



Cecal Volvulus: A Case Report & a Literature Review

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Received 03 June 2019;

Accepted 21 June 2019;

Published 30 June 2019

Abstract

Cecal volvulus is a rare cause of intestinal obstruction. In this report, we present a 39 year-old patient who came with cecal volvulus, and we will discuss this very rare entity

Keyword: *Intestine, Cecum, Volvulus, Obstruction, Twisted*

Introduction

A twisted loop of the bowel and its mesentery on a fixed point is known as volvulus and it may arise more frequently in the sigmoid colon and cecum.^[1] Currently, colonic volvulus is the third most common cause of large bowel obstruction worldwide, and is responsible for ~15% of large bowel obstructions in the United States.^[2] The cecum is the second most common site for volvulus. The incidence of cecal volvulus is reported to range from 2.8 to 7.1 per million people per year. The disease predominantly affects female patients 40–60 years of age.^[3]

Cecal volvulus as an uncommon cause of acute intestinal obstruction is axial twist of the cecum, ascending colon and terminal ileum around their mesenteric pedicles. Although there are many different etiologic and predisposing factors for cecal volvulus, exact etiology is most likely multifactorial in presence of mobile cecum. Its clinical presentation is highly variable, ranging from intermittent episodes of abdominal pain to abdominal catastrophe depending on pattern, severity and duration of cecal volvulus causing intestinal obstruction.^[1]

Case report

A 39 year old woman was referred to one of the tertiary emergency departments in Oman. She presented with 1 day history of

generalized abdominal pain that was localized to the left side of the abdomen after few hours. It was associated with constipation followed by vomiting. These symptoms were not experienced by the patient ever before. The patient had history of previous laparoscopic ovarian cystectomy 4 years back which was uneventful, she also underwent dilatation and evacuation for molar pregnancy one year ago. She is a known case of primary infertility. On examination patient looked sick and was in pain. Had heart rate of 103, normal blood pressure and was afebrile. Her abdomen was distended with generalized tenderness all over, bowel sounds were sluggish and PR revealed empty rectum. The laboratory values were normal apart from mild leukocytosis of 14000. X-ray abdomen showed distended small bowel loops with one prominent dilated loop of undiagnosed origin. Computerized tomography (CT) of the abdomen showed caecal volvulus and the segment was tortured with dilatation of the caecum (Fig.1). Patient was taken to the OT immediately and exploratory laparotomy was done for her; Intraoperative findings were: dusky jejunal loops with ischemic patches, edematous and partially twisted ischemic caecum with long mesentery (Fig.2). 100% of O₂ was administered to the patient, warm mops were applied to the dusky small bowel that turned to its normal color after few minutes. Right hemicolectomy was performed with primary ileocolic anastomosis. Post operatively patient was doing well and was discharged home post op day. 4

