Small bowel volvulus (SBV) due to multiple adhesion in the small intestine: 
A case report

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INTRODUCTION

A rare but significant cause of small intestinal obstruction is small bowel volvulus (SBV). It happens when a loop of small intestine twists abnormally around the axis of its mesentery. An acute abdomen is the clinical presentation. The bowel itself may become constricted, strangulation of the blood supply, or both may be the source of the symptoms. Volvulus is a special form of mechanical intestinal obstruction. It results from the abnormal twisting of a loop of the bowel around the axis of its mesentery. The clinical presentation is that of an acute abdomen. The cause of symptoms may be due to narrowing of the bowel itself, strangulation of the blood supply, or both. The type and incidence of intestinal volvulus vary greatly by location and are age-related. Adults frequently have colon volvulus, which affects the sigmoid colon 70% to 80% of the time and the cecum 10% to 20% of the time. Contrarily, the volvulus of the small intestine is a very uncommon condition.

Depending on the underlying etiology, small bowel volvulus can be classified as either primary or secondary. There are no underlying anatomic defects or risk factors for primary small bowel volvulus, which develops in a healthy abdominal cavity. In the presence of predisposing lesions, either congenital or acquired, secondary small bowel volvulus arises. Included are postoperative adhesions, tension bands, midgut nonrotations, and anatomic abnormalities and malrotations.

A rare but significant cause of minor intestinal blockage is small intestinal volvulus. SBV is a clinical disease in which a section of the small intestine is torn along its mesenteric axis entirely or in part. It frequently leads to urgent surgical issues. One of the worst abdominal emergencies is acute volvulus of the small intestine. A challenging diagnosis may arise, and delaying surgical action may have disastrous consequences. The patient may quickly degenerate when the small intestinal mesentry is completely or substantially torn. We reported and discussed the diagnostic approach and the management of a 49-year-old woman who experienced severe pain in her abdomen that was eventually diagnosed as volvulus and got surgery for her treatment.

CASE REPORT

An a-49-year-old female patient was delivered to the emergency department by her family because of severe abdominal pain, especially in the epigastric area. The persistent pain lasted for one day before hospitalization. She also complained of nausea, vomiting, fever and constipation since one day before hospitalization. She was transferred to the medical ward and initially diagnosed with abdominal pain due to severe dyspepsia. After four days, her complaints were not improved, and she was diagnosed with intraabdominal obstruction and decided to undergo an emergency laparotomy. During surgery, there was a small bowel volvulus due to multiple adhesion in the small intestine, which caused all of her symptoms. After total 8 days of hospitalization, the patient was finally discharged.

ABSTRACT

Introduction: Small bowel volvulus (SBV) is a rare but significant cause of small intestinal obstruction. Ischemia or even infarction is frequently the result. Morbidity and death rates rise when surgical intervention and diagnosis are delayed. Volvulus is a special form of mechanical intestinal obstruction. It happens when a loop of small intestine twists abnormally around the axis of its mesentery. An acute abdomen is a clinical presentation. The bowel itself may become constricted, strangulation of the blood supply, or both may be the source of the symptoms.

Case Description: A 49-year-old female patient was delivered to the emergency department because of severe pain around her abdomen that lasted for one day with a bloated abdomen. Other symptoms she complained of were nausea, vomiting, fever and constipation since one day before hospitalization. She was transferred to the medical ward and initially diagnosed with abdominal pain due to severe dyspepsia. After four days, her complaints were not improved, and she was diagnosed with intraabdominal obstruction and decided to undergo an emergency laparotomy. During surgery, there was a small bowel volvulus due to multiple adhesion in the small intestine, which caused all of her symptoms. After total 8 days of hospitalization, the patient was finally discharged.

Conclusion: Diagnosing SBV can be difficult, especially if the sign of ileus obstruction is not yet fully developed. Early diagnosis and suspicion are pivotal in SBV because a delay in the surgical treatment can be disastrous.

Keywords: Small intestinal volvulus, multiple adhesion, intestinal obstruction.

infection two weeks ago and was treated and discharged.

