

Anti-Adhesive Barriers in Abdominal Surgery: Our Experience in Minimally Invasive Methods

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Abstract The studied results of the treatment of patients with spinal disease of abdominal organs, the determined frequency of relapses of spinal intestinal obstruction and the possibility of laparoscopic adzeziolysis in the surgical treatment of acute spinal intestinal obstruction with the use of the anti-spain barrier agent "Hemoben". laparotomy adheziolysis - 539, intestinal resection laparotomy with interintestinal anastomosis-246, intestinal resection laparotomy with excretion of intestinal fistula-88, laparoscopy adhesiolysis-114, which was 11.5% (987) operations due to AAIB. The use of laparoscopic adhesiolysis with the use of anti-adhesion barrier agent "Gemoben" promotes early recovery of intestinal motility, reduces the frequency of recurrence of adhesive pain, and reduces the duration of hospitalization.

Keywords Adhesive intestinal obstruction, Laparoscopic adhesiolysis

1. Introduction

Analysis of the foreign and national literature showed that video laparoscopic surgery aimed to eliminate the cause of the intestinal contents passage disturbance have significant advantages over the traditional laparotomy intervention with the different approach to the choice of treatment method and correct selection of patients for the operation which ultimately helps to achieve the best quality of their life. Acute adhesive intestinal obstruction (AAIO) remains a difficult problem of emergency abdominal surgery due to difficulties in its diagnosis and treatment, absence of effective methods of prevention, significant percentage of complications, high mortality rate and financial costs [1,2]. Confirming the international status of the problem, the International Adhesions Society (IAS) was formed in Dallas, Texas, USA, in 1996. Surgical interventions for adhesions of abdominal cavity do not exclude the possibility of recurrence, and sometimes are the stimulating factor of adhesion formation [13,18,19,20]. Adhesiolysis during laparotomy is not a guarantee of their absence in the future. According to some data, recurrences occur in up to 50% of cases; repeated surgeries increase the risk of adhesions formation and their complications [3,4,5,7,8].

Currently, there is a tendency of video laparoscopy application in the treatment of adhesive intestinal obstruction. According to the data of domestic and foreign authors, the method reduces the patients' stay in the hospital and decreases the number of complications.

According to a number of authors, the proportion of laparoscopic operations varies from 11.4 [6,9,17] to 97.0% [14,15,21]. There are a number of works describing clear advantages of laparoscopic operations for acute intestinal obstruction in comparison with open operations [9,10]. Thus, the number of complications after laparoscopic operations performed is by 25% lower than after open surgeries [11,12,16].

Such difference in the frequency of laparoscopy use can indicate significant differences in the choice of indications for laparoscopic surgery in UCI or insufficiently clear guidelines.

Objective. To study the possibilities of laparoscopic adhesiolysis in surgical treatment of acute adhesive intestinal obstruction, decreasing of frequency of recurrences of adhesive intestinal obstruction and also to determine the use of modern barrier means for complex of anti-adhesive measures.

2. Materials and Methods

Nowadays 114 attempts of minimally invasive operations concerning acute adhesive intestinal obstruction were carried out: 89 at the onset of the attack for urgent indications, and 25 - after ileus medicalization in a planned procedure. Complex of conservative measures, conducted parallel with diagnostic manipulations included: nasogastric drainage, infusion therapy, injections of antispasmodics, anticholinesterase agents, setting of hypertonic and purging enemas. For comparison of efficiency of the laparoscopic adhesiolysis we analyzed results of treatment of 1988 patients with acute intestinal obstruction in Samarkand

branch of Republican Scientific Center of Emergency Medical Care during the period from 2010 till 2022. 1286 patients (64,7%) were diagnosed with small intestinal obstruction from the total number of patients, 702 (35,3%) patients had colonic obstruction. Operative treatment was used in 987 patients (49,6%), from them 706 (71,5%) patients had small-intestinal and 281 patients had colonic obstruction. The most frequent causes of adhesive intestinal obstruction are given in Table 1.

Table 1. Causes of acute adhesive intestinal obstruction

Causes	Number of patients	
	abc	%
Previously not operated	126	6,33
Appendectomy	605	30,43
Operated for AIO	579	29,12
Operated for abdominal trauma	296	14,88
Gynecological operations	212	10,66
Cholecystectomy	117	5,88
Resection of the stomach	53	2,66
Total	1988	100

The frequency of development of adhesive intestinal obstruction depending on the number of surgeries among the observed patients is shown in Table 2.

