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CASE REPORTS

Twisting Truth: Diagnosing Rare Adult Midgut Volvulus via Whirlpool Sign

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Abstract:
Midgut volvulus is a rare but critical surgical emergency in adults, often leading to diagnostic delays. We present a 22-year-old female with recurrent epigastric pain and bilious vomiting, initially misdiagnosed as gastritis or pancreatitis. Imaging revealed the characteristic "whirlpool sign" on CT and USG, confirming midgut volvulus with an unusual finding of mesenteric lymphadenopathy. This case highlights the pivotal role of radiological imaging in timely diagnosis and underscores mesenteric lymphadenopathy as a potential contributing factor. Early recognition through imaging is crucial in preventing ischemic complications and improving patient outcomes.

Keywords: *Midgut volvulus, Whirlpool sign, Mesenteric lymphadenopathy, Adult volvulus.*

Introduction

Midgut volvulus is a rare but life-threatening surgical emergency characterized by the twisting of the small intestine around the superior mesenteric artery (SMA). This twisting can result in compromised blood flow, bowel ischemia, and, if untreated, bowel necrosis.[1] Patients typically present with abdominal pain, bilious vomiting, and clinical signs consistent with bowel obstruction.[2]

Although commonly associated with congenital intestinal malrotation in neonates and children, midgut volvulus is relatively uncommon in adults, frequently leading to misdiagnosis and delayed intervention, thus increasing morbidity.[3]. Early diagnosis through imaging techniques, such as ultrasonography and computed tomography (CT), is essential to prevent serious complications like bowel gangrene. A distinctive radiological indicator is the "whirlpool sign," characterized by twisted mesenteric vessels and bowel loops around the SMA.[4,5]

This case report presents a rare adult presentation of midgut volvulus, diagnosed radiologically through the whirlpool sign, highlighting the critical importance of timely imaging and surgical management to improve patient outcomes.

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Case Report

A 22-year-old-female got admitted to Department of Surgery, Dhaka Medical College Hospital with the complaints of recurrent episodes of epigastric pain and bilious vomiting. This epigastric pain radiated to back, aggravated by taking food and was relieved by bending forward. Her vitals were within normal limit. Examination revealed a reducible ventral hernia in umbilical region as evident by positive cough impulse. Her recent medical history includes caesarian section five months back and laparoscopic cholecystectomy one month back. Endoscopy of the upper GIT revealed erosive gastritis and serological markers excluded possibilities of acute pancreatitis. The patient was treated conservatively but her symptoms responded poorly. Later she was referred to Radiology and Imaging Department, DMCH for further evaluation.

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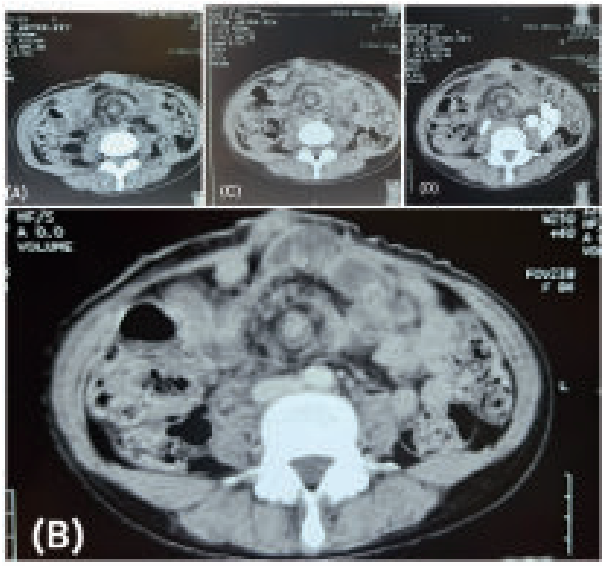

Figure-1 : (A) Non contrast, (B) Early arterial phase, (C) Late arterial phase, (D) Delayed phase, axial CT scan of abdomen shows - The swirling appearance of bowel and mesentery twisted around the SMA axis. Distension of small bowel loops proximal to obstruction. Multiple mildly enhancing mesenteric lymph nodes are also seen. No evidence of ascites.