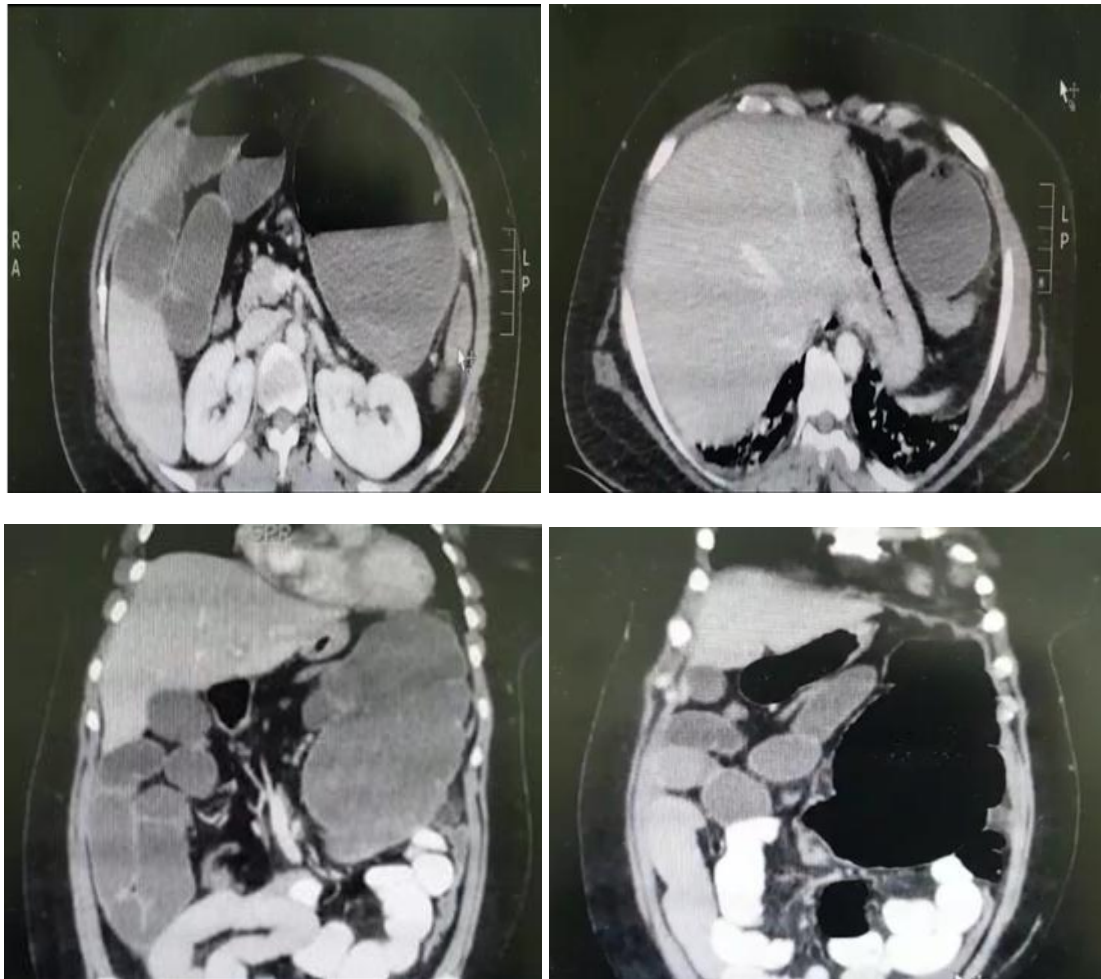


Fig.1: CT abdomen showing cecal volvulus

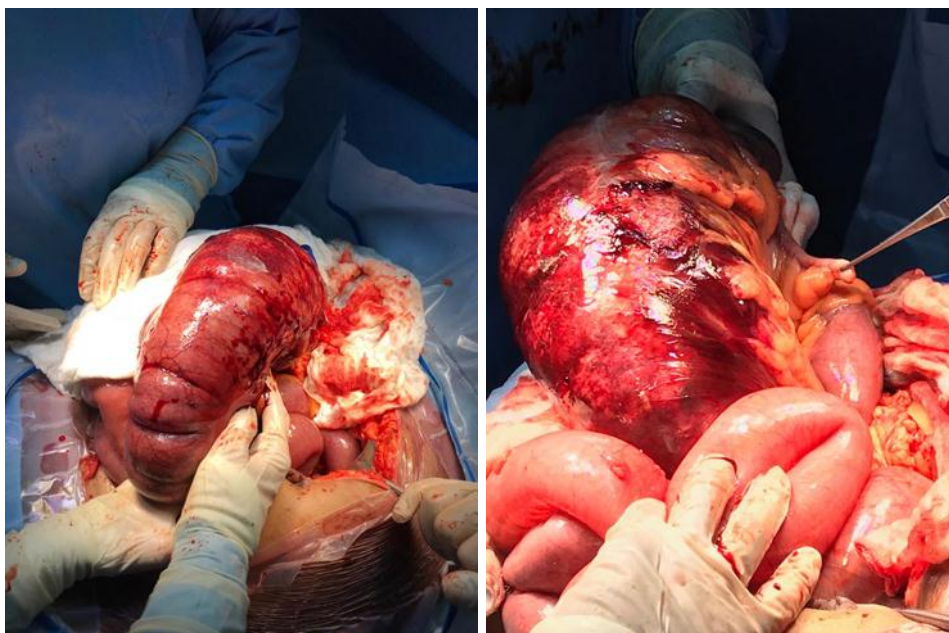


Fig.2: Intra operative finding: distended and ischemic cecum

Discussion

Colonic volvulus is an axial twist of a portion of the colon along its mesentery. The word volvulus is derived from the Latin term *volvare* which means to twist. This twisting will result in either a complete or partial obstruction of the bowel with associated arterial and venous compromise. As a result, quick and accurate diagnosis

is required to expedite treatment for this potentially fatal condition.^[4]

