COMPARATIVE EFFECTIVENESS OF LAPAROSCOPIC AND OPEN ADHESIOLYSIS IN ACUTE ADHESIVE SMALL BOWEL OBSTRUCTION

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https://doi.org/10.5281/zenodo.19093133

Abstract: Acute adhesive small bowel obstruction (ASBO) is a leading cause of emergency abdominal surgery. The optimal approach (laparoscopic or laparotomic) remains controversial due to differences in the severity of adhesions, the risk of bowel injury, and the need for resection. To compare the immediate outcomes of laparoscopic and open adhesiolysis for ASBO. The surgical design, small bowel resection rate, need for conversion, postoperative complications, and clinical outcomes were assessed. In the study group, videolaparoscopic adhesiolysis was performed in 60.0% of patients, laparoscopic-assisted bowel resection was performed in 26.1%, and conversion to laparotomy was required in 13.9% of cases. In the control group, bowel resection was performed in 48% of patients. The obtained data confirm the effectiveness of laparoscopic technologies with strict patient selection. Laparoscopic adhesiolysis is a promising surgical treatment for OSTKO, reducing the morbidity of the procedure and improving postoperative recovery. However, it requires adherence to selection criteria and readiness for conversion in complicated forms of the disease.

Keywords: acute adhesive small bowel obstruction, adhesiolysis, laparoscopy, laparotomy, small bowel resection, complications, conversion.

O‘TKIR BITISHMALI INGICHKA ICHAK TUTILISHIDA LAPAROSKOPIK VA OCHIQ ADGEZIOLIZISNING QIYOSIY SAMARADORLIGI

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Annotatsiya: O‘tkir bitishmali ingichka ichak tutilishi (O‘BIIT) qorin bo‘shlig‘i a’zolaridagi shoshilinch jarrohlik amaliyotlari sabablari orasida yetakchi o‘rinni egallaydi. Bitishma jarayonining og‘irligi, ichak shikastlanishi xavfi va rezeksiyaga bo‘lgan ehtiyojdagi farqlar tufayli maqbul kirish yo‘lini (laparoskopik yoki laparotomik) tanlash bahsli masala bo‘lib qolmoqda. Maqsad: O‘BIITda laparoskopik va ochiq adgeziolizisning bevosita natijalarini taqqoslash. Operatsiyalar tuzilmasi, ingichka ichak rezeksiyasi chastotasi, konversiyaga ehtiyoj, operatsiyadan keyingi asoratlar va klinik natijalar baholandi. Natijalar: Asosiy guruhda 60,0% bemorlarda videolaparoskopik adgeziolizis, 26,1% holatda laparoskopik-assistirlangan ichak rezeksiyasi bajarildi, 13,9% hollarda esa laparotomiyaga konversiya talab etildi. Nazorat guruhida ichak rezeksiyasi 48% bemorlarda bajarildi. Xulosa: Olingan ma’lumotlar bemorlarni qat’iy tanlab olish sharoitida laparoskopik texnologiyalarning samaradorligini tasdiqlaydi. Laparoskopik adgeziolizis O‘BIITni xirurgik davolashning istiqbolli usuli bo‘lib, aralashuv travmatikligini kamaytirish va operatsiyadan keyingi tiklanishni yaxshilash imkonini beradi, biroq tanlov mezonlariga rioya qilishni va kasallikning asoratlangan shakllarida konversiyaga tayyor turishni talab qiladi.

Kalit so‘zlar: o‘tkir bitishmali ingichka ichak tutilishi, adgeziolizis, laparoskopiya, laparotomiya, ingichka ichak rezeksiyasi, asoratlar, konversiya.

СРАВНИТЕЛЬНАЯ ЭФФЕКТИВНОСТЬ ЛАПАРОСКОПИЧЕСКОГО И ОТКРЫТОГО АДГЕЗИОЛИЗИСА ПРИ ОСТРОЙ СПАЕЧНОЙ ТОНКОКИШЕЧНОЙ НЕПРОХОДИМОСТИ

