

# FEATURES OF DIAGNOSIS OF PARENCHYMAL ORGAN INJURIES IN CHILDREN

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**Abstract:** currently, one of the most pressing problems of pediatric surgery is the diagnosis and surgical treatment of traumatic injuries of parenchymal organs in children. This article analyzes the examination of 50 children with traumatic injuries of the abdominal organs. As a result of the examination, it was found that the use of a set of special research methods for diagnostic purposes, together with the assessment of clinical manifestations of the disease, makes it possible to optimize the preoperative diagnosis of closed abdominal trauma and determine the indications for endoscopic diagnostic methods.

**Keywords:** closed abdominal trauma, abdominal injuries, diagnostics, children.

## ОСОБЕННОСТИ ДИАГНОСТИКИ ТРАВМ ПАРЕНХИМАТОЗНЫХ ОРГАНОВ У ДЕТЕЙ

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**Аннотация:** в настоящее время одной из актуальных проблем детской хирургии являются вопросы диагностики и хирургического лечения травматических повреждений parenchymatous органов у детей. В данной статье приводится анализ обследования 50 детей с травматическими повреждениями органов брюшной полости. В результате обследования установлено, что использование в диагностических целях комплекса специальных методов исследования в совокупности с оценкой клинических проявлений заболевания дает возможность оптимизировать предоперационную диагностику закрытой травмы живота и определить показания к проведению эндоскопических методов диагностики.

**Ключевые слова:** закрытая травма живота, повреждения органов брюшной полости, диагностика, дети.

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As you know, closed abdominal trauma is a specific category of injuries, in which the severity of the victim's condition is determined not by a simple amount of injuries, but by a number of mutually influencing pathophysiological processes [3, 5]. In children, closed abdominal trauma accounts for 2-5% of all injuries. Most often, injuries are observed in children aged 5-13 years, the average age is 7.5-11 years. Boys are more likely to be injured-65-82% [1, 7]. If adults occupy the first place damage the gastrointestinal tract, then the children in the first place are damages of parenchymatous organs, of which the first is damage to the spleen 38-60%, the second – the liver [2, 8].

Many authors note a high frequency (about 40%) of various types of errors and defects in the diagnosis and treatment of closed abdominal trauma. The current situation strongly dictates the need for new tactics of diagnosis and treatment of those seriously affected in the acute period. It is necessary to actively use modern achievements of technology in medicine, to look for opportunities for fast and accurate diagnosis of injuries [4, 6, 9].

**Purpose of the research:** improving the efficiency of diagnosis of traumatic injuries of the parenchymal organs of the abdominal cavity.

**Materials and methods of the research:** This work is based on the results of the examination and treatment of 50 children with closed abdominal trauma (CAT), This work is based on the results of the examination and treatment of 50 children with closed abdominal trauma (CAT) who were inpatient treatment in the 2-clinic of the Samarkand State Medical Institute in the Department of General Surgery No. 1 from 2000 to 2020. Among the admitted boys there were 33 (66%), girls 17 (34%). The ratio of boys and girls is 1.9:1. Out of 50 children with

CAT, there was a predominance of abdominal damage caused by ruptures of the parenchymal and hollow abdominal organs.

Surgical intervention in the majority of cases were organ-preserving: when monoacetin damage in 88%, with paleoceanic 60%. The average duration of hospitalization of children with CAT was  $14.5 \pm 0.2$  days and ranged from 6 to 112 days.

The assessment of the general condition and severity of children with CAT was carried out using objective research methods: examination, palpation, percussion and auscultation. Ultrasound, laparocentesis, laparoscopy, and CT are widely used for diagnosis.

**Results of the research:** Ultrasound examination of the abdominal organs and determination of free fluid was performed in 49 patients with CAT. One of the main tasks was to identify damage to parenchymal organs and intracavitary bleeding. The presence of blood in the lateral channels, the subhepatic space, as well as in the pelvic cavity was revealed during echographic studies in 26 children.

Echographic detection of fluid only in the pelvic cavity corresponds to a "small" hemoperitoneum, the blood volume corresponds to 150-200 ml. This picture was revealed by us - in 17 victims who were not subjected to further surgical intervention, the treatment was carried out conservatively.

