

## ЛАПАРОСКОПИЯ В ЛЕЧЕНИИ ДЕТЕЙ СО СПАЕЧНОЙ БОЛЕЗНЬЮ

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**Аннотация:** Лапароскопические операции имеют преимущества перед лапаротомией. В педиатрической практике проведено лишь несколько исследований о ведущей роли лапароскопии в лечении спаек у детей. Целью нашего исследования было оценить преимущества лапароскопии в лечении детей с кишечной непроходимостью (КИ).  
**Ключевые слова:** дети, острая кишечная непроходимость, лапароскопия, лечение.

## BITISHMALI ICHAK TUTILISHINI DAVOALASHDA BOLALARDA LAPARASKOPIYA

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**Annotatsiya:** Laparoskopik operatsiyalar laparotomiyaga nisbatan afzalliklarga ega. Pediatriya amaliyotida bolalarda bitishmali kasallikni davolashda laparoskopiyaning yetakchi ro'liga faqat bir nechta tadqiqot ishlari olib borilgan. Tadqiqotimizning maqsadi bolalarni bitishmali ichak tutilishi (BIT) kasalligini davolashda laparoskopiyaning afzalliklarini baholash.  
**Kalit so'zlar:** bolalar, o'tkir bitishmali ichak tutilishi, laparoskopiya, davolash.

## LAPAROSCOPY IN THE TREATMENT OF CHILDREN WITH ADHESIVE DISEASE

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**Annotation:** Laparoscopic operations have advantages over laparotomy. Only a few researches have been conducted on the leading role of laparoscopy in the treatment of adhesions in children in pediatric practice. The aim of our research was to evaluate the benefits of laparoscopy in the treatment of children with intestinal obstruction (IO).

**Keywords:** children, acute intestinal obstruction, laparoscopy, treatment.

**Relevance of the research:** Acute intestinal obstruction (AIO) is one of the most common and serious diseases in abdominal surgery. Among other types of intestinal obstruction, the percentage of intestinal obstruction (AIO) is 30-40%. Up to 60% of all laparotomies in children are performed for IO. 75% of children develop IO within the first 2 years after surgery. The incidence of IO in newborns after open surgery varies from 5.7% to 14.2%, depending on the surgical morbidity [1,9]. In older children, IO occurs with an incidence ranging from 0.1% after pyloromyotomy to 14% after colorectal surgery. After appendectomy, IO is observed in 3% of children with complicated appendicitis and 0.35% with uncomplicated appendicitis [4]. The incidence of IO varies by type of surgery: 5.4% for small bowel operations and 2.1% for colonic operations. A particularly high rate of IO after ileostomy formation or closure is 25%, and Ladd's operation for intestinal malrotation is 24%.

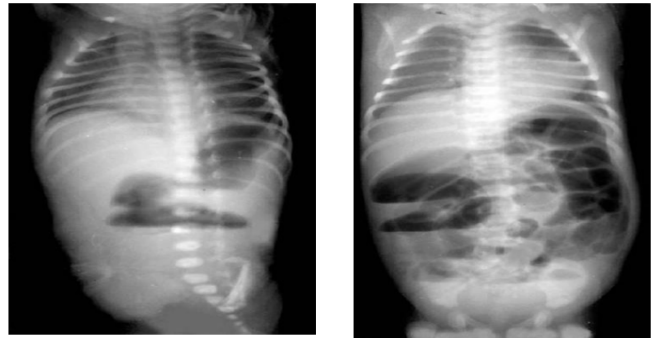
The mean age of patients with IO was 12.6 years, and 63% were boys [3,7,10]. Any surgical intervention in the organs of the abdominal cavity is accompanied by the development of an adhesive process with various injuries. IO is a polyetiologic disease, there are many reasons that initiate the adhesion process. These include mechanical damage to the intestine, aggressive effects of some exogenous chemical reagents on the intestinal wall, inflammatory diseases of the abdominal organs, intestinal paresis, and some other factors [2,6]. Despite the continuous improvement of diagnostic methods for conservative and surgical treatment, the recurrence rate of adhesive obstruction ranges from 7 to 36.8%, and the mortality rate ranges from 2.1% to 15% [1,5,9].

