edges to a depth of 0.5 cm; two foci of subcapsular hemorrhages, 5x3.5 cm and 4x3 cm in size, on the visceral surface of the right lobe in the region of the renal impression, respectively, segments VI and VII, near the attachment of the ligaments.

Damage to the liver from a blow from behind to the front, similar to damage from a blow to the front surface of the body, but with a different direction of ruptures. Ruptures of the right lobe (also, mainly, its diaphragmatic surface) are up to 9 cm long, in 12.6% of cases they pass from the diaphragmatic surface of the lobe through the posterior edge to its visceral surface and penetrate into the thickness of the organ up to 5 cm.

At the moment of impact in the anterior-posterior or posterior-anterior direction, the formation of distant ruptures of the capsule and parenchyma of a stellate shape, as well as hemorrhages and ruptures in the depth of the organ (central) occurs.

Very typical for the morphology of liver injury, damage to its ligaments that occurs during autotrauma. From a blow of great force on the body with a blunt object, a sharp displacement of the liver occurs with overstretching of the ligaments, during which subcapsular hemorrhages and ruptures of the ligaments themselves occur. We observed the resulting injuries in 10 victims (6.9%). Part of the damage to the liver, with this mechanism, occurs in the area of the liver opposite to the place where the external force is applied from hitting it against the spine or costal arch (usually moderate hemorrhages).

Thus, the morphological features of these lesions are extremely diverse, which is associated with a variety of conditions for their formation. However, despite the diversity in the morphological picture of liver injuries, individual injuries and their combinations occur only in certain types of car injuries.

Conclusion: the forensic medical expert, having established the type of traumatic impact by the nature of liver damage, has reason to speak about the possibility of their infliction under specific circumstances of the injury, of course, taking into account other morphological data obtained during the examination of the corpse. Of course, a dogmatic approach to establishing the type of traumatic impact on the nature of liver damage is unacceptable. A certain tolerance takes place, since the mechanisms of formation of liver damage are quite complex and deviations are possible in the process of formation of characteristic signs of damage, the formation of which depends on many factors: the conditions of injury, the impact energy, which can vary widely when struck by blunt objects with limited and unlimited surfaces, and others.

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