On physical examination patient appeared restless with GCS E4V5M6 with blood pressure 130/89 mmHg, heart rate was 110 beats per minute, a slight increase of body temperature which was 38.1°C, respiration rate 22 times per minute, SpO2 was 99% at room air. On physical examination, a light distended abdomen was found, although with major pain in the epigastric area when palpated with internal bowel sound frequency around 8 times per minute.

During patient admission, laboratory results showed a white blood cell count (WBC) of 9.7 x $10^3/\mu$L, hemoglobin (Hb) of 13.4 g/dL, hematocrit (HCT) of 39.4%, platelets (PLT) of 121 x $10^3/\mu$L, the random glucose level of 122 mg/dL, Serum Glutamic Oxaloacetic Transaminase (SGOT) 27 U/L, Serum Glutamic Pyruvic Transaminase (SGPT) 17 U/L, blood urea nitrogen (BUN) of 12 mg/dL, serum creatinine (SC) of 0.82 mg/dl, sodium 140 of mmol/L, potassium of 3.5 mmol/L, chloride of 106 mmol/L.

The patient was initially diagnosed with abdominal pain in the emergency department due to severe dyspepsia and urinary tract infection. She was transferred to the medical ward and treated by an Internist and underwent an ultrasound (USG) of the upper and lower abdomen for the next day. The 0.9% sodium chloride fluid was initiated at 28 drops per minute, followed by paracetamol flash 1000mg intravenously (IV). The patient was given Lansoprazole 30 mg every 12 hours IV, Ondansetron 4 mg every 8 hours IV, Sucralfate Suspension 3 times 15 ml per oral (PO), paracetamol 500mg PO every 8 hours and Pipemidic Acid 400mg every twelve hours PO.

On the second day of her hospitalization, the pain was persistent and had not improved, and she complained of a bloated abdomen. She underwent upper and lower abdomen ultrasonography (USG). The result showed a loop bowel impression dilatation and increased peristaltic suggestive of ileus obstruction, a hypoechoic/gas picture on the gaster, and suggestive cystitis on the urinary bladder. Other intra-abdominal organs are within normal limits (Figure 1).

Her abdominal pain worsened, and she felt pain all over the abdomen on the third day. Paracetamol, 1000 mg IV, and Ketorolac, 30 mg IV, were given. She underwent abdominal imaging (BOF), and there was high-lying obstructive ileus.
CONCLUSIONS

We reported a case of a 49-year-old female with SBV caused by multiple adhesions of the small intestine. The mechanism of SBV is still not fully understood. Diagnosis can be difficult, especially if the sign of ileus obstruction is not yet fully developed. Early diagnosis and suspicion are pivotal in SBV because a delay in the surgical treatment can be disastrous.

CONFICT OF INTEREST

We declare that there were no conflicts of interest in this study.

ETHICAL CLEARANCE

Patient approval has obtained in this study and fulfilled ethics approval from International Committee of Medical Journal Editors (ICMJE).

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AUTHOR CONTRIBUTION

All of the authors equally contributed to the study.

REFERENCES


DISCUSSION

One of the serious abdominal emergencies is the acute volvulus of the small intestine. A challenging diagnosis may arise, and delaying surgical action may have disastrous consequences. The patient may rapidly decline when the entire or a significant piece of the small intestinal mesentery is torn.18–20

According to several investigators, several factors contributed to their dataset's high frequency of primary SBV. One theory is that in some populations, a larger mesenteric length and a shorter mesenteric root might permit aberrant movement of the entire small bowel or a portion of it. However, abrupt dietary changes with consuming a substantial amount of solid food after extended periods of fasting or on an empty stomach could also be a significant factor. One large, inadequately digested meal consumed all at once is regarded to have the potential to cause small bowel volvulus by abruptly overloading and filling an empty intestine.21–23

Although the precise diagnosis may not be determined before surgery, it is typically easy to determine that a significant abdominal catastrophe has happened. The main issue is differentiating between a blockage that requires surgery and one that may be treated conservatively.18,24 When it is acknowledged that all cases of acute small intestine obstruction necessitate laparotomy, with the rare exception of the abdomen with extensive scarring, because it is impossible to distinguish between occlusion and stranding with certainty, the problem is solved.20

Figure 3. Multiple adhesions, necrotic and perforated small intestine.