Thanks to scientific and technical progress, a whole group of new radiation diagnostic technologies such as ultrasound (ultrasound), computed tomography (CT), and others have appeared in recent years. All this ensures the need to make serious corrections to the calculation created over many years and to reassess the current arsenal of instrumental research. The issues of diagnosis, treatment tactics, rehabilitation, and prevention of this terrible complication of operations on abdominal organs are repeatedly studied and discussed and are still the focus of attention of researchers and practitioners [2, 8]. The problem does not only apply to adult patients but remains very relevant in pediatric surgery.

**The purpose of our research:** is to evaluate the advantages of laparoscopy in the treatment of children with adherent disease (AD).

**Research materials and methods:** The research of patients treated with infectious diseases in the Department of Emergency Pediatric Surgery of the Republican Emergency Medical Research Center in 2019-2022 Based on the analysis of the results of treatment of 35 (71.4%) patients by conventional method and 14 (28.6%) by laparoscopic method. AIO from 3 months. Under 18 years old. Boys - 9 (64.3%), girls - 5 (35.7%). Among our patients with AIO, 8 had one surgical intervention, and 6 had two or more surgical interventions in their anamnesis. Causes of AIO in the studied patients: appendectomy in 5 (35.7%); intestinal obstruction - 3 (21.7%); laparotomy (abdominal injury of various etiologies) - 6 (42.6%). Most of the patients with AIO have previously

undergone appendectomy or laparotomy (abdominal trauma of various etiologies). AIO diagnosis is based on clinical and laboratory examination data, X-ray (Fig-1), and ultrasound examination of abdominal organs (Fig-2,3).



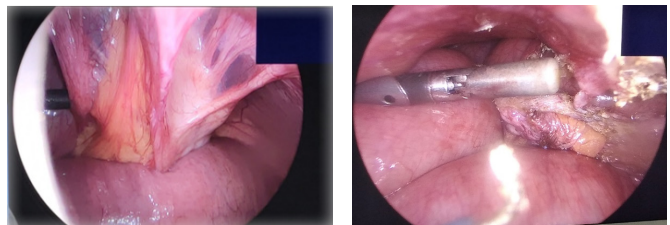
**Fig. 1-Low adhesive obstruction: multiple Kloiber cups, fixed arcades, stretching of intestinal loops above the obstacle.**



**Fig-2 Echogram.** Adhesions at the level of the proximal ileum. When longitudinally scanning at the level of the jejunum, intraluminal deposition of fluid, expansion of the lumen of the small intestine, and thickening of the folds are noted.

**Fig-3 Echogram of the same patient.** The dilated loops of the small intestine compress the collapsed loops of the ileum located distal to the site of obstruction.

Ultrasound was the most objective research method to determine treatment tactics. Sonographic signs: an increase in the diameter and thickness of the intestinal wall, a visible relief of the mucous membrane, pendulum-like peristalsis, and the presence of non-exogenous content in the intestine.



**Fig - 4 Planar adhesions**

**Fig-5 Laparoscopic**

All patients were operated under multicomponent anesthesia with the help of artificial ventilation after appropriate preoperative preparation, the main purpose of which was to normalize the volume of blood circulation and stabilize other hemodynamic parameters.

Abdominal access was performed in the usual way using a Veress needle or open according to Hassen in 3 patients. We used an optical trocar, which, due to the specific features of its design (the presence of a semi-oval spherical blade at the transparent end of the blade), gradually pierces the tissues of the anterior abdominal wall. The optical system is inserted into the abdominal cavity of the trocar, and the passage of the optical trocar through the tissue is observed on the monitor screen. During the video laparoscopy examination, we evaluated the localization and level of the adhesion process: (Fig-4,5)

- we determined the level of microcirculation disorder in the intestinal serosa;
- changes in the parietal and visceral peritoneum;
- afferent and efferent loops of the intestine and the site of obstruction;
- determined the amount and nature of the exudate.

