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Uterine Tube Encircling Small Bowel Causing Mechanical Obstruction, Case Report and Literature Review

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Abstract

Introduction: Intestinal obstruction is one of the common presentations of patients with acute abdomen to the Surgical Emergency Department, and it is associated with significant morbidity and mortality. The most common causes of acute small bowel obstruction are adhesions and an obstructed hernia. One of the rare causes of acute small bowel obstruction is constriction of bowel wall by fallopian tubes, and it usually occurs secondary to adhesions of previous obstetric and gynecological surgeries. Other gynecological causes include endometriosis and Pelvic inflammatory diseases. Case Presentation: We are presenting a 56-year-old married female, who is presented with features of acute mechanical intestinal obstruction for duration of two days. She had a history of Caesarian Section, however, no other significant history. CT scan abdomen confirmed the clinical finding and showed closed loop small bowel obstruction with radiological signs of mesenteric ischemia. Diagnostic laparoscopy was done, and the intraoperative finding was constriction band formed by left tube causing obstruction of ileal loop segment and intestinal obstruction. Discussion: One of the rare causes of mechanical small bowel obstruction is gynecological causes like endometriosis, internal hernia or like in our case fallopian tube adhesions causing a constriction band. The intraoperative decision is challenging and often required skillful laparoscopic surgeon in order to minimize morbidity and preserve the functioning tube.

Keywords

Small Bowel Obstruction, Fallopian Tubes, Gynecological, Colicky, CT-Scan, Cesarean Section

1. Introduction

Intestinal obstruction is one of the common causes of acute abdominal pain with increased morbidity and mortality. Moreover, the most common causes are adhesions and obstructed hernia [1].

Female pelvic organs, including tubes, uterus, and ovaries can cause adhesive obstruction of small bowel specially ileum and distal jejunum. One of the rare causes of acute small bowel obstruction is constriction of bowel wall by fallopian tubes [2]. The causes are usually due to adhesive process following inflammation, infection or prior pelvic surgery [3]. Other gynecological causes include endometriosis and Pelvic inflammatory diseases [4]. The presentation is usually with cardinal features of bowel obstruction, especially vomiting and abdominal pain.

Diagnosing rare causes of bowel obstruction pre-operatively remains a challenge. Radiological imaging, particularly contrast-enhanced CT, can delineate the site and degree of obstruction but often fails to identify the exact etiology when it involves small pelvic structures such as the uterine adnexa [5]. Consequently, many of these conditions are discovered incidentally during surgical exploration, emphasizing the need for maintaining a high index of suspicion for gynecological causes in women of reproductive or postmenopausal age.

The morbidity and mortality are usually having a direct relationship with delayed surgical intervention and diagnosis.

We are presenting one of the rare causes of mechanical intestinal obstruction due to encircling of small bowel by fallopian tube causing occlusion of bowel lumen and mechanical obstruction.

2. Case Presentation

A 56-year-old female with past history of Cesarean Section 20 years ago.

She presented to the Emergency Department complaining of severe central colicky abdominal pain, radiated to all over her abdomen, and bilious vomiting for two days. Also, she experienced absolute constipation and abdominal distention for one-day duration. No fever, weight loss or other GI symptoms.

No chronic illness, and no previous similar conditions

On the examination, she looks dehydrated, afebrile, conscious and oriented.

Her BP is 100/70 mmHg, Pulse rate is 110 P/M. Abdominal examination revealed, distended abdomen with vague tenderness all over, no palpable mass, bowel sound was exaggerated and rectum was empty on digital rectal examination.

Investigations: her WBCs was 13,000, Hb: 10.3 g/dl. RFT & LFT were normal. ABG was normal. Abdomen X-ray revealed dilated small bowel loops with air fluids level. CT scan abdomen revealed features of high-grade small bowel obstruction with closed loop obstruction. However, the bowel wall was well enhanced and no radiological evidence of bowel ischemia.

Treatment: The patient was admitted for monitoring, and was started on intravenous hydration, nothing by mouth and nasogastric decompression. Decision

was made for laparoscopic exploration she was taken to Operation theater after resuscitation and written informed consent. The distended bowel obscures the field, thus the decision to convert to open was made. The finding was obstruction at terminal ileum caused by right fallopian tube causing constriction band with mesentery adhesion (Figure 1), proximal bowel dilatation with signs of strangulation and distal collapsed bowel (Figure 2).