Table 2. The number of surgeries performed

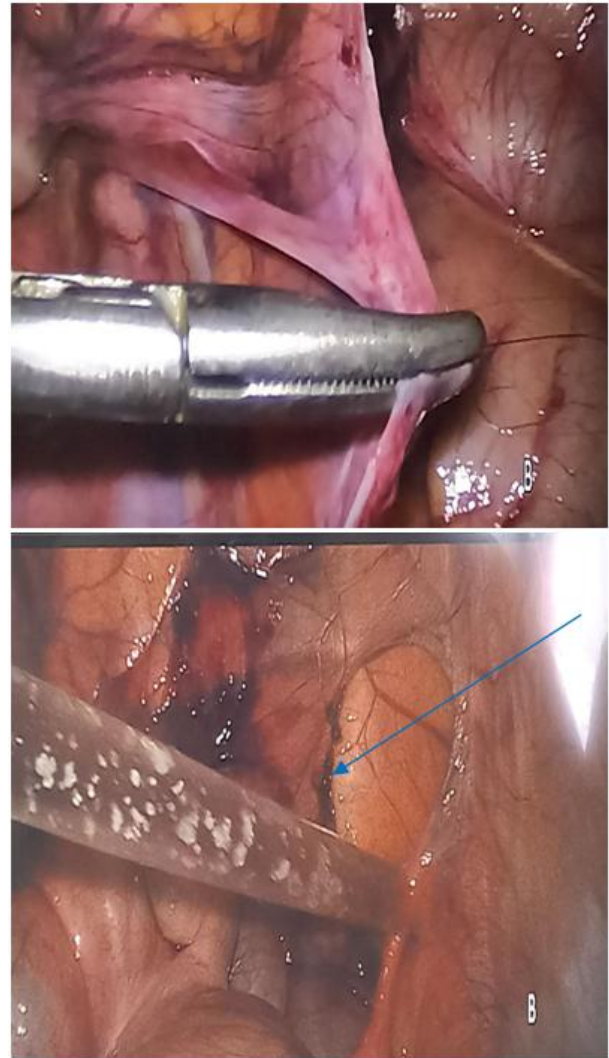
Multiplicity	Total number of patients (n=1988)	
	Abc	%
Not operated	126	6,33
Once	1303	65,5
Twice	263	13,2
Threetimes	231	11,6
Fourtimes	65	3,7
Total	1988	100

3. Results and Discussion

At admission all patients underwent clinical and biochemical blood tests, X-ray examination, ECG, ultrasound of the abdominal cavity organs and diagnostic laparoscopy, and multispiral computer tomography if necessary. Type of operative interventions: laparotomy-adhesiolysis-539, laparotomy-intestinal resection with interintestinal anastomosis-246, laparotomy-intestinal resection with fistula withdrawal-88, laparoscopy-adhesiolysis-114, which was 11.5% (987) of operations for acute adhesive intestinal obstruction in 2010-2022.

During the operation we are faced with various options of adhesions and divided into the following groups: single coarse cord-like adhesions were detected in 57 patients (after laparoscopic operations), multiple flat visceral-parietal in 39 patients, mixed armored abdomen in 18 patients. The conversion rate is 18%. The main reasons of conversion

were technical difficulties at separation of adhesions and conglomerates of the adherent small intestine loops, intestinal necrosis or traumatic damage of the intestinal wall. If necessary, patients underwent peridural block, which allowed to restore motility of the intestinal tract within the next 2 days.



Picture 1. Dissection of adhesions and the use of PSB "Hemoben" and methylene blue

Extensive defects on the parietal peritoneum formed after the dissection of adhesions serve as a springboard for the recurrence of adhesions. Therefore, in 45 (39.5%) cases, we used modern anti-spastic barrier agents HEMOBEN and methylene blue to prevent the recurrence of adhesions. In all patients (n = 45) who underwent adhesiolysis with the use of various antispastic agents, we performed dynamic ultrasound examination in the postoperative period to determine the amount of free fluid and motility of intestinal loops in the projection of the surgical scar. As a rule, ultrasound investigation was carried out on the 3rd, 5th, 7th and 10th day after the operation. Postoperative period in the operated patients had no complications. Physiotherapeutic complex of antispastic activities was given to all patients; medicamentous

prophylaxis of the recurrent adhesions formation with the use of therapeutic doses of the systemic enzymotherapy preparation "Longidaza" in injection and suppositories was given to 17 patients.

Almost all patients became active on the 1st-2nd day. Recurrence rate after laparotomy with adhesiolysis was observed in 129 (23.9%) patients, after laparoscopy with adhesiolysis - in 3 (2.6%) patients. There were no lethal outcomes after laparoscopic adhesiolysis. There was bleeding from the crossed adhesion in 1 patient, which was stopped by repeated laparoscopy. The postoperative period was 3 to 12 days (6,8 days on the average).

66 (57,9%) patients (including 31 (27,2%) after application of antispastic barrier agents "HEMOBEN" and methylene blue) underwent control examination at the period from 6 months to 1 year after the operation. Ultrasound and abdominal radiography showed no evidence of AAIO; the patients were discharged after a short course of conservative therapy and diet correction.

4. Conclusions

1. Laparoscopic adhesiolysis with the application of antispastic barrier agents is advisable to be performed in patients with I-II degree adhesions in whom AAIO was stopped by conservative measures.
2. Mini laparotomy is pathogenetically reasonable in case of technical difficulties during laparoscopic adhesiolysis; laparotomy is recommended in degree IV adhesions.
3. After adhesiolysis a complex of anti - adhesivemeasures with the use of systemic enzymotherapy preparations is indicated.
4. Modern anti - adhesivebarriers are the key to successful surgical treatment of abdominal adhesions irrespective of the method of operation as they are pathogenetically grounded approach to the prevention of disease recurrence.

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