

Research article

Results of repeat operation for early adhesive intestinal obstruction

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ABSTRACT

Introduction and Aim: One of the formidable complications in abdominal surgery is early intestinal obstruction, which quickly leads to the development of severe endotoxemia, and intra-abdominal hypertension. The objective of this study is to present the results of repeat operation of early adhesive intestinal obstruction.

Methodology: There were 27 patients (13 men and 14 women) aged 17-73 years under observation, who were re-operated for early intestinal obstruction that occurred after operations on abdominal organs. Twenty-four operations were performed by laparotomic access and three by laparoscopic access. Eighteen were operated on an emergency basis and nine were operated on as per plan.

Results: After diagnosis, all patients were operated on under endotracheal anesthesia with median laparotomy access, with the timing of the intervention being different. So, on the first day after the obstruction was detected, five patients were operated on, 15 patients from 24-72 hours, six patients from 3-5 days, and one patient was operated on after five days. This study shows the severity of the condition of patients with early intestinal obstruction and the complexity of treatment.

Conclusion: After surgery, treatment should be comprehensive and aimed at etiopathogenesis and affect intra-abdominal pressure, endotoxemia, and nutritional support.

Keywords: Abdominal surgery; early intestinal obstruction; repeat operation; laparotomy.

INTRODUCTION

One of the formidable complications in abdominal surgery is early intestinal obstruction, which quickly leads to the development of severe endotoxemia, and intra-abdominal hypertension (1, 2). Diagnosis of this complication is difficult because after the operations are performed, patients receive antibiotics, painkillers, and infusion therapy, which affect the manifestation of the observed complication (3, 4), and it's important to identify the complication as early as possible and eliminate the cause. With early intestinal obstruction, adhesion, foreign bodies, and more often bile concretions were also observed (5, 6). Often surgeons perform conservative treatment after operations for a long time, not establishing the cause that contributes to an increase in intra-abdominal pressure of the abdominal cavity, which leads to infection of the abdominal cavity and the development of peritonitis and endotoxemia (7, 8).

Additionally, it is difficult for both the surgeon and the patient to make a decision about a repeat operation, which is often the reason for a delayed repeat operation. Most of the researchers claim that observation and conservative treatment should not exceed six hours and if no effect is obtained, urgent

surgical intervention is necessary, since the main cause of mortality is a delayed operation (9, 10). There is a need for measures aimed at improving the diagnosis and treatment of this formidable complication in abdominal surgery.

The objective of this study is to present the results of repeat operation of early adhesive intestinal obstruction using the developed measures for the prevention of complications and their treatment.

MATERIALS AND METHODS

There were 27 patients (13 men and 14 women) aged 17-73 years under observation, who were re-operated for early intestinal obstruction that occurred after operations on abdominal organs.

Previously, 10 patients were operated on for acute calculous cholecystitis, 10 patients were operated on for chronic cholecystitis 10, one patient was operated on for gastric ulcer, two observations including adhesive intestinal obstruction and appendicular abscess, and one each patient operated on for dolichosigma and polyposis of the gallbladder.

Twenty-four operations were performed by laparotomic access and three by laparoscopic access. Eighteen were operated on an emergency basis and

nine were operated on as per plan. Analysis of the timing of the occurrence of signs of intestinal obstruction showed that there were three patients within three days, four patients from 3-5 days, then thirteen patients from 5-7 days, and later four patients within four days. Consequently, most of these complications occurred within 5-7 days. In addition to the conventional examination, ultrasound, radiological (survey radiography, studies involving contrast materials), computed tomography, and magnetic resonance imaging were used in the examination of patients. Determination of the functional state of the liver and kidneys. The data obtained are presented as n (%).

RESULTS

After diagnosis, all patients were operated on under endotracheal anesthesia with median laparotomy access. But the timing of the intervention was different. So, on the first day after the obstruction was detected, five patients were operated on, 15 patients from 24-72 hours, six patients from 3-5 days, and one patient was operated on after five days. It should be noted that ultrasound, X-ray examinations, and intestinal stimulation were repeatedly performed in all patients, if necessary, computed tomography or magnetic resonance imaging studies, and only after that the need for repeat operation was decided, but in three patients the operation period was delayed. The types of operations are given in Table 1. During the operation, the cause of the obstruction was eliminated and the most common were adhesions, they were acutely dissected, and four had a need for resection of the small intestine since the pinched loops of the intestine between the adhesions were recognized as non-viable. Another two patients had obstruction of the intestinal lumen with bile concretions during the revision, the intestinal lumen was opened, the concretions were removed, and patency was restored. Another patient underwent surgery when adhesions were the cause of obstruction, the intestines were

sharply swollen, there was no peristalsis, and he had an ileostomy to unload the intestines.

During the operation, a nasogastric probe was inserted into the small intestine below the ligament of Treitz (intestinal intubation) and through the probe after the operation, the intestine was irrigated with an ozonated solution with an ozone concentration of 8-10 mcg/ml and an ozonated solution was also retrogradely injected into the large intestine. Also, during surgery, an antibiotic (lymphotropic) mixture was injected into the mesentery of the intestine (cefazolin 1 g/100mL, heparin 70 unit/kg, lidase 8-12 units, 15-20 ml of 0.5% solution of novocaine, and 2 ml of proserin). Then a micro irrigator was fixed in the mesentery of the small intestine, the peripheral end of which was brought out and in the postoperative period, the same mixture composition was injected through it once a day by the end of the operation. The abdominal cavity was irrigated with an ozonated solution and then drained.

