Case Report

Midgut Volvulus with Giant Jejunal Diverticulum in an Elderly Patient: Case Report with Literature Review

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Abstract

Midgut volvulus is a rare cause of acute intestinal obstruction in elderly patients. It can be classified into primary (without obvious cause) or secondary (secondary to other abnormality). Jejunal diverticula are an uncommon type of diverticulum of the small bowel. However, associated with a high rate of complications such as diverticulitis, perforation, or rarely volvulus. In this case report, we present a female elderly patient with a proximal small bowel volvulus around the axis of superior mesenteric vessels with the giant jejunal diverticulum at the tip of the volvulus.

Keywords: Giant jejunal diverticulum, intestinal malrotation, mid-gut volvulus

Introduction

Intestinal malrotation (IMR) is a congenital anomaly due to complete or partial failure of rotation and fixation of the bowel during embryonic life. Incidence varies from 1/200–1/500[1] live birth, but is only symptomatic in 1/6000 patient.[2] Conventionally, 75% of patients present in the 1st year of life. However, recent studies show a higher presentation incidence in adults between 42% and 48%.[3,4] IMR can present as acute (acute mid-gut volvulus [AMV], acute duodenal obstruction) or chronic (chronic midgut volvulus [CMV], chronic duodenal obstruction, and malabsorption syndrome) or even as an internal hernia. CMV tends to occur in older patients as recurrent abdominal pain and malabsorption syndrome, which may progress to AMV.[5]

Jejunal diverticulum (JD) refers to mucosal herniation through the weak point in the jejunal bowel wall forming saclike swelling, they are usually multiple and are less common than duodenal diverticula with a reported incidence of 0.3%–1.3% in autopsy reports.[6] Patients are usually asymptomatic and commonly observed at ages 60–70 years. JD may complicate with diverticulitis, intestinal obstruction, malabsorption, or hemorrhage.[7] Although JD is less common than duodenal diverticula the rate of complications tends to be high (46% vs. 10%).[6]

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Case Report

A 92-year-old female was presented with 2 weeks' history of epigastric dull pain, radiated to back, associated with attacks of repeated vomiting. The patient complains of chronic abdominal pain in the last year, which was neglected by her family (patient blind and deaf). There is no relevant past medical or postsurgical history. On physical examination, here vital signs were as follows: pulse 95 bpm, blood pressure: 95/60 mmHg, and respiratory rate: 20/min. The temperature was 37.4°C. The patient looks dehydrated tired and cachexic. Abdominal examination showed mildly distended abdomen and mild generalized tenderness to palpation especially in the epigastric region with voluntary guarding. Bowel sounds were absent. Rectal examination was unremarkable.

The patient's laboratory tests demonstrated a hemoglobin level of 10.9 g/dL, leukocyte count of 16,000/mm^3 with

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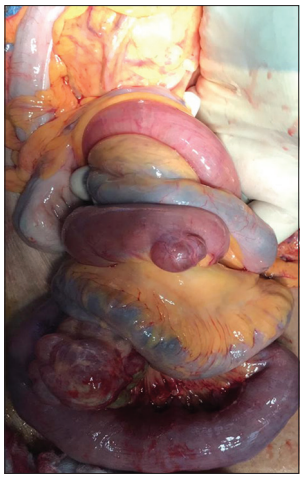

Figure 1: Intraoperative photograph with mid-gut volvulus with multiple diverticulum of jejunum

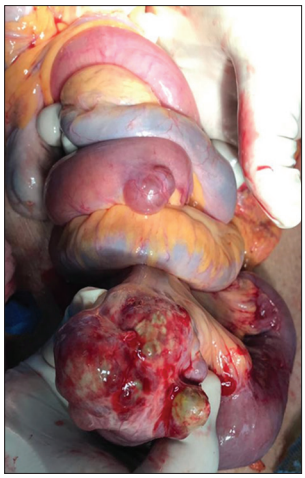

Figure 2: Intraoperative photograph with mid-gut volvulus with giant diverticulum at the tip of volvulus (the diverticulum shows thin necrotic area)

prominent neutrophilia, urea level of 109 mg/dL, serum creatinine 1.7 mmol/dl, serum Na^+ 134 mmol/dl, and serum K^+ 2.8 mmol/L. All other basic biochemical parameters were within the normal limits. Abdominal X-rays at presentation showed distended small bowel and multiple air-fluid levels suggestive of intestinal obstruction. Abdominal ultrasound shows dilated bowel loops. The patient was managed with nasogastric decompression, intravenous fluid, and electrolyte replacement. Abdominal computed tomography revealed the (whirlpool sign). Correction of fluid and electrolyte abnormality started at admission nasogastric tube was inserted which drain more than 1000 cc bile stained fluid in the first a few hours. After 48 h from admission, decision was done to explore the abdomen in the operative theatre, where midline laparotomy incision was done midgut volvulus was found with clockwise twisting of proximal small bowel around the axis of superior mesenteric vessels (SMV) about 4 times with giant 7 cm in diameter JD in the tip of volvulus with other multiple small jejunal diverticula [Figure 1], the giant diverticulum looks ugly with multiple thin necrotic areas in the surface indicating previous attacks of inflammation (diverticulitis) [Figure 2], the volvulus cause obstruction and distension of proximal stomach and duodenum, also, the mesentery of small bowel was narrow at the base with long redundant mesentery with malrotation of the small bowel. Detwist of volvulus was done, 15 cm segment contains the giant diverticulum was resected with end to end anastomosis and widening of the base of the mesentery, pelvic tube drain was inserted. The patient admitted to the intensive care unit after surgery and she develops massive acute myocardial infraction at 3rd postoperative day and died on the 4th postoperative day.

Discussion

Midgut volvulus is a rare complication of IMR in adulthood. However, it should be kept in mind in the differential diagnosis of acute abdomen in adults. While JD is symptomatic in only 42% of patients with bloating, early satiety, and chronic abdominal pain.[8] However, perforation is seen in 5% of JD.[7] In our patient, we think the presence of giant large diverticulum combined with unfixity and easy mobility of small bowel (due to narrow mesenteric base) lead to twisting of the small bowel that contains the giant diverticulum around the axis of SMV (we think the heavyweight giant diverticulum act as a leading point to start bowel rotation), other studies support this probability, wherein Huang *et al*. showed in his study 6 out of 19 patients with adult small bowel volvulus had jejunal diverticula,[9] Moreover Chiu *et al*., in his retrospective study showed that eight of nine patients of primary small bowel volvulus had small bowel diverticula and 4 of them sized more than 4 cm,[10] this may suggest an association between the presence of JD and adult small bowel volvulus.

Conclusion

Adult small bowel rotation is a rare condition, it should consider as one of the causes of acute abdomen in adult patients, and the presence of giant JD may act as a triggering agent to start twisting in the small bowl, especially in the patient with IMR.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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