

# DIAGNOSIS AND MANAGEMENT OF ADHESIVE DISEASE IN CHILDREN

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**Abstract:** The algorithm of diagnostics and the treatment adhesive disease is developed on experience of treatment 231 children. Algorithm basis have compounded sonography of abdomen, antiadhesive therapy and laparoscopic adhesiolysis. The timing and methods of conservative treatment of the disease, as well as indications for surgical intervention, were determined. The use of the developed set of conservative measures made it possible to achieve a positive result in 133 patients (57.6%). 98 patients were operated on with good outcomes.

**Key words:** an adhesive disease, antiadhesive therapy, laparoscopic adhesiolysis, children.

**Relevance of the topic.** Adhesion disease (AD) is a pathogenetic basis of the formation of adhesions in the abdominal cavity, and it is clinically manifested by a violation of the evacuation function of the gastrointestinal tract and a recurrent pain syndrome in the abdomen[1]. The main complaints of patients with this disease are abdominal pain, vomiting, and in the late stages, indigestion and gas retention. From the anamnesis of the patient, the information about the surgical intervention in the abdominal cavity is determined[7].

Adhesive process in the abdominal cavity is a protective reaction of the body aimed at limiting the pathological process in the abdominal cavity, this process opportunities to fight with severe infectious or traumatic injuries of the abdominal organs. At the same time, the adhesion process in the abdominal cavity Adhesion disease and its complications are one of the main causes of adhesion intestinal obstruction. The low effectiveness of traditional methods in the treatment of adhesion disease, the high rate of recurrence and the high mortality rate after repeated surgical interventions (1.4-12%) have prompted us to look for new approaches to solving this problem [3,5,11].

Adhesion disease is characterized by a complex set of symptoms, in which abdominal pain syndrome dominates [6,8,12]. The intensity and frequency of pain attacks is variable, and in severe cases, even a slight disturbance of the diet or simple physical activity causes severe pain, nausea and vomiting. In this process, asthenovegetative disorders develop, the quality of life of patients with obvious manifestations of Adhesion disease significantly decreases, and their social adaptation is disturbed [3,7,10].

The most dangerous form of adhesion disease - adhesive intestinal obstruction - in most cases requires repeated surgical intervention, which inevitably leads to the appearance of more new adhesions. According to the literature, in the practice of children diseases, the share of this type of intestinal obstruction among other types is 30-40%. In 60% of all relaparotomies in children are due to adhesive intestinal obstruction. In 7-10% of cases, the adhesion process becomes aggravating and causes the clinical appearance of relapsing adhesion disease [2,4,7,9,11].

Early diagnosis of the disease is one of the main ways to improve the results of treatment of adhesion disease. At the same time, the informative value of traditional x-ray examination methods (general x-ray, abdominal x-ray) is low in adhesion disease, it is 50-60% [2-3,7,11,12,14,15]. In recent years, the use of ultrasound for the diagnosis of adhesion disease is becoming more and more widespread [10,12]. Absence of radiation exposure, painlessness, relatively quick examination and non-invasiveness of the method allow its repeated use, including for the purpose of dynamic echographic control. An alternative to the traditional open surgical method of treatment is currently a minimally invasive intervention called laparoscopic adhesiolysis. Minimal tissue damage during laparoscopic surgery creates less conditions for the development of adhesions and related complications in the abdominal cavity [6,7]. The risk of puncture-related complications (injury of large vessels and hollow organs) is successfully avoided by using a safe, effective and method of direct puncture of the abdominal cavity

with a blunt trocar [3]. Laparoscopy makes it possible to assess the location of the adhesion process in the abdominal cavity, its degree of expression, and the condition of the intestinal loops involved in the adhesion conglomerate.

The impact on the adhesion process in the abdominal cavity was achieved by using special treatment tactics developed in the clinic, taking into account the modern principles of the pathogenesis of postoperative adhesions [5,9].

Solving the interrelated problems of ultrasound diagnosis, anti-adhesion therapy with drugs, and minimizing surgical trauma through minimally invasive interventions was carried out using the proposed algorithm for the diagnosis and treatment of Adhesion disease in children [3,5,7,8,12].

**The purpose of the study-** is to diagnose and treat patients with abdominal adhesions.

**Research materials and methods.** The research work is based on the results of examination and treatment of 231 patients with abdominal adhesion complications after surgical intervention who were treated in the clinic during 2018-2023. The age of the patients is from 3 months to 18 years. 174 (75.3%) patients were hospitalized once, 36 (15.6) patients - twice, 21 (9.1%) patients - from 3 to 11 times.

The analyzed group of patients with adhesion disease was represented by the following manifestations:

- recurrent abdominal pain accompanied by vomiting during physical activity or after breaking paresis in children who have undergone abdominal surgery;
- clinical signs of complete or partial adhesion intestinal obstruction eliminated during conservative treatment measures;
- sonographic signs of the presence and spread of abdominal adhesions in children who underwent abdominal surgery.

Ultrasound examination technique. Taking into account the clinical symptoms of the disease (location of pain, the presence of post-surgical scars), a

polyposition scan (a series of longitudinal and transverse scans of the abdomen) is performed in the intended area of the abdomen in mode 0, in which a longitudinal section of the intestinal tube is taken out on the screen and viscerovisceral and visceroparietal connections are determined. In older children, it is recommended to perform this examination against the background of breath holding. Two signs were taken into account to describe the adherent process in the abdominal cavity: the presence of conglomerate in the intestinal loops and the fixed intestinal loop sign, which indicates the fixation of the intestinal loops to the parietal or visceral peritoneum.

