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MINIMALLY INVASIVE TREATMENT OF ACUTE INTESTINAL OBSTRUCTION BY PERITONITIS

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Abstract: Acute commissural intestinal obstruction aggravated by peritonitis has been proved to be quite common and severe disease which requires urgent operations; death rate of this disease averages 10,2 – 56,9 %. Taking into consideration these facts the aim of this work is to decrease risk factors of disease's recurrence, to improve the level of prophylaxis of commissural intestinal obstruction aggravated by peritonitis using modern therapeutic methods. Clinical evaluation of 81 patients with commissural intestinal obstruction aggravated by peritonitis (OIOAP) who have been treated in our department for the last 8 years has been carried out in this investigation. On the base of sufficient clinical material, the following conclusions have been made: treatment by the means of endovideolaparoscopic method gives the opportunity not only to eliminate the cause of the development of commissural intestinal obstruction aggravated by peritonitis; it proved to be effective method of prevention of commissural disease after surgical operation; besides, this method completely meets the requirements of esthetic and cosmetic surgery. Actually this method prevents the recurrence of commissure formation, it is very important for patients with the tendency to commissure formation.

Key words: Laparoscop, acute intestinal obstruction, peritonitis.

INTRODUCTION

Acute adhesive intestinal obstruction complicated by peritonitis is a fairly common and severe disease requiring emergency surgical intervention (1,3, 4, 6, 7, 9). Many studies have been devoted to improving treatment and diagnostic care for adhesive intestinal obstruction complicated by peritonitis, but despite the

constant improvement of prevention, diagnostic and treatment methods, this disease still has a high mortality rate, which, according to a number of authors, varies from 9.6 to 65.7%. Frequent relapses, dissatisfaction with its improvement, (2, 5, 8. 11).

Purpose of the research

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The aim of the work was to reduce the risk of relapse of the disease, increase the level of prevention of adhesive intestinal obstruction complicated by peritonitis using modern methods of treatment.

Research objectives:

- 1) improvement of videolaparoscopic diagnostics of treatment of adhesive intestinal obstruction complicated by peritonitis,
- 2) improvement of prevention of intestinal paresis in the postoperative period,
- 3) determination of indications and contraindications for laparoscopic methods

of treatment of adhesive intestinal obstruction complicated by peritonitis,

- 4) evaluation of the effectiveness of the methods used.

METHODS

In the surgical department of the Andrei State Medical Institute clinic, 81 patients with acute adhesive intestinal obstruction complicated by peritonitis have been treated over the past 8 years. The distribution of patients by gender and age is shown in Table 1.

Table 1

Distribution of patients by gender and age

Gender	Age from 15-30	31 - 50	51 - 70	71 and above.
Male	3 (3,7 %)	19 (23,4 %)	27 (33,3 %)	6 (7,4 %)
Female	1(1,2 %)	11 (13,6 %)	13 (16,1 %)	1 (1,2 %)
Total	4 (4,9 %)	30 (37,0 %)	40(49,4 %)	7 (8,6 %)

Of these, 76 (93.8%) were admitted with the clinical picture of the reactive phase of peritonitis, 5 (6.2%) with the toxic phase.

RESULTS AND DISCUSSION

Analysis of the results of the examination conducted in our patients before the operation showed that the presence of a widespread adhesive process is evidenced by multiple coarse postoperative scars deforming the anterior wall, in combination with anamnestic, clinical and instrumental data. 23 (28.4%) of our patients had to refuse videolaparoscopic adhesion dissection (VLAD), sanitation and drainage of the abdominal cavity, due to the high risk of iatrogenic damage to the abdominal

organs in the conditions of a widespread adhesive process. These patients had a history of coarse keloid scars on the anterior abdominal wall after wide midline laparotomy and surgery for adhesive acute intestinal obstruction. X-ray revealed signs of adhesive disease of the abdominal cavity with impaired passage through the small intestine. Ultrasound examination revealed the absence of free areas on the anterior abdominal wall for insertion of trocars and application of pneumoperitoneum, as well as signs of total adhesions in the abdominal cavity.

Our limited experience with laparoscopic surgeries allows us to recommend a

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preoperative examination complex for patients with adhesive disease complicated by peritonitis, including a general blood and urine test, blood biochemistry, plain contrast radiography of the abdominal cavity, ultrasound of the abdominal cavity and measurement of intra-abdominal pressure.

We analyzed the information content of the methods proposed for diagnosing adhesive disease. Plain radiography performed on all patients upon admission revealed signs of intestinal obstruction; Kloiber cups and pneumatization of small intestinal loops, intra-abdominal pressure was measured by assessing the pressure in the bladder through a Foley catheter connected to a hydromonometer of the Waldman apparatus. In patients of all groups, the intra-abdominal pressure was 16.3 ± 0.8 mm H₂O, which corresponded to grade 1 intra-abdominal hypertension. For diagnostics of adhesive disease with intestinal passage disorder, we believe it is more appropriate to use dynamic ultrasound diagnostics, which is non-invasive and safe. The main objective of ultrasound examination is to determine the severity of adhesive disease of the abdominal cavity. Thanks to ultrasound, points for safe entry of the trocar into the abdominal cavity were identified in 11 of 19 patients. The information content of ultrasound in identifying signs of adhesive disease reached 71.4% and was slightly higher than that of plain X-ray examination - 60-68%. Measuring intra-abdominal pressure shows the degree of intra-abdominal hypertension and the peritonitis phase. The duration of surgery depended on the severity of the adhesive process, experience and skills of the surgical team members. The prevalence of the adhesive process did not significantly affect the duration of the surgical intervention, since intra-abdominal adhesions were mainly

located in the area of the postoperative scar. Separation of adhesions detected in other anatomical areas, sanitation and drainage of the abdominal cavity were carried out simultaneously, often only by acute means, which required different amounts of time.