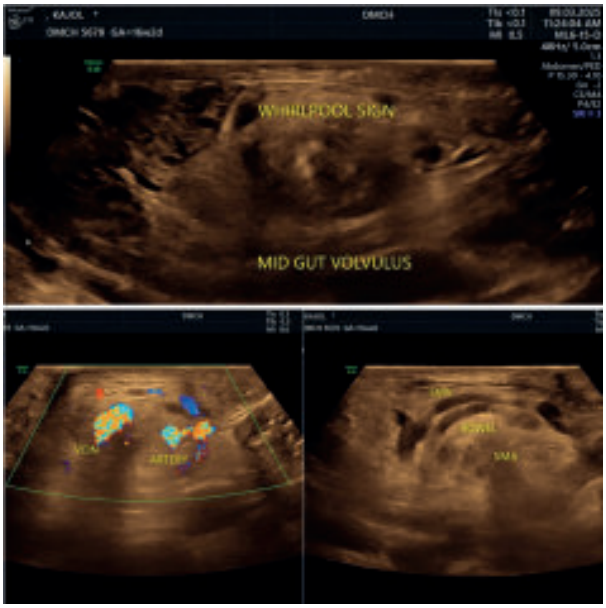

Figure-2: USG of Abdomen shows the swirling appearance of the mesentery and superior mesenteric vein around the superior mesenteric artery. The direction of swirl is clockwise on ultrasound. On doppler examination, no evidence of inverted SMA/SMV relationship seen

Discussion

Midgut volvulus is an uncommon clinical condition, particularly in adults, with incidence rates ranging from approximately 0.0001% to 0.19%, showing a slight predominance among females.[6,7]

This case describes a rare scenario involving a 22-year-old female patient presenting with midgut volvulus associated with mesenteric lymphadenopathy—a factor rarely identified as a contributing cause. Typically, midgut volvulus cases are associated with congenital intestinal malrotation, congenital anomalies, or postoperative adhesions.[3,8] Few similar cases have been reported previously, such as Prasad et al. (2021), who described a case where a large mesenteric lymphatic malformation led to volvulus requiring surgical intervention, and Kandpal et al. (2004), who documented a pediatric volvulus related to mesenteric lymphangioma.[9,10] From a radiological perspective, the "whirlpool sign" remains the defining imaging characteristic of midgut volvulus, clearly visible through Doppler ultrasound and CT scans.[4,5]

Clinically, diagnosing midgut volvulus in adults presents considerable challenges, as patients commonly experience chronic or intermittent abdominal pain before presenting with acute symptoms[7] Initially, the symptoms in this patient were suggestive of gastritis or pancreatitis, causing a delay in definitive diagnosis and treatment. CT imaging remains the gold standard in such ambiguous cases, providing definitive evidence of volvulus through visualization of the whirlpool sign.[9]

Overall, this case emphasizes the importance of keeping midgut volvulus in mind when encountering unexplained abdominal pain, especially in patients exhibiting mesenteric lymphadenopathy. Although congenital anomalies remain the primary cause of volvulus, this case adds to emerging evidence that lymphatic abnormalities may also contribute to its development. Prompt recognition and early imaging are critical steps in preventing ischemic complications and ensuring favorable patient outcomes.

Conclusion

This case highlights the critical importance of radiological imaging in diagnosing midgut volvulus, especially in unusual presentations involving mesenteric lymphadenopathy. The characteristic radiological findings, particularly the whirlpool sign observed on Doppler ultrasound and CT, played a key role in timely diagnosis. Although midgut volvulus typically arises from congenital intestinal malrotation, this case suggests that mesenteric lymphatic abnormalities might also be an underrecognized factor. Early recognition through imaging and prompt surgical intervention remain vital in preventing severe complications, underscoring the crucial role radiologists play in identifying and managing this rare yet potentially life-threatening condition.

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