

Jejunal volvulus masquerading as peptic ulcer disease in an adult: A case report

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Abstract

This case reports small bowel volvulus (SBV) in a 45-years old male, initially misdiagnosed as an acute peptic ulcer exacerbation. The patient presented with non-specific symptoms, and initial imaging studies were unremarkable, delaying diagnosis. Further radiological investigations (CT) showed bowel obstruction with pneumatosis intestinalis and ascites. Jejunal volvulus with necrosis, necessitating resection and anastomosis, was noted during emergency laparotomy.

This case shows the need for a high index of suspicion regarding SBV prevention and management to improve patient outcomes.

Keywords: Small Bowel Volvulus; Misdiagnosis; Computerized Tomography; Intestinal Ischemia; Emergency Surgery

1. Introduction

Small bowel volvulus in adults is a very rare life-threatening disease which causes 0.5–2.5% of intestinal obstruction in adult patients.¹ Small bowel volvulus is the abnormal twisting of the small bowel around its mesentery resulting in twisting and occlusion of mesenteric vessels.² All these lead to luminal obstruction and compromise of the blood flow to and from the bowel wall threatening intestinal viability.²

Small bowel volvulus (SBV) can be primary or secondary.^{Error! Bookmark not defined.} In primary small bowel volvulus, there is no predisposing anatomical cause seen. Secondary SBV occurs in the presence of an acquired condition, such as congenital malrotation, anatomic abnormality, bands, postoperative adhesions, tumors, pregnancy, and diverticular disease.¹ The clinical features of primary midgut volvulus are usually nonspecific. The patients may present with colicky abdominal pain, nausea, vomiting, abdominal distention, and constipation.²

The clinical signs and symptoms as well as laboratory findings are non-specific hence the need for a high index of suspicion as an early diagnosis with prompt surgical treatment is advocated to prevent gangrene in the small intestine, which can lead to a high morbidity and mortality. This case is reported because of the rarity of the pathology and to create awareness for the need for a high index of suspicion as symptoms are mostly non-specific.

2. Case report

Mr W.A, a 45 year old sailor who presented at the hospital with a 3 weeks history of epigastric pain and a 5 day history of nausea and vomiting. The epigastric pain was gradual in onset, dull, not worse at any time of the day with no known relieving or aggravating factors. There was associated abdominal swelling. Vomiting was said to be projectile, consisted of ingested meals and had one episodes per day. Patient initially presented at a private hospital where he was diagnosed

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with acute exacerbation of peptic ulcer disease and was given omeprazole tablets, amoxicillin capsules and metronidazole tablets. Patient was referred as symptoms did not improve. Patient is a known peptic ulcer and has not had any previous surgery. He drinks alcohol (an average of 7 bottles of beer per week) and smokes cigarette occasionally. Review of systems was not contributory.

On examination, he was afebrile, anicteric, not dyspneic, mildly dehydrated with no pedal edema. Abdominal examination revealed a full abdomen which moved with respiration and tenderness in the epigastric and left iliac fossa region. No palpable organomegaly. Respiratory, cardiovascular and neurology systems were unremarkable. An impression of query intestinal obstruction to rule out acute exacerbation of peptic ulcer disease was made. Patient was admitted into the surgical ward, placed on nil per oral and a nasogastric tube was passed. He was placed on intravenous antibiotics, intravenous fluids, intravenous pentazocine and intravenous omeprazole. An abdominal radiograph erect and supine, full blood count, electrolytes urea and creatinine and an abdominopelvic ultrasound scan was requested for. An initial abdominal radiograph and abdomino-pelvic ultrasound showed no abnormality. Patient was placed on graded oral sips and was to commence feeds. On the 5th day of admission, patient complained of lower abdominal pains with passage of dark coloured stool. Results of laboratory investigations were within normal range. On examination, the abdomen was full moved with respiration, soft but there was guarding and tenderness in the hypogastric and left lumbar region.

Abdominal organs were not palpable and bowel sounds were present. An assessment of urinary tract infection was made. Urine for microscopy, culture and sensitivity was ordered. The next day patient developed abdominal pains which was generalized, colicky with no known aggravating factor but was relieved temporary by analgesics. Patient opened bowel with the stool being mixed with mucoid non-bloody discharge. He also passed flatus. On examination, the abdomen was distended and tense but moved with respiration. Bowels sounds were present. A repeated abdominal radiograph showed flank fullness and haziness over the abdomen. The bowel gas pattern was non-specific and the bowel loops were not dilated. (Figures 1 and 2) The repeated abdominal ultrasound scan revealed a thick walled non-peristaltic segment of small bowel in the left hypochondrium extending to the umbilical region and measuring 2.3cm in diameter. (Figure 3) Probe tenderness was noted over the aforementioned bowel loops with areas of increased echogenicity in the surrounding tissue. Other bowel loops were normal and showed peristalsis. Moderate clear ascites was noted. The liver, spleen, kidneys and gallbladder were normal. The pancreatic bed was however not seen due to excessive bowel. An impression of a focal ileus with ascites was made with small bowel ischaemia as a differential diagnosis.