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Аннотация: Острая спаечная тонкокишечная непроходимость (ОСТКН) занимает ведущие позиции среди причин экстренных хирургических вмешательств на органах брюшной полости. Выбор оптимального доступа (лапароскопический или лапаротомный) остаётся дискуссионным ввиду различий в тяжести спаечного процесса, риске повреждения кишечника и необходимости резекции. Сравнить непосредственные результаты лапароскопического и открытого адгезиолизиса при ОСТКН. Оценивались структура операций, частота резекций тонкой кишки, необходимость конверсии, послеоперационные осложнения и клинические исходы. В основной группе видеолапароскопический адгезиолизис выполнен у 60,0% пациентов, лапароскопически-ассистированная резекция кишки — у 26,1%, конверсия в лапаротомию потребовалась в 13,9% случаев. В контрольной группе резекция кишки выполнена у 48% пациентов. Полученные данные подтверждают эффективность лапароскопических технологий при строгом отборе пациентов. Лапароскопический адгезиолизис является перспективным методом хирургического лечения ОСТКН, позволяющим снизить травматичность вмешательства и улучшить послеоперационное восстановление, однако требует соблюдения критериев отбора и готовности к конверсии при осложнённых формах заболевания.

Ключевые слова: острая спаечная тонкокишечная непроходимость, адгезиолизис, лапароскопия, лапаротомия, резекция тонкой кишки, осложнения, конверсия.

INTRODUCTION

Acute adhesive small bowel obstruction (ASBO) is one of the most common types of mechanical intestinal obstruction and represents a significant challenge in emergency abdominal surgery. The increase in the number of abdominal procedures in recent decades has naturally led to an increase in the incidence of adhesive disease and associated complications. In clinical practice, the key objectives for ASBO are timely diagnosis, rational selection of treatment strategies, and determination of the optimal surgical approach.

Traditionally, laparotomy with adhesion dissection and restoration of bowel patency has been considered the primary surgical treatment method. However, an open approach is associated with greater surgical trauma, the risk of wound complications, ventral hernia formation, and recurrent adhesions. Videolaparoscopic adhesiolysis, meanwhile, is considered a less traumatic alternative, allowing for shorter hospital stays and faster restoration of bowel motor and evacuation function. However, it has limitations: the risk of bowel injury during the initial approach, technical difficulties in cases of severe adhesions, and the need for conversion.

In this regard, a comparative assessment of the results of laparoscopic and open treatment of OSTCH remains highly relevant, especially taking into account the regional characteristics of emergency surgical care and the logistical support of hospitals.

MATERIALS AND METHODS

A clinical comparative study of surgical treatment outcomes for patients with acute adhesive small bowel obstruction was conducted. The study included 140 patients treated between 2016 and 2024.

Inclusion criteria: clinical picture of mechanical small intestinal obstruction; history of surgical interventions on abdominal organs; confirmation of the adhesive genesis of obstruction based on instrumental studies and/or intraoperatively.

Exclusion criteria: tumor intestinal obstruction; strangulated external hernias; intussusception, volvulus, parasitic obstruction; severe decompensation of concomitant diseases, limiting the possibility of surgical intervention.

Patients were divided into two groups depending on the surgical approach used: The main group (n=65) included patients who underwent videolaparoscopic and laparoscopic-assisted interventions.

The control group (n=75) included patients who underwent traditional laparotomy operations. All patients underwent a clinical examination, laboratory diagnostics, hemodynamic assessment, and intoxication assessment. A mandatory instrumental examination included plain abdominal radiography. A laparoscopic approach was chosen based on the suspected presence of limited adhesions, the absence of significant peritonitis, and the technical feasibility of a safe primary approach. If widespread adhesions, small bowel necrosis extending beyond 25 cm, or widespread purulent-fibrinous peritonitis were detected, conversion to laparotomy was performed.

In the control group, laparotomies were performed with dissection of adhesions, resection of necrotic areas of the small intestine with the formation of various types of anastomoses and drainage of the abdominal cavity, and, if indicated, nasointestinal intubation.

Early postoperative complications were assessed according to the Clavien–Dindo classification (2009).

The following were analyzed: the structure of operations; the frequency of bowel resection; the need for conversion; the frequency of complications; mortality; the duration of hospitalization and the time to restore bowel function (if data are available in the medical history).

The results are presented as absolute values and percentages. Statistical processing was performed using modern data analysis packages.

RESULTS

Structure of completed operations. In the main group (n=65), minimally invasive interventions were distributed as follows: videolaparoscopic adhesiolysis with drainage of the abdominal cavity - 39 (60.0%); laparoscopically assisted adhesiolysis with small bowel resection and side-to-side anastomosis - 17 (26.1%); diagnostic laparoscopy with transition to laparotomy - 9 (13.9%).