We used ozonated sodium chloride solution and ozonated distilled water to irrigate the intestines to prevent the development of fermentation, putrefaction, and infection of the abdominal cavity, and irrigation of the abdominal cavity to reduce contamination. An antibiotic (lymphotropic) mixture was used to improve the drainage function of the lymphatic system, which plays a leading role in any inflammatory process, surgery, or injuries, and in addition, the mixture affects the restoration of the motor evacuation function of the intestine. Intestinal intubation with irrigation with ozonated solution helps to reduce pressure in the intestine and in the abdominal cavity. After the operation, the patients received infusion therapy, which included saline solutions, rheopolyglucin, polyglucin, convalescent plasma, and vitamin complex. After removing the micro irrigator from the abdominal cavity, antibiotics were prescribed intravenously or intramuscularly, considering the results of its sensitivity to antibiotics.

Table 1: Types of repeated operations and the frequency of complications in early adhesive intestinal obstruction

Types of the surgical operations	Total number of patients	Patients showing complications
Dissection of adhesions	20 (74.1%)	5 (18.5%)
Dissection of adhesions and resection of the small intestine	4 (14.8%)	2 (7.4%)
Enterotomy and extraction of concretions	2 (7.4)	-
Dissection of adhesions and ileostomy	1 (3.7%)	-
Total	27 (100%)	7 (25.9%)

Special attention was paid to nutritional support, as patients always have enteral insufficiency. So, early enteral nutrition was introduced, and three patients has low albumin content, the introduction of Kabiven central injection 1540ml was carried out only in the central veins and Kabiven peripheral injection 1440ml was injected into peripheral veins; the condition of patients improved rapidly, the level of albumin increased and intestinal peristalsis was restored.

After surgery, 7 (25.9%) patients showed complications, 5 (18.5%) patients had dissection of adhesions, 2 (7.4%) patients had dissection of adhesions and resection of the small intestine. Of seven complications, three were pleurisy, which was cured by pleural punctures, one patient had wound suppuration, one patient had eventration, multiple organ failure in two patients, and two died, both from increasing multiple organ failure, they underwent dissection of adhesions and intestinal resection.

This study shows the severity of the condition of patients with early intestinal obstruction and the complexity of treatment. Despite the complexity of treatment during and after surgery, complications after repeated operations amounted to 25.9% (in 7 patients) and mortality of 7.4% (in 2 patients).

DISCUSSION

One of the complex forms of intestinal obstruction is early postoperative intestinal obstruction, which is most often caused by an adhesion and less often by a foreign body. It is manifested by cramping pains in the abdomen, delayed stools, vomiting, where immediately obstruction can be suspected (2, 3). However, even after the results of ultrasound and X-ray examinations, when data confirming the complication is observed, the surgeon does not immediately decide to take on a repeat operation (4, 9), and this leads to increased endotoxemia, intra-abdominal hypertension. Timely diagnosis with subsequent surgery and comprehensive treatment in the postoperative period, which should be aimed at reducing intra-abdominal pressure, eliminating endotoxemia and nutritional support, plays a crucial role in the outcome of this complication. In this study, long-term observations have shown the expediency of intestinal intubation with irrigation using ozonated solution, which leads to intestinal unloading, prevents fermentation, putrefaction, and infection of the abdominal cavity, and this method can be more widely used in the treatment of any form of obstruction with proper nutritional support.

CONCLUSION

Repeat operation due to the development of early adhesive intestinal obstruction is uncommon. After surgery, treatment should be comprehensive and aimed at etiopathogenesis and affect intra-abdominal pressure, endotoxemia, and nutritional support.

CONFLICT OF INTEREST

Authors declare no conflicts of interest

REFERENCES

1. Gelfand, B. R. Intraabdominal hypertension syndrome. Emergency medicine. 2008; 5:5-15 (In Russ.).
2. Dubrovshik, O. I., Marmysh, G. G., Dovnar, I. S., Friedman, K. M., Kazenov, S. S. Adhesive intestinal obstruction: tactics, treatment, prevention of recurrence. Journal of the Grodno State Medical University. 2012; 2:20-23 (In Russ.).
3. Minnullin, M. M., Krasilnikov, D. M., Nikolaev, Ya. Yu. Diagnosis and surgical treatment of patients with acute intestinal obstruction. Practical Medicine. 2014;2(78):115-120 (In Russ.).
4. Antonyan, S. Zh., Zharikov, Yu. O., Shkerdina, M., Yartsev, P. A. Modern opportunities of surgical technique in the treatment of adhesive small bowel obstruction. Bashkortostan Medical Journal. 2018;13(6):79-84. (In Russ.).
5. Khasanov, A. G., Nurtdinov, M. A., Ibraev, A. V. Obstructive bowel obstruction caused by gallstones. Grekov's Bulletin of Surgery. 2015; 2:20-25 (In Russ.).
6. Ayantunde, A. A., Agrawal, A. Gallstone ileus: diagnosis and management. World J Surg. 2007;31(6):1292-1297.
7. Niyazov, B. S., Kurmanov, R. A., Umetaliev, Yu. K. The significance of high intra-abdominal pressure syndrome in surgery. Healthcare of Kyrgyzstan. 2019; 4:151-157 (In Russ.).
8. Beluzhnikov, A. V., Lyubarsky, M. S., Nikolaev, V. V. Correction of endogenous intoxication syndrome in widespread peritonitis using lymphogenic technologies. Siberian scientific medical journal. 2008;133(5):67-70 (In Russ.).
9. Akramov, E. H., Moldosheva, M. T. Intraoperative detoxification in acute intestinal obstruction. Healthcare of Kyrgyzstan. 2019; 3:55-57 (In Russ.).
10. Aliev, S. A., Aliev, E. S. Nasointestinal intubation in surgery of acute intestinal obstruction and peritonitis: past, present and future. Pirogov Russian Journal of Surgery. 2021;10: 92-99 (In Russ.).