

## DIAGNOSIS AND TREATMENT OF ADHESIVE SMALL BOWEL OBSTRUCTION WITH USING LAPAROSCOPIC METHOD

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***Abstract:** Adhesive disease of the abdominal cavity, complicated by acute intestinal obstruction, is one of the most difficult diseases of the abdominal cavity in terms of treatment and diagnosis. The urgency of the problem is determined by the complexity of prevention and treatment of the studied complication, the widespread increase in surgical activity, the expansion of indications for performing operations of extended volume and combined interventions for diseases of the abdominal cavity and retroperitoneal space. Analysis of the literature shows that acute intestinal obstruction occupies one of the first places among urgent pathology of the abdominal cavity in terms of the frequency of complications and fatal outcomes.*

*An increase in the number of patients, the severity and recurrent nature of the disease, difficulties in diagnosis, unsatisfactory immediate and long-term results of treatment of patients with adhesive small bowel obstruction, as well as a high percentage of disability determines the relevance of the chosen topic.*

***Keywords:** laparoscopy, laparotomy, lysis of adhesions, intestinal obstruction, adhesive disease.*

## ДИАГНОСТИКА И ЛЕЧЕНИЕ СПАЕЧНОЙ ТОНКОКИШЕЧНОЙ НЕПРОХОДИМОСТИ ЛАПАРОСКОПИЧЕСКИМ МЕТОДОМ

***Аннотация:** Спаечная болезнь органов брюшной полости, осложненная острой кишечной непроходимостью, является одним из наиболее сложных в лечении и диагностике заболеваний органов брюшной полости. Актуальность проблемы определяется сложностью профилактики и лечения изучаемого осложнения, повсеместным ростом хирургической активности, расширением показаний к выполнению операций расширенного объема и комбинированных вмешательств при заболеваниях органов брюшной полости и забрюшинного пространства. Анализ литературы показывает, что острая кишечная непроходимость занимает одно из первых мест среди неотложной патологии органов брюшной полости по частоте осложнений и летальных исходов.*

*Увеличение числа больных, тяжесть и рецидивирующий характер заболевания, трудности диагностики, неудовлетворительные ближайшие и отдаленные результаты лечения больных со спаечной тонкокишечной непроходимостью, а также высокий процент инвалидизации определяют актуальность выбранная тема.*

***Ключевые слова:** лапароскопия, лапаротомия, лизис спаек, кишечная непроходимость, спаечная болезнь.*

### INTRODUCTION

Adhesive small bowel obstruction is the cause of emergency hospitalizations in 10-20% of cases, and in 30% - emergency surgical interventions. It should be noted that among the patients who have had an episode of adhesive small bowel obstruction, only 15 - 21% of patients remain fully functional during the first year. Relapse rates remain excessively high, reaching 32%, and

the level of postoperative mortality varies, according to various data, from 2 to 35%, depending on the severity of the patient's condition, the form and duration of the disease. To date, it has been shown that in a significant number of patients operated on for adhesive small bowel obstruction, single adhesions are detected during laparotomy, but the trauma of access to perform adhesiolysis exceeds the intraabdominal injury caused during the main stage of the operation, which subsequently leads to the development of new adhesions. Thus, a kind of "pathological circle" is formed. Traditional surgical interventions performed for intestinal obstruction, according to some researchers, cause a relapse of adhesive disease in 90% of cases.

Analysis of the literature shows that acute intestinal obstruction occupies one of the first places among urgent pathology of the abdominal cavity in terms of the frequency of complications and fatal outcomes.

**Purpose of the research:** Optimize the diagnosis and treatment of patients with adhesive small bowel obstruction.

### MATERIALS AND METHODS OF THE RESEARCH

The results of diagnostics and treatment of 106 patients admitted to the surgical Department of the Samarkand city medical Association and Republican research center for emergency care with a diagnosis of adhesive small bowel obstruction for the period from 2017 to 2020 were analyzed. The results of surgical treatment of 39 patients with adhesive small bowel obstruction during this period were studied.

Criteria for inclusion of patients in the research:

- 1) Surgical treatment of adhesive small bowel obstruction
- 2) Stable hemodynamic parameters at the time of establishing indications for surgery (I-III degree of ASA).
- 3) Age > 18 years; informed consent.

Exclusion criteria from the research:

- 1) Intestinal obstruction as a complication of cancer of tumor origin.
- 2) The severity of the patient's condition exceeds the risk of surgery.
- 3) Inability to track long-term results of a patient's treatment over the course of a year.

The average age was  $42.7 \pm 6.4$  years (median age was 41.5 years; range from 18 to 65 years). There were 37 males (33%) and 69 females (67%).

To assess the effectiveness of laparoscopic access in cases of adhesive small bowel obstruction, patients were divided into two groups (the main group and the comparison group).