Adhesions was released and preserved the right uterine tube and small bowel segment.

Figure 1. A band formed by fallopian tube with proximal small bowel obstruction.

Figure 2. Dusky proximal small bowel segment with tube causing constriction ring and adhesions.

3. Discussion

Although there are several causes for acute mechanical small bowel obstruction, the commonest causes among them are adhesions, and obstructed hernia. However, other causes like malignancy (lymphoma, adenocarcinoma), abdominal tuberculosis and volvulus remain not uncommon [1].

Small bowel obstruction can be caused by adhesive bands, or rarely by fallopian tube encircling the segment of small bowel and forming constricting bands like obstruction [2].

The mechanism of obstruction by the fallopian tube is thought to involve postoperative adhesion of the tube to the bowel mesentery, leading to entrapment or looping of a bowel segment within a fibrous band. Such adhesive processes may develop following prior pelvic surgery, inflammation, or infection, resulting in a constricting mechanism that compromises bowel lumen patency [3].

In the literatures there are a few cases reported for acute intestinal obstruction caused by fallopian tube adhesions and most of the cases occur in middle age group with previous history of surgeries [4].

One of the rare gynecological causes of intestinal obstruction is endometriosis can cause either adhesion of implantation into serosal wall of small bowel with presentation of cardinal features of intestinal obstruction [6].

Very rarely endometriosis can cause large bowel obstruction with complete occlusion of rectosigmoid junction [6].

Our patient presented with high grade mechanical small bowel obstruction with complete occlusion of terminal ileum in a patient with a previous history of cesarean section which is one of the few cases reported in the literature as a rare cause of mechanical small bowel obstruction.

A review of similar cases in the literature highlights the rarity of this condition. For instance, Bugmann *et al. and* Cameron *et al.* reported isolated cases where fallopian tubes entrapped bowel segments, resulting in obstruction. These findings emphasize the importance of considering gynecological etiologies in women of reproductive or postmenopausal age presenting with unexplained SBO, especially with prior pelvic surgery history [5].

Radiological imaging, particularly CT scan, is invaluable in diagnosing the level and severity of obstruction but may fail to identify the exact etiology when related to small pelvic structures such as the fallopian tubes [7]. The typical features include the "C-loop" or "whirl sign," which indicate torsion or closed-loop obstruction. However, gynecologic causes are rarely apparent on imaging, and definitive diagnosis often requires diagnostic laparoscopy or laparotomy [7].

Diagnostic laparoscopy has become an essential tool in the assessment of small bowel obstruction, particularly when the etiology is uncertain or when a gynecological cause is suspected [7]. It provides direct visualization of the peritoneal cavity, allowing both diagnosis and therapeutic intervention in selected patients [8]. However, in patients with markedly distended bowel loops or dense adhesions, as in the present case, conversion to open surgery may be necessary to prevent iat-

rogenic injury [9].

Timely surgical intervention remains a critical determinant of outcome in patients with mechanical small bowel obstruction [10] [11]. Several recent studies have shown that diagnostic and operative delays beyond 24 to 48 hours are associated with significantly increased rates of bowel ischemia, perforation, sepsis, and mortality [11]. Moreover, delayed intervention often results in higher rates of bowel resection and prolonged recovery, particularly in elderly patients or those with multiple comorbidities. Therefore, maintaining a high index of suspicion and proceeding with early exploration when clinical or radiological findings suggest high-grade obstruction is essential to improving patient survival and minimizing morbidity [12].

4. Conclusions

This case underscores the importance of maintaining a broad differential diagnosis in women presenting with features of small bowel obstruction, particularly those with a history of cesarean or pelvic surgery.

Early surgical intervention may be necessary in certain situations if clear diagnosis is uncertain, especially for patients with high-grade mechanical intestinal obstruction to decrease morbidity and mortality.

One of the rare causes of mechanical bowel obstructions is a gynecological pathology like endometriosis and fallopian tube encircling small bowel and requires high index of suspicion.

Radiological diagnosis usually failed to identify fallopian tubes as causes of mechanical bowel obstruction.

Surgical release of adhesions and preservation of both small bowel and tubes is a goal to avoid gynecological morbidity and surgical mortality.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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