**Research results and discussion:** During the research, guidelines for video laparoscopic intervention were developed: absence of extensive laparotomy scars on the anterior abdominal wall; lack of previous large-scale and repeated operations on abdominal organs; the absence of intestinal fistulas in the anamnesis; first 3 months of pregnancy; moderate flatulence (the diameter of the small intestine does not exceed 5 cm) (according to ultrasound examination). Based on our accumulated experience, we identified the following contraindications to laparoscopic adhesiolysis: massive adhesions in the abdominal cavity; planar adhesion of the intestinal wall with the parietal ventricle in a large area; signs of degeneration of the intestine through adhesions; a sharp increase in the diameter of the entire small intestine (diameter of the small intestine is more than 5 cm); necrosis of the small intestinal ring; suspicion of intestinal necrosis; nodulation, intussusception. Our research showed that from a technical point of view, it was especially convenient to cut the adhesions when the cause of the mechanical obstruction was a single band or fixed string in the peritoneum, as well as a single deformation of the small intestine. "double-barreled rifle".

According to our observations, in 7 patients in the area of the ileocecal angle, the adhesive blocked the ileum due to the bend in the form of a "double-barreled gun"; In 4 patients, adhesions formed as a result of adhesions

between the intestinal parietal peritoneum, urinary bladder and large peritoneum in the form of a small toothed ring were compressed. In 3 patients, planar adhesions of the intestinal wall with the parietal peritoneum were found, which compressed the intestine. was determined.

Among the observed patients, 10 patients had planar, band-like adhesions containing only capillaries, in which case the adhesions were excised with scissors without the use of electrocoagulation. It was convenient to perform adhesiolysis with the help of two or three tools at the same time. In this case, two manipulators were used to tighten the separated joints and prevent accidental damage to internal organs. If the adhesions were well vascularized, electrocoagulation was performed before crossing them (bipolar coagulation was convenient). Our experience shows that adhesions should not be closer than 3-4 mm from the intestinal wall, and with monopolar coagulation no closer than 1.5 cm, because in this case thermal damage from the coagulation zone can cause injury at this distance. Visceroparietal adhesions were destroyed by separating the intestine from the abdominal wall along with a part of the parietal abdomen. In all of our observations, the parietal peritoneum was separated directly from the parietal peritoneum when adhering with a larger adhesion, or the parietal peritoneum was separated by direct coagulation with a bipolar clamp. Adhesions of large adhesions to the intestine are sharply separated. The connective tissue was coagulated until a completely dark tissue no more than 2 cm from the intestinal wall was formed, after which the tissue was cut along the edge facing the intestine through the zone of coagulation necrosis.

After eliminating the cause of obstruction, the adherent part of the intestine was filled with intestinal contents, which was a sign that the intestinal permeability was restored after the surgical procedure. After eliminating strangulation obstruction, an important stage of the operation is to assess the viability of the intestine, especially in the area affected by strangulation. In 2 patients with questionable viability, the final treatment strategy was determined by dynamic laparoscopy, which was performed after about 12-14 hours (but the time of re-examination was determined by clinical manifestations).

In 7 patients, video-assisted laparoscopic operations were used to reduce the trauma of the intervention and facilitate the postoperative period. Among them, at the diagnostic stage of videolaparoscopy, 5 patients had dense adhesions of the small intestine ring along the right flank to the anterior wall of the abdomen. After confirming the diagnosis of AIO, laparoscopic separation of adhesions at the site of intestinal obstruction was performed. After that, the parietal peritoneum is visually completely emptied and the intestinal permeability is restored. Deserosed areas are sutured with separate gray-serous sutures. In 2 patients, endoscopic intubation of the initial parts of the small intestine was performed, inserted at a distance of 50-60 cm from the ligament of Treitz. In the postoperative period, early enteral tube feeding was performed against the background of complex conservative therapy. During endoscopic operations, complications in the form of subcutaneous emphysema and bleeding from the vessels of subcutaneous fat tissue appeared in 2 cases at the initial stage of mastering the technique. These complications did not require special treatment. In order to prevent adhesions, all patients underwent endoscopic operations with abdominal resection. As a control, warm saline solution, which is necessary for sanitizing the abdominal cavity, was used.