The main group included 30 patients (28%) who underwent laparoscopic adhesiolysis. The comparison group included 76 patients (72%) who underwent adhesiolysis and resolution of adhesive small bowel obstruction using laparotomic access.

The average age of the main group of patients was  $29.4 \pm 5.7$  years (median was 32.6 years; interval from 18 to 61 years). There were 11 males (36.7%) and 19 females (63.3%).

The average age of the control group of patients was  $38.5 \pm 4.4$  years (median was 39.7 years; interval from 18 to 65 years). There were 27 males (35.5%) and 49 females (64.5%).

From the data presented in the table, it can be seen that the most common causes of previous surgical interventions were gynecological diseases, acute appendicitis, acute cholecystitis, and pinched hernias of the anterior abdominal wall.

*Table 1*  
*Structure of diseases for which patients were operated before treatment (n=39)*

Diseases	Quantity (n)	
	Main group n=11	Control group n=28
Gynecological diseases (polycystic ovaries, chronic inflammatory diseases of the appendages, ovarian apoplexy, uterine fibroids)	4 (36,3%)	9 (32,1%)
Acute appendicitis, including the development of appendicular infiltrate and peritonitis	3 (27,3%)	6 (21,4%)
Acute cholecystitis	2 (18,2%)	3 (10,8%)
Strangulated inguinal hernia/ umbilical hernia	2 (18,2%)	4 (14,2%)
Gastric ulcer, complicated by bleeding and perforation	-	2 (7,1%)
Diverticular disease of the colon	-	1 (3,6%)
Closed trauma/ penetrating stab wounds to the abdomen	-	3 (10,8%)

It is noteworthy that in the first 6 hours from the onset of the disease, 4 (10.2%) patients were admitted to the emergency Department, from 6 to 12 hours — 12 (30.8%), from 12 to 24 hours — 14 (35.8%) cases; after a day or more, 9 (23.2%) patients were admitted.

Generally accepted physical examination methods were used during the examination. The main complaints in the presence of adhesive small bowel obstruction were: pain and bloating, delayed discharge of gases and stool. Patients also complained of dry mouth, nausea, vomiting, weakness, which is associated with water-electrolyte disorders.

Diagnostics of adhesive small bowel obstruction included clinical and laboratory examination, ultrasound examination (ultrasound), x-ray examination of the abdominal cavity (including using radiopaque drugs followed by dynamic polyposition enterography), intestinal scintigraphy, abdominal MSCT.

After surgical intervention, the duration of the operation, the duration of postoperative hospital stay, and postoperative complications that occurred within 30 days after surgical treatment were evaluated. In addition, long-term results were evaluated: relapse of the disease, repeated hospitalizations.

### THE RESULTS OF THE RESEARCH AND THEIR DISCUSSION

Out of 106 patients admitted to the surgical Department of the Samarkand city medical Association and Republican research center for emergency care in the period 2012-2017, 7 patients (6.6%) were identified as having indications for emergency surgery at the level of the emergency Department:

1. Suspicion of strangulation acute intestinal obstruction - 4 patients (with impaired or questionable intestinal viability-1)
2. Clinical picture of peritonitis - 1 patients (cause-necrosis of the small intestine with subsequent perforation of the organ)
3. "Started" acute intestinal obstruction with a sharp expansion of the loops of the small intestine to 5-6 cm in diameter - 2 patients (risk of intestinal rupture).

Diagnostic laparoscopy was performed in one patient with a clinical picture of strangulation obstruction. Laparoscopic adhesiolysis with a dissection of the rod was performed. There was no violation of the viability of the intestinal wall, there was no conversion.

**Table 2**

*Indications for emergency surgery at the emergency Department level*

Views	Main group n=1	Control group n=6
Strangulation obstruction	1	3
Peritonitis	-	1
The threat of rupture of the intestine	-	2

Laparotomy was performed in 6 patients for emergency indications.

In the absence of indications for emergency surgery, conservative treatment was initiated in 99 cases (93.4%), including infusion, antispasmodic therapy, siphon enemas, nasogastric drainage, and courses of hyperbaric oxygenation. If conservative treatment is ineffective, indications for surgery were established in 31 (31.3%) patients.

(22.6%) patients were operated with laparoscopic access for emergency-delayed indications. Conversion was required in 4 cases (36.4%). Indications for access conversion during emergency delayed laparoscopy were:

1. Widespread diffuse peritonitis (1);
2. Necrosis or doubts about the viability of the intestine (1);
3. Adhesive process in the abdominal cavity of the III - IV degree according to the classification of Blinnikov O. I. (2), which led in 1 case to intestinal perforation during the formation of pneumoperitoneum.