An abdominal computed tomography (CT) was done as patient's condition deteriorated. The abdominal CT showed dilation of the stomach, duodenum, proximal jejunum with abrupt narrowing in the distal jejunum and ileum (Figures 4 and 5). Circumferential air densities were noted within the walls of the distal jejunum. There was associated moderate ascites with mesenteric fat stranding. No free intra-peritoneal gas collection was seen. The other abdominal organs were normal. The findings were proximal small bowel obstruction (jejunum) with pneumatosis intestinalis and ascites. An impression of intestinal infarction was made and an emergency exploratory laparotomy was advised. The findings of the exploratory laparotomy were small abscess with matted gut segment (jejunal volvulus with necrosis of the involved segment and oedematous mesentery.) The jejunal segment was untwisted, with the necrosed part resected and end to end anastomoses done. Patient was placed on intravenous antibiotics, intravenous fluids, intravenous pentazocine, and diclofenac suppository. Patient was discharged on the 12th day post operation with oral medications and was to be seen in surgical outpatient clinic.



Figure 1 Plain abdominal radiograph supine view showing non-specific bowel pattern



Figure 2 Plain abdominal radiograph erect view showing distended abdomen. (Orange arrow)

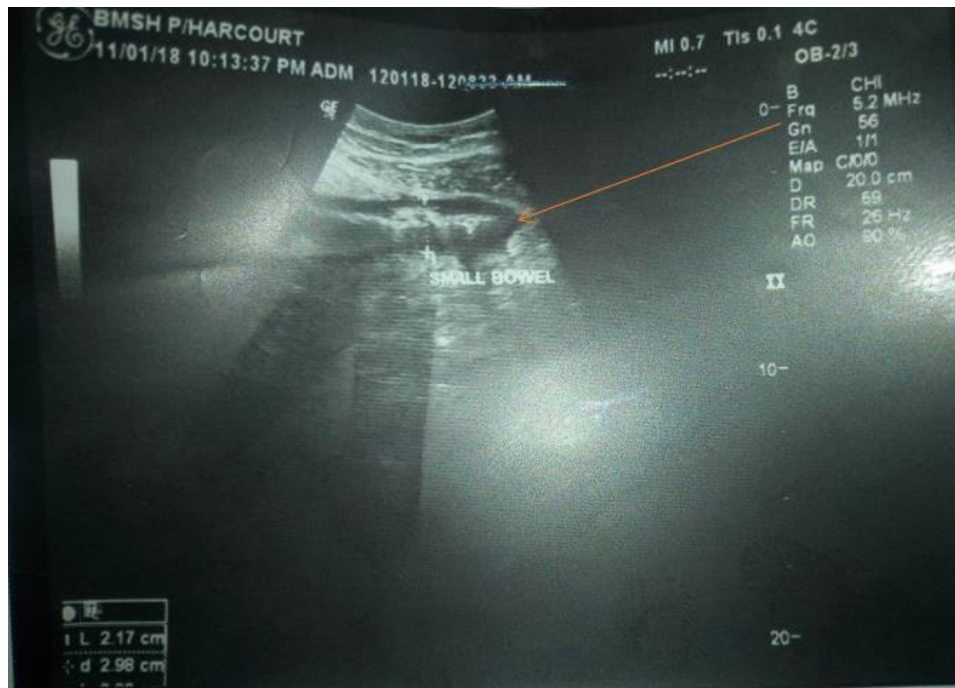


Figure 3 Abdominal ultrasound scan gray scale showing a thick-walled small bowel loop. (Red arrow)



Figure 4 Coronal reformatted abdominopelvic CT showing distended stomach and proximal bowel



Figure 5 Coronal reformatted contrast enhanced abdomino-pelvic CT showing distended proximal bowel (black arrows) with ascites. (Blue arrow)

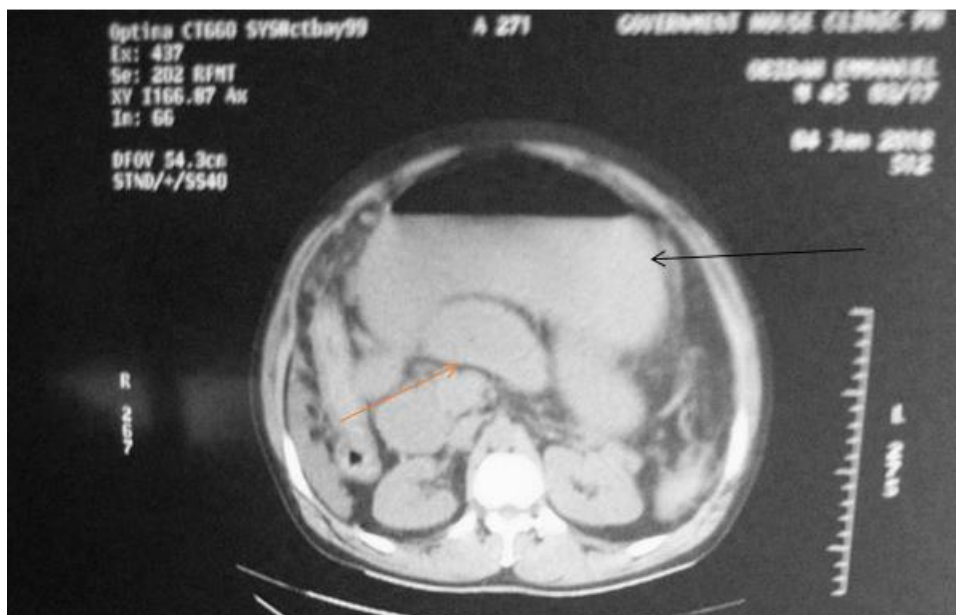


Figure 6 Non contrast enhanced axial CT of the abdomen showing a dilated stomach (Black arrow) and proximal small bowel (Red arrow)