Then the liquid was removed. In the postoperative period, for 3 days, 2.5-2.0 ml of hydrocortisone solution is injected into the abdominal cavity up to 5.0 ml per day through drains. No deaths were observed among the observed patients. The average length of treatment day in the hospital was 6 days.

**Results:** This research is based on the analysis of the results of treatment of 35 (71.4%) patients by conventional method and 14 (28.6%) by laparoscopic method. The laparoscopic approach was performed in patients aged 3 months to 18 years with acute intestinal obstruction (AIO). Boys - 9 (64.3%), girls - 5 (35.7%). Among our patients with AIO, 8 had one surgical intervention, and 6 had two or more surgical interventions in their anamnesis.

**Summary:** The method of videoendolaparoscopy in the treatment of AIO is less traumatic, safe when used technically correctly, highly informative, and promising both in the diagnostic algorithm

and in the treatment of this pathology in children. Using the traditional laparotomy method: it is very traumatic, it leads to inflammation in the abdominal cavity and an increase in the adhesion process, it requires a long rehabilitation period, endogenous intoxication, and, as a result, an increase in complications. makes it possible to accurately determine the diagnosis of intestinal obstruction, to determine the location and mechanism of obstruction, and to perform adequate viscerolysis with the separation of adhesions that cause obstruction, as well as those that can cause its recurrence.

In order to exclude serious complications, it is recommended to carefully select patients and clearly define indications and contraindications for laparoscopic adhesiolysis. Videolaparoscopy is a promising direction in the complex treatment of patients with AIO. Laparoscopic surgery has many advantages over traditional surgery, it is a less traumatic intervention and reduces the possibility of repeated adhesions, but requires further in-depth research and retrospective analysis.

## REFERENCES:

1. Акилов Х.А., Ибрагимов Ж.Х. Профилактика и консервативная терапия острой спаечной кишечной непроходимости у детей// Клиническая медицина-2019. №3. P.82-85. www.tma-journals.uz.
2. Бердиев Э.А., Салимов О.У. Роль эндовидеолaparоскопии в профилактике и лечении спаечной кишечной непроходимости у детей // Молодой ученый. - 2020. - №26 (316). - P.77-79.
3. Дьяконова Е.Ю., Поддубный И.В., Гусев А.А., Бекин А.С. Преимущества малоинвазивной хирургии спаечной болезни у детей. Педиатрическая фармакология// 2018; 15 (3): 260-263. doi: 10.15690/pf.v15i3.1907
4. Переяслов А.А., Дворакевич А.О., Никифорок О.М. Лапароскопія у лікуванні дітей зі спайковою кишковою непрохідністю//Хірургія дитячого віку.- 2018. №2(59). P.46-50.
5. Чекмазов, И.А. Спаечная болезнь брюшины/М.: ГЭОТАР-Медиа, 2008. – P.160.
6. Юрков П.С., Барадиева П.Ж. Спаечная кишечная непроходимость. В кн.: Непроходимость желудочно-кишечного тракта у детей: национальное руководство /Под ред. Ю.А. Козлова, В.В. Подкаменева, В.А. Новожилова. М.: ГЭОТАР-Медиа,2017: P. 537-568.
7. Adhesiolysis-related morbidity in abdominal surgery/ RP Ten Broek, C. Strik, Y. Issa [et al.] // Ann. Surg. - 2013. - Vol. 258, N 1. - P. 98–106.
8. Aguayo R Fraser JD, Elias S, et al. Laparoscopic management of small bowel obstruction in children. J Laparoendosc Adv Surg Tech A. 2011;21(1):85-88. doi: 10.1089/lap.2010.0165.
9. Grant HW, Parker MC, Wilson MS, et al. Adhesions after abdominal surgery in children. J Pediatr Surg. 2008; 43(1):152-156; discussion 156-157. doi: 10.1016/j.jpedsurg.2007.09.038.
10. Lee J, Tashjian DB, Moriarty KR Surgical management of pediatric adhesive bowel obstruction. J Laparoendosc Adv Surg Tech A. 2012; 22(9):917-920.

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