**Table 3**

*Distribution of patients in the compared groups depending on the access of surgical intervention and the prevalence of adhesions in the abdominal cavity n=39*

Severity of the adhesive process (degree) according to the classification of O. I. Blinnikov	Main group, n = 11		Control group, n =28		Total
	Planning and delayed lysis of adhesions n =3	Emergency adhesions n =8	Lysis of adhesions after ineffective conservative treatment, n =23	Emergency adhesions n =5	
I	2	2	6	-	10 (25,6%)
II	1	5	7	2	15 (38,5%)
III	-	1	6	3	10 (25,6%)
IV	-	-	4	-	4 (10,3%)

Successful conservative treatment was observed in 68 patients (68,7%).

Laparoscopic adhesiolysis after resolution of adhesive small bowel obstruction was performed in 3 (7.7% of all operated patients) cases, taking into account its recurrent course and previous "small laparotomies" and laparoscopic interventions (appendectomy, gynecological interventions) in the anamnesis.

Thus, after analyzing the data of retrospective and prospective studies, we found that laparoscopic access is most effective and safe in patients who were admitted early from the onset of the disease with a clinical picture of strangulation, after a history of small laparotomies. The adhesive process of the 4th degree according to the classification of Blinnikov O. I. is dangerous with iatrogenic injuries. Laparoscopic interventions after ineffective conservative treatment have

worse results, which is associated with a large diameter of intestinal loops with long-term obstruction and lack of working space in the abdominal cavity.

In the course of working out the technique of laparoscopic surgery, we established the following sequence of intervention stages: in case of detection of an ocoustic window, according to ultrasound of the abdominal cavity, the pneumoperitoneum was applied as standard using a Veresh needle or —open” by the Hasson method in its absence. Based on the laparoscopic revision data, the possibility of performing laparoscopic adhesiolysis was finally evaluated in accordance with the classification proposed by O. I. Blinnikov (1988). During laparoscopic revision of the abdominal cavity, first of all, the location of the collapsed intestinal loops was determined. The examination was performed retrograde: from the ileocecal transition to the Treitz ligament. The intersection of the adhesions that caused intestinal obstruction was performed acutely, without the use of coagulation. If the adhesion process was common, then only one "causal" junction was crossed. When coagulation was necessary, dielectric shears or ultrasonic shears were mainly used. If the intestinal wall is damaged, it may be sutured with separate nodular sutures on nontraumatic needle. After removing the obstruction, a 0.5% solution of novocaine (50 to 80 ml) was injected into the mesentery root to prevent gastrointestinal paresis in the early postoperative period.

In the presence of stretched loops of the small intestine more than 4 cm, intraoperative nasointestinal intubation was performed using intestinoscopy in 1 (1.4%) cases. The operation was completed by draining the abdominal cavity. Installed silicone drainage in the pelvic cavity through contraportada in the right iliac region.

Postoperative complications that developed in the main group of patients included: persistent postoperative intestinal paresis in one case (1.4%), which was resolved conservatively, but required the use of parenteral nutrition.

The duration of postoperative hospital stay with traditional laparotomic access ranged from 8 to 19 days (average  $13 \pm 4.5$  days), with laparoscopic access from 5 to 9 days (median 6.4 days) ( $p < 0.05$ ). Taking into account the results obtained and the data from the preoperative examination, we can conclude that laparoscopic intervention, in addition to minimizing the trauma of the operation, requires strict selection of patients to reduce the risk of both intraoperative and early postoperative complications.

There is a risk of performing laparoscopic adhesiolysis at the height of intestinal obstruction, especially in the presence of infiltrate, which may require conversion in some

cases to minimize the risks of intraoperative complications of laparotomic access. However, in compliance with all principles of urgent laparoscopic surgery, including high levels of expertise of the operating team, having extensive experience in both routine and emergency laparoscopic operations, in the absence of exceeding the indications for minimally invasive surgery treatment outcome of this group of patients will be positive, which was confirmed by the data of medical documentation and results of questionnaire in the remote terms after the operation.

## CONCLUSIONS

1. In 6.6% of patients admitted with adhesive small bowel obstruction, the indication for emergency surgery at the level of the emergency Department was strangulation acute intestinal obstruction, common peritonitis. In 93.4%, conservative treatment is indicated, which is effective in 68.7%, and in 31.3% of cases, emergency surgical treatment is indicated.

After resolving adhesive small bowel obstruction on the background of conservative treatment, the indication for planned delayed surgery from laparotomy access is a recurrent course of adhesive disease (from 2 to 4 times a year) and a history of "small operations".

2. The use of laparoscopic access reduced the number of postoperative complications to 5.4%, versus 15.8% after laparotomy, and the duration of hospitalization to 5±1.4 days, versus 13±4.5, respectively.

3. The modern therapeutic and diagnostic algorithm should include diagnostic and therapeutic laparoscopy, which can be used for emergency surgical interventions in 6.6% of cases, after ineffective conservative treatment in 22.6%, and planned-delayed in 100% of cases with recurrent course of adhesive small bowel obstruction after a positive effect of the therapy.

In 22.6% of cases, laparoscopic access can be used and its use is most justified in a planned and delayed manner after conservative resolution of intestinal obstruction.

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