During the videolaparoscopic adhesion dissection (VLAD), sanitation and drainage of the abdominal cavity, interoperatively, our patients did not have a single complication. Minor bleeding that occurred during the separation of adhesions, most often the greater omentum, was stopped by electrocoagulation in bipolar and monopolar modes. In the postoperative period, complications associated with bleeding were also not noted. After completion of the surgical intervention, to prevent adhesion formation, the following were introduced into the abdominal cavity: 400 ml of rheopolyglucin + 64 U of lidase. In the postoperative period, on the 3rd - 4th day in the hospital, electrophoresis with contratubex was prescribed in the form of a gel - 5 - 7 sessions in the area of the postoperative wound. In outpatient settings, electrophoresis with contratubex on the anterior abdominal wall was prescribed for 15 days, the duration of sessions during the course increased from 5 to 15 minutes.

A thorough examination of patients with adhesive disease before surgery allows identifying factors that disrupt passage. Before surgery, the surgeon receives information about the prevalence of the adhesive process and its severity, areas free of adhesions on the anterior abdominal wall for safe entry into the abdominal cavity and the extent of peritonitis. A comprehensive examination including ultrasound, measurement of intra-abdominal pressure and laparoscopy allows identifying contraindications to VLRS.

Laparotomy was performed in 18 patients with adhesive intestinal obstruction

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complicated by peritonitis due to intestinal necrosis, resection of the necrotic area of the intestine and end-to-side anastomosis by the intussusception method was performed in 3 patients. Performing videolaparoscopic dissection of adhesions, sanitation and drainage of the abdominal cavity allowed all 64 patients of the main group to avoid interoperative complications associated with performing laparoscopic surgery in the conditions of the adhesive process, to prevent intestinal passage disorders in the postoperative period.

The presence of one or more midline laparotomies was not an absolute contraindication to minimally invasive surgery.

Currently, laparoscopy has not yet received wide application in the diagnosis and treatment of acute adhesive intestinal obstruction complicated by peritonitis. Most surgeons consider its use in conditions of intestinal paresis and adhesive process not only inappropriate, but also dangerous due to the possibility of iatrogenic damage to the intestine; in our practice, during the dissection of adhesions, damage to the intestinal wall occurred. The damaged area was subsequently sutured with a double-row suture. Having analyzed the results of videolaparoscopic dissection of adhesions, drainage and sanitation of the abdominal cavity, we were able to draw the following conclusions.

1. Currently, indications for laparoscopy include almost all cases of acute adhesive intestinal obstruction complicated by peritonitis in the reactive phase.
2. Of great importance for increasing the safety of the most critical stage of the operation - primary entry into the abdominal cavity - is the preoperative determination of the sites of intestinal loops soldered to the anterior abdominal wall, which is currently possible using

ultrasound of the abdominal cavity and measurement of intra-abdominal hypertension, as well as the use of safe methods of primary entry into the abdominal cavity (in the modification of Poddubny, direct puncture with a blunt trocar) optical trocars, the open laparoscopy technique according to Hasson.

Modern capabilities of videolaparoscopy, the availability of appropriate instruments in almost all cases allow;

- to establish a timely diagnosis of acute intestinal obstruction complicated by peritonitis.
- to perform an adequate volume, sometimes very extensive, viscerolysis with separation of adhesions causing obstruction complicated by peritonitis.
- to achieve restoration of intestinal obstruction.
- to use low-traumatic access to the site of the pathological focus.
- to perform low-traumatic dissection of intestinal loops and adhesions, sanitation and drainage of the abdominal cavity.
- to achieve a minimum of intraoperative complications, to facilitate the course of the postoperative period.
- to reduce the number and severity of postoperative complications.

To reduce the duration of hospitalization of the patient, to restore his full physical activity faster.

Currently, as we emphasized earlier, almost all forms of acute intestinal obstruction and peritonitis are absolute indications for laparoscopy. However, contraindications to videolaparoscopic surgery are:

- severe intestinal distension, with a massive adhesive process, which can be suspected given the nature of the surgery

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and the presence of scars on the anterior abdominal wall.

- the presence of a "cold" conglomerate of many tightly fused intestinal loops, with late adhesive intestinal obstruction.
- irreversible circulatory disorders in the strangulated intestine
- toxic and terminal phases of peritonitis accompanied by multiple organ failure.

CONCLUSION

Thus, performing videolaparoscopic dissection of adhesions and sanitation of the abdominal cavity allows not only to eliminate the cause of the development of adhesive intestinal obstruction, but is also an effective method for preventing adhesive disease after surgery. The method fully meets the requirements of aesthetic and cosmetic surgery. It prevents recurrence of adhesions, which is especially important for patients with a tendency to it. The age and gender of the patient do not affect the immediate and remote results of videolaparoscopic interventions.

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