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POST-APPENDECTOMY ACUTE ADHESIVE INTESTINAL OBSTRUCTION: CLINICAL FEATURES AND TREATMENT APPROACHES

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Abstract. *This study analyzes the clinical features and treatment outcomes of 164 patients who developed acute adhesive intestinal obstruction after appendectomy, treated from 2017 to 2023. The condition was more prevalent in females and most commonly developed months or years post-surgery. A strong correlation was found between obstruction and destructive forms of appendicitis, as well as traumatic surgical techniques involving drainage and tamponade. Conservative therapy was effective in 64.1% of cases, while 60 patients required surgery. Among these, postoperative mortality was 13.3%, mainly due to late presentation. The findings emphasize the importance of minimally invasive surgery and timely intervention in reducing complications.*
Keywords: *appendectomy, Adhesive intestinal obstruction, Postoperative adhesions, Intestinal surgery, Peritoneal trauma, Surgical outcomes, Bowel obstruction.*

Introduction

In surgery, there are several enduring problems, one of which is **acute intestinal obstruction**, a frequent reason requiring emergency surgical intervention. After various operations in the abdominal cavity, the development of adhesions often leads to **acute adhesive intestinal obstruction**. Since appendectomy ranks first in frequency among emergency operations, it is understandable that the majority of adhesive processes leading to acute intestinal obstruction are associated with appendectomy.

Much in the development of adhesions depends on the surgical technique used. As is known, these operations are predominantly performed by young and inexperienced surgeons. According to literature data, the proportion of patients with acute adhesive intestinal obstruction who previously underwent appendectomy ranges from **11.6% to 76.2%** (2,3).

The often-unsatisfactory treatment outcomes for acute intestinal obstruction following appendectomy underline the **relevance of this study**.

Materials and Methods

From 2017 to 2023, **589 patients** with adhesive intestinal obstruction were treated in the surgical department. Of them, **164 patients (27.8%)** developed **acute adhesive intestinal obstruction** at various times after appendectomy. Among these, **55 were men (33.5%)** and **109 women (66.5%)**, aged between **16 and 70 years**.

- 33 patients were admitted within 6 hours of symptom onset,
- 25 patients within 12 hours,
- 33 patients within 24 hours,

- 68 patients within 10 days,
- 5 patients at more distant intervals.

Within 1 month after appendectomy, **14 patients** developed adhesive obstruction, **18 patients** within 2 months, **10 patients** after 3 years, and the remaining **122 patients** at longer intervals. Out of 164 patients, **60 underwent surgical treatment**.

Results and Discussion

A significant factor in adhesion development was the degree of destructive changes in the appendix at the time of appendectomy. It is known that fibrin released during tissue destruction becomes the source of connective tissue, and its amount determines the extent of scar and adhesion formation in the abdominal cavity.

Analysis of medical histories showed destructive forms of appendicitis in 108 patients (66%):

- 26 had phlegmonous appendicitis,
- 20 had gangrenous appendicitis,
- 5 had perforation,
- and only 6 had catarrhal inflammation.

Another crucial factor was traumatization of the peritoneum, especially due to attempts by young surgeons to operate through small incisions, which complicates procedures, particularly in cases with difficult appendix localization.

In 31 cases, surgery was technically difficult and ended with drainage in 23 and tamponade in 8 patients. Clinical experience shows that unjustified drainage or tamponade may result in scar formation around the foreign body (tube or tampon), causing bowel loops to adhere, distort, and obstruct.

Thus, postoperative adhesions were mostly seen in patients with destructive appendicitis and technically difficult surgeries, especially those involving drainage or tamponade. For this reason, indications for drainage and tamponade have been significantly reduced in recent years.

Clinical Presentation.

Symptoms included:

- Cramping abdominal pain,
- Nausea and vomiting,
- Abdominal distension,
- Absence of gas and stool in 110 patients.

On examination:

- 49 patients showed abdominal asymmetry due to gas accumulation and bowel paresis (positive Val symptom),
- Splashing sounds (Sklyarov’s symptom) in 68 patients,
- Tympanitic percussion over distended loops in all patients.

Symptom severity depended on the level of obstruction and time since onset. Auscultation in early stages revealed enhanced peristalsis during painful cramps.

In many cases, the condition developed gradually—starting with bloating and nausea, then progressing to pain. This explains the delayed hospitalization seen in most patients.

With disease progression, peristalsis diminished, indicating advanced intestinal changes.

Imaging Findings

- 39.5% had single or multiple Kloiber cups,

- 20% had intestinal pneumatosis.

Severity depended on the duration and stage of the obstruction.

Causes of Poor Outcomes

Main reasons for treatment failure:

- Delayed medical attention,
- Irreversible intestinal wall changes,
- Temporary improvement after cleansing enema, giving false hope.

Even during conservative therapy, temporary symptom relief could mislead surgeons, delaying necessary operations. However, structural intestinal damage due to impaired blood supply may become irreversible, even if passage is restored later.

Therefore, timely surgical intervention is crucial.

Treatment

Initial management included:

- Conservative therapy (medication, physiostimulation),
- Fluid/electrolyte balance correction.

These were successful in 104 patients (64.1%).

Surgery was performed in 60 patients, including 4 with signs of peritonitis admitted late. Endotracheal anesthesia with muscle relaxants was the preferred method.

During surgery:

- Adhesive-scar processes were mostly found in the ileocecal region,
- Adhesions were dense, fibrous, compressing the bowel loops.

In some cases, adhesions caused “double-barrel” twists or severe deformities.

- In 42 cases, simple adhesion dissection restored bowel function,
- In 7 cases, a "double-barrel" loop was straightened, and 2 required resection with side-to-side anastomosis,
- In 9 cases, volvulus of the ileum was found, with 3 necroses requiring resection and anastomosis.

Postoperatively:

- Continuous monitoring of intestinal function,
- Fluid-electrolyte and protein correction,
- Detoxification,
- From days 2–3: medication and electrostimulation of the intestines.

Outcomes

Among 60 operated patients, 7 died (13.3%):

- 3 from ongoing peritonitis (late admissions on days 6–8),
- 1 from severe bronchopneumonia,
- 4 from pulmonary embolism.

Conclusion

The development of acute adhesive intestinal obstruction after appendectomy is significantly influenced by:

- The destructive form of appendicitis,
- Peritoneal trauma due to complex anatomy,
- Poor surgical technique (typically by novice surgeons),
- Use of tamponade and drainage, which provoke scarring.

Surgical intervention in such cases should be as gentle and minimally traumatic as possible.

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