Laparoscopy. One of the main conditions was the use of videolaparoscopy. The first insertion site of the trocar was determined according to the ultrasound examination, taking into account the location of the post-surgical scars on the anterior abdominal wall (contralateral). An endoscope with a trocar is lowered into the abdominal cavity, then CO<sub>2</sub> is injected into the abdominal cavity up to 14 mm above the wire (carboxyperitoneum), the visible parts of the abdominal cavity are reviewed and examined. Laparoscopic adhesiolysis was performed using a standard endovideolaparoscopic complex. The set of necessary equipment includes atraumatic clamps-graspers, scissors and bipolar or ultrasonic coagulators. During laparoscopy, adhesions must be coagulated with an electrocoagulator before cutting to prevent further bleeding. Adhesions were excised using laparoscopic scissors, and most of the adhesions were bluntly dissected without blood in preoperatively prepared patients.

Anti-adhesion treatment method. Cuprenil was prescribed once a day (during the day - between meals), every day. Dose: children under 2 years old – 1/4 tablet (65 mg); From 2 to 4 years - 1/3 tablet (85 mg); From 4 to 8 years - 1/2 tablet (125 mg); Over 8 years old - 1 tablet (250 mg). Physiotherapy treatments (electrophoresis with cholalysin) were performed daily. In this case, the position of the child is lying on his back; location of electrodes - transverse. Two electrodes are used, their area (200-300-400 cm<sup>2</sup>) is selected depending on the age of the

patient. One electrode is placed on the front wall of the abdomen and is connected to the positive pole, the other is placed on the lower back is connected to the negative pole. The drug substance cholalysin is introduced from the positive electrode. Amperage - 10 mA. Duration of the procedure: first session - 3-5 minutes, subsequent sessions - 6-8 minutes.

**Research results and their discussion.** Table 1 shows the distribution of patients with adhesion disease by treatment type.

**1 Table**

**Distribution of patients by type of treatment**

Type of treatment	Number of patients	
	Abc.	%
Conservative treatment	133	57,6
Laparoscopic adhesiolysis	29	12,5
Laparotomy separation of adhesions	69	29,9
<b>Total:</b>	<b>231</b>	<b>100</b>

Out of 231 patients with adhesion disease in our follow-up, 29 (12.5%) laparoscopic adhesiolysis was planned, 8 (27.6%) patients required conversion, and the remaining 133 (57.6%) patients underwent conservative treatment.

All patients with abdominal pain syndrome developed after abdominal surgery underwent general clinical examinations as well as abdominal ultrasound. In cases where echo graphic signs of the adhesion process were not detected, additional instrumental and laboratory tests aimed at determining the cause of the pain syndrome were conducted (x-ray of abdominal organs, gastrointestinal tract passage, irrigography, FGDC, urography, CT, etc.). When the pathology was detected, the patients were sent to the appropriate specialists: gastroenterologist, nephrologist, etc. Treatment tactics for patients with adhesions detected during echo graphic examination depended on the severity of the pain syndrome and the medical anamnesis. a full course of anti-adhesion therapy was prescribed in light and moderate intensity intervals, and then an ultrasound examination was performed. Patients with severe pain syndrome, as well as patients with an attack of adhesions during the last 3 months - the course of anti-adhesion treatment was

carried out simultaneously with preparation for planned surgery abdomen was performed.

After the first course of anti-adhesion treatment, a repeated ultrasound examination of the abdomen was performed. If the disappearance of pain in the abdomen was accompanied by the disappearance of echographic signs of adhesions, the patients, following the diet, were discharged to outpatient observation for 3-5 years and with an ultrasound examination every 6 months.

A second course of anti-adhesion treatment was prescribed after 1 month to patients with positive dynamics of pain syndrome and presence or absence of echographic signs of adhesions. Depending on the manifestation of clinical signs, repeated courses of treatment were carried out.

Cases in which the course of anti-adhesion treatment was not clinically effective were considered an indication for performing laparoscopic adhesiolysis. After the laparoscopic adhesiolysis intervention, patients were given anti-relapse treatment courses for 7 days. Patients who experienced adhesiolysis were prescribed 2-3 courses of anti-adhesion treatment for 10 days with an interval of 3 months, then echographic monitoring is performed. Later, these children were observed in an outpatient setting with a mandatory repeat medical examination and ultrasound every 3 months for the first year, and every 6 months for the next 3-5 years. The number of conservative treatment courses was determined individually, depending on the size of the surgical intervention, the level of clinical effectiveness and the dynamics of echographic signs.

During laparoscopic intervention, cases with an obvious adhesion process and a high risk of damage to internal organs became an indication for open laparotomy with the help of conversion and video-assisted methods. At the same time, visual inspection of the abdominal cavity made it possible to avoid unnecessary extended laparotomies, which increase the traumatic nature of the intervention.

A study of the long-term results of 1-2 courses of anti-adhesion therapy in 231 patients with adhesions showed that 133 (57.6%) patients were readmitted to the hospital due to persistent or recurrent pain, of which 98 (42.4%) had acute adhesions was admitted with symptoms of intestinal obstruction and was operated on according to urgent instructions. Stabilization of the general condition, relief of pain and normalization of nutrition of 24 patients diagnosed with a diffuse adhesion process in the abdominal cavity were achieved, however, the presence of the risk of intestinal obstruction required patients to be constantly monitored by a dispensary.

**Summary.** Indications for surgical treatment of patients with adhesions are the unsatisfactory clinical efficacy of conservative treatment and the presence of echographic and X-ray signs of bowel obstruction, indicating adhesion of intestinal loops to the parietal or visceral peritoneum. In patients with a clear positive clinical effect, when the conglomerate adhering to the parietal or visceral peritoneum is eliminated, as well as X-ray signs of intestinal obstruction, several courses of conservative treatment must be carried out until the pain syndrome completely disappears.

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