

Sudden, very severe epigastric pain: A case report of mesenteroaxial gastric volvulus in a young adult

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Introduction

Gastric volvulus is a rare, life-threatening condition that often presents with a nonspecific clinical picture.

It usually begins with severe, acute epigastric pain, nausea and inability to vomit.

Delayed diagnosis and/or treatment can lead to ischemia, necrosis and perforation of the stomach, peritonitis and mediastinitis.

Clinical presentation

- 19-year-old male
- Acute severe epigastric pain
- Nausea without vomiting
- Initial suspicion: acute pancreatitis
- Difficult NGT insertion

Radiography



Figure 1. Gastric dilatation with a large air–fluid level occupying the left upper abdomen, raising suspicion of gastric outlet obstruction.

Ultrasound



Figure 2. Severely distended fluid-filled stomach.

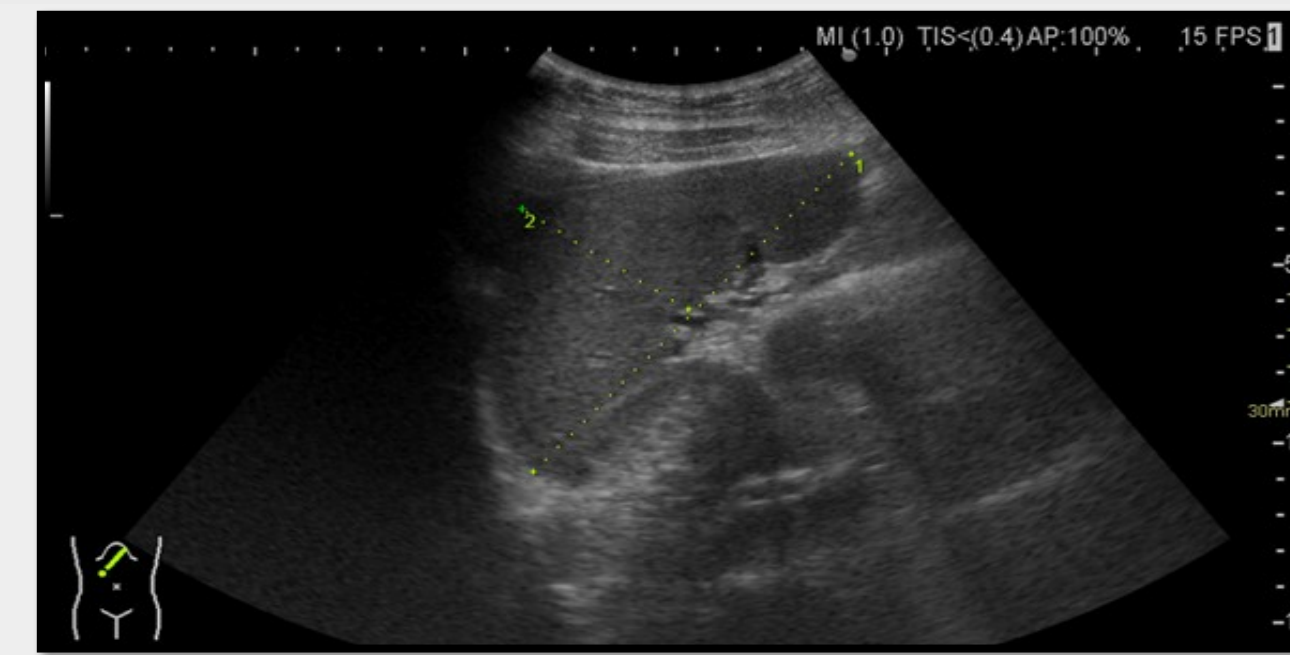


Figure 3. Mild splenomegaly with a more anterior and rightsided position than expected.

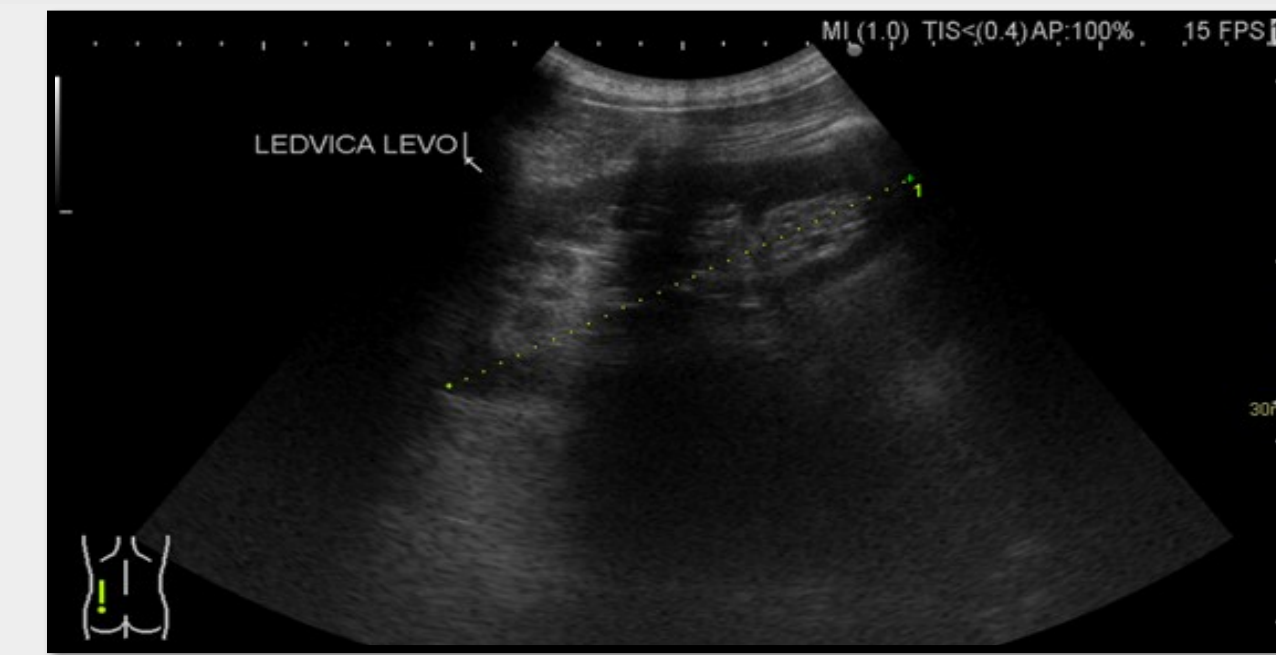


Figure 4. Left kidney located more posterocranially than usual.

Surgical findings

- **Emergency surgery confirmed:**
 - Gastric torsion
 - Early ischemic gastric wall changes
 - Acute hemorrhagic pancreatitis
- **Treatment:**
 - Gastric derotation
 - Partial omentum resection
 - Gastropexy

Computed tomography