Figure 7 Sagittal reformatted contrast enhanced abdominopelvic CT showing gas within the bowel wall. (Red arrows) and thickened bowel loops. (Black arrows)

3. Discussion

Small bowel volvulus (SBV) is uncommon in the United Kingdom with an annual incidence of 1.7-5.7/100,000 with 3-6% of the patients presenting with intestinal obstruction.³ However, it is reported to have a higher incidence in the Middle East, Asia and Africa with an annual incidence of 24-60 /100,000 population and 20-50% of the patients presenting with intestinal obstruction.³ Its incidence in Nigeria is however unknown.

Small bowel volvulus can be primary or secondary depending on the etiology.⁴ Primary midgut volvulus is seen in children and young adults, and cannot be attributed to any predisposing anomaly found intra-operatively.⁴ Secondary causes of small bowel volvulus includes include postoperative adhesions, a narrow mesenteric root, malrotation, internal hernias, diverticulosis, congenital bands, jejunal lipomatosis, colostomy, fistula, Meckel's diverticulum, calcified mesenteric lymph nodes, mesenteric lipomas, pregnancy, endometriosis, abscess, mycobacterial disease, aneurysms, and hematomas, and tumors such as mesenteric lymphangiomas or jejunal adenocarcinoma.^{4,5} Other risk factors include low socioeconomic status, diabetic autonomic and a sudden change in dietary habit.⁵ The index patient did not have any of the known predisposing factors indicating a primary cause.

However, the presence of colicky epigastric or periumbilical pain several days before the sudden onset of signs and symptoms of small-bowel obstruction in a patient who has not had any previous abdominal surgery or other obvious causes (hernias) should raise suspicion for this entity.⁶ The index patient presented with epigastric pain, nausea and vomiting. The diagnosis may be difficult since the symptoms of abdominal pain, nausea and vomiting are nonspecific.⁷ Imaging modalities that may be employed to aid the diagnosis includes plain abdominal films, ultrasonography (US), abdominopelvic CT scan and multidetector CT (MDCT) angiography.⁸

The plain abdominal radiographs may be normal or may show non-specific signs of intestinal obstruction, such as air-fluid levels and dilated bowel loops and signs of intestinal ischemia or necrosis, such as thumb printing and pneumatosis intestinalis or in extreme cases portal vein gas.⁸ Initial plain radiograph of the index patient showed normal findings however plain abdominal radiograph done a few days later showed bilateral flank fullness and haziness over the abdomen.

Doppler US has been documented to be helpful in the diagnosis of small bowel volvulus, as it may demonstrate the encircling of the intestinal loops and the superior mesenteric vein (SMV) around the superior mesenteric artery (SMA), which is called the “whirlpool sign”.⁸ This finding was not reported in the index patient due to excessive bowel gas.

Abdominopelvic Computed tomography (CT) is seen as the imaging modality of choice because it can reveal signs of small bowel obstruction (dilatation of closed or air-filled bowel loops), can show pathognomonic signs of the volvulus (the rotated mesentery and SMV encircling clockwise the SMA termed “whirl sign” and mesenteric thickening) and signs of intestinal ischemia (thickening or presence of air in the bowel wall, portal vein gas, and free peritoneal fluid).⁹ Some of these findings were noted in the index patient. The pathognomonic sign of volvulus which is the ‘whirl sign’ was not demonstrated in the index case. This may be due to the delayed presentation as patient had ascites with extensive mesenteric edema.

The angiographic appearance of the twisted mesenteric vessels is called the “barber pole sign” which is also pathognomonic for midgut volvulus.¹⁰ Catheter angiography may show tapering or abrupt termination of the mesenteric vessels, prolonged contrast transit time, absent venous opacification, or a dilated SMV.^{Error! Bookmark not defined.} This is usually not done because it is time-consuming and invasive.

MDCT angiography produces multiplanar three-dimensional images and provides information about the presence of the volvulus, the degree and location of intestinal obstruction, the presence of intestinal ischemia, and any associated anomalies of adjacent organs.^{Error! Bookmark not defined.}

Management is mainly surgical and it is required urgently in cases of suspected impending bowel necrosis.¹¹ The index patient had surgery with resection and anastomoses of the bowel loops.

4. Conclusion

A case of infarcted small bowel volvulus in an adult has been presented and literature was reviewed. The role of imaging in diagnosis of this condition has been highlighted.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

Ethical approval was obtained. Verbal/written consent was obtained from the patient.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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