Cecal volvulus is caused by axial twisting of the cecum along with the terminal ileum and ascending colon.^[5] Pathophysiologically, there are 3 types; Type 1 – cecal volvulus develops from clockwise axial torsion or twisting of the cecum around its mesentery,

including the ascending colon and terminal ileum, Type II - loop volvulus develops from a counter clockwise axial torsion of the cecum around its mesentery, including the ascending colon and terminal ileum, and Type III - cecal bascule involves the upward folding of the cecum rather than axial twisting.^[14,15] The first 2 types represent 80% of cases.^[14] The patient in this case report presented with type 1 volvulus .

The etiology of cecal volvulus is likely related to late embryogenesis; the cecum rotates counterclockwise from the left side of the abdomen to the right lower quadrant. As this occurs, the mesentery of the right colon fixates to retroperitoneal structures. If the patient has incomplete fixation, there is risk of cecal volvulus formation.^[2]

Reports have shown that 23 to 53% of patients presenting with cecal volvulus have had prior abdominal surgery^[1]; similarly in this case, the patient had history of laparoscopic ovarian cystectomy in the past . This could be because adhesions secondary to abdominal surgery form a point of fixation for the mobile right colon to rotate about, causing the twist that leads to bowel compromise.^[1] Chronic constipation, distal colon obstruction, high-fiber diets, ileus, prior colonoscopy, and late pregnancy, as in our case, have also been identified as factors important in the development of cecal volvulus.^[6,7,8,9] Other possible associations that have been cited include laxative use and diuretics.^[10,11] In a younger patient group, volvulus is associated with disorders of abnormal colonic motility or causes of megacolon notably Hirschsprung disease and Chaga's disease.^[11,12]

The diagnosis of this condition is usually made at laparotomy despite a thorough history, examination and appropriate radiological investigations.^[8,13] Simple X-rays may show large bowel obstruction with typical features of sigmoid or caecal volvulus absent as one entity may alter the appearance of the other. Similarly, with CT imaging the diagnosis may be missed due to the rarity of the condition or the mass effect of one volvulus on the other.^[13] In our case, the diagnosis was made radiologically; as cecum volvulus was positively identified on CT imaging.

If there is intestinal gangrene, resection is inevitable^[3], as was in our patient. If gangrenous bowel is encountered, the patient should be brought for emergent exploration and resection. If detorsion is successful and no ischemia or gangrenous bowel is encountered, a rectal tube is left and elective resection is scheduled. The patient should be resuscitated, started on broad-spectrum antibiotics, and ingest nothing orally. If the patient is hemodynamically unstable, no further imaging or tests should be ordered and the patient should go to the OR. Exploration should be performed in a midline incision. Once the volvulus is identified, it should be assessed for viability. If resection is indicated, the decision to create a primary anastomosis should be based on general surgical principles: the patient's nutritional status, adequacy of blood supply, presence of tension, presence of purulent or fecal peritonitis, and hemodynamic status. In our case all the factors were maintained so resection and anastomosis was the best choice.^[1]

Since the introduction of endoscopic detorsion in the 1940s, this approach, along with subsequent resection, has become the primary therapeutic modality. Detorsion can be performed via barium enema, rigid proctoscopy, flexible sigmoidoscopy, or colonoscopy. Some reports reveal better results with a flexible approach. It has been reported that 24% of sigmoidoscopic approaches will not find the site of torsion, encouraging the use of colonoscopy. Overall,

decompression has been found to be successful in 70 to 80% of cases.^[3]

Conclusion

There are many factors responsible of cecal volvulus .Early diagnosis by the aid of radiographic facilities and commencement of treatment reduces the morbidity and mortality associated with this condition.

Conflicts of Interest

The author(s) declare(s) that there is no conflict of interest regarding the publication of this paper.

Funding Statement

No Funding was received for this case report.

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