With "average" hemoperitoneum, except for the pelvis. Blood is echographically detected in the hepatic-renal pocket, lateral channels, and spleen, and the amount of blood spilled ranges from 200 to 500 ml. This phenomenon was found in 26 patients who, during further examination, found damage to parenchymal organs with continued bleeding, performed laparotomy and stopped bleeding. The detection of fluid and under the anterior abdominal wall in the mesogastrium region corresponds to a "large" hemoperitoneum with a blood volume in the abdominal cavity of more than 500-700 ml. In the patients we observed, "large" hemoperitoneum was established in-12 cases.

Echographically, 6 patients showed a moderate increase in size, and the presence of voluminous formations of significantly increased echonegativity, with somewhat indistinct and uneven contours, was determined in the liver. These signs were interpreted as intrahepatic hematoma.

The direct and most permanent echographic sign of subcapsular ruptures of the spleen (2 cases) is the presence in the parenchyma of a formation (corresponding to an intra-organ hematoma), the shape of which is determined by the localization and features of the rupture (linear, stellate, etc.), and the echogenicity is determined by the time elapsed since the injury.

Deep, including central breaks are visualized as formations of various, more often irregular shapes with uneven, indistinct contours were revealed - in 2 patients. Direct echographic signs of percapsular ruptures are a violation of the continuity of the organ contour and the visualization of the rupture line.

Bruising of parenchymal organs was diagnosed in 6 children with CAT. With bruises of parenchymal organs, direct echographic signs (in the first 3-5 hours after the injury) are a decrease in echogenicity, "irritability" of the echostructure of the parenchyma and loss of clarity of contours. These changes are due to the presence of interstitial edema.

One of the most effective methods of modern diagnostics is computed tomography. In the groups of patients we observed, CT was performed in 15 patients with closed combined damage to internal organs. The hemoperitoneum in CT is detected as an inhomogeneous structure in subdiaphragmal spaces (on the right - crescent-shaped) with uneven, indistinct contours. The density of the hemoperitoneum in the first hours after the injury and on the 3rd-5th day significantly differ. We observed hemoperitoneum in 3 (20%) children. The accuracy of CT in detecting hemoperitoneum is 100%.

In liver hematoma, the heterogeneity of the organ structure, a significant increase in the vertical dimensions of the right and left lobes, a clear deformation, a change in the clarity, evenness of the contours and heterogeneity of the structure of the central parts of the liver are noted. Biliohematoma is characterized by the presence in the projection of the liver of an irregular zone with uneven clear contours, a homogeneous structure, a density of 0 to 10 H units, which does not change with contrast enhancement.

When rupture of the liver observed heterogeneity of the structure of the body, increasing a vertical size of the right and left lobes, changing sharpness, smoothness of contours and the heterogeneity of the structure of deep tears in the fabric. Fluid is detected near the damaged liver parenchyma. This picture was observed in 4 (26.6%) patients. The accuracy of CT examination in detecting liver rupture is 98%.

One of the most modern methods of direct endoscopic examination is laparoscopy. A total of 17 laparoscopies were performed in extremely dubious cases in children with abdominal catastrophe.

Indications for laparoscopy were the detection of small and medium-sized hemoperitoneums during ultrasound examination against the background of stable hemodynamic parameters. Laparoscopy revealed ruptures of the spleen - in 4 children, liver rupture - in 2, rupture of the mesentery of the intestine - in 5 children and 1-rupture of the sickle ligament of the liver. In all the above examples, the damage to parenchymal organs was insignificant and laparoscopy ended with wound coagulation, sanitation of the spilled blood and drainage of the abdominal cavity.

The general condition and severity of children with CAT determines the use of an individual diagnostic algorithm, including the use of additional instrumental research methods. At the initial clinical examination, the damage to the internal organs is obvious, unstable hemodynamics and this fact is confirmed clinically and laboratory (hemoglobin is below 6 g/l), then - laparotomy is uncontroversial.

With stable hemodynamic parameters and the presence of free fluid (with ultrasound) in the abdominal cavity, it is advisable to perform endovideosurgical interventions. The presence of unstable hemodynamics and a large amount of fluid in the abdominal cavity (more than 500 ml), as well as in case of damage to the hollow organs, it is necessary to perform the operation using traditional methods.

**Conclusions:** We used research methods were needed for diagnosis and choice of surgical intervention and to identify the complex pathophysiological changes produced in the body after the injury and dysfunction of vital organs, and their consequences.

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