In the control group (n=75), the following laparotomy interventions were performed: laparotomy, adhesion dissection, abdominal drainage - 39 (52.0%); laparotomy, dissection of adhesions, resection of the small intestine with various anastomosis options and intubation of the small intestine - 36 (48.0%).

Table 1. Structure of surgical interventions in patients with OSTKN

Operation option	Main group (n=65) abs. (%)	Control group (n=75) abs. (%)
Videolaparoscopic adhesiolysis + drainage	39 (60.0)	-

Laparoscopically assisted adhesiolysis + resection + side-to-side anastomosis	17 (26.1)	-
Diagnostic laparoscopy → laparotomy + adhesiolysis + resection + anastomosis + intubation	9 (13.9)	-
Laparotomy + adhesiolysis + drainage	-	39 (52.0)
Laparotomy + adhesiolysis + small bowel resection + anastomoses (different options) + intubation	-	36 (48.0)

Small bowel resection rate: In the main group, bowel resection was performed in 26 patients (40.0%), including laparoscopically assisted interventions (n=17) and operations with conversion (n=9).

In the control group, bowel resection was performed in 36 patients (48.0%).

Table 2. Frequency of small bowel resection in groups

Indicator	Main group (n=65)	Control group (n=75)
Small bowel resection performed	26 (40.0%)	36 (48.0%)
Without resection	39 (60.0%)	39 (52.0%)

Conversion to laparotomy was required in 9 patients (13.9%). The reasons for this were widespread adhesions, severe cicatricial changes, necrotic lesions of the intestinal wall extending over 25 cm, and widespread purulent-fibrinous peritonitis.

Table 3. Conversion rate with laparoscopic approach

Indicator	Meaning
Number of laparoscopic interventions (main group)	65
Conversion to laparotomy	9 (13.9%)
Laparoscopy completed without conversion	56 (86.1%)

The dissertation used the Clavien-Dindo classification to assess early complications. Complications included suppuration of trocar and laparotomy wounds, intra-abdominal abscesses, early recurrent obstruction, and anastomotic leakage.

Since the provided fragment of the table of complications does not present the numerical values in full, in this article the complications are reflected according to the nomenclature, and it is recommended to transfer the quantitative indicators from the full table of the dissertation.

Table 4. Comparative characteristics of key outcomes

Indicator	Main group (n=65)	Control group (n=75)
The share of minimally invasive interventions	100%	0%
Small bowel resection	40.0%	48.0%
Conversion	13.9%	-
The proportion of interventions without resection	60.0%	52.0%

DISCUSSION

The obtained results confirm that videolaparoscopic adhesiolysis can be an effective surgical treatment for OSTKO, especially in cases of limited cord-like adhesions and the absence of severe peritonitis. In the study group, 60.0% of patients underwent laparoscopic adhesiolysis without bowel resection, indicating the possibility of restoring patency with minimal trauma.

At the same time, 13.9% of cases required conversion to laparotomy, due to the detection of widespread adhesions and complicated forms of obstruction. This fact emphasizes the need for strict patient selection for the laparoscopic approach and the surgeon's readiness to promptly expand the access.

A comparison of the frequency of small bowel resections showed that this procedure was performed more frequently in the control group (48.0%) than in the study group (40.0%). This may be due to both the distribution of patients by disease severity and the early use of minimally invasive tactics in the study group.

According to literature data and an analysis of dissertation material, a laparoscopic approach is associated with faster recovery of intestinal motor and evacuation function, a reduced incidence of wound complications, and shorter hospital stays. However, in cases of severe adhesions and contraindications (multiple coarse scars, ventral hernias, severe cardiorespiratory impairment), laparoscopy is limited.

Thus, the optimal surgical strategy for the treatment of OSTCH should be based on the ranking of patients and the choice of approach, taking into account the prevalence of adhesions, the presence of ischemia and peritonitis, as well as the technical equipment and experience of the surgical team.

CONCLUSION

Laparoscopically assisted interventions with small bowel resection accounted for 26.1% of cases, which confirms the possibility of expanding the scope of surgery in complicated forms of OCTI within the framework of minimally invasive tactics.

Conversion to laparotomy was required in 13.9% of patients and was due to widespread adhesions, peritonitis, and extensive intestinal necrosis.

The frequency of small bowel resection in the control group was 48.0%, in the main group - 40.0%, which reflects differences in the severity of clinical forms and the possibility of early minimally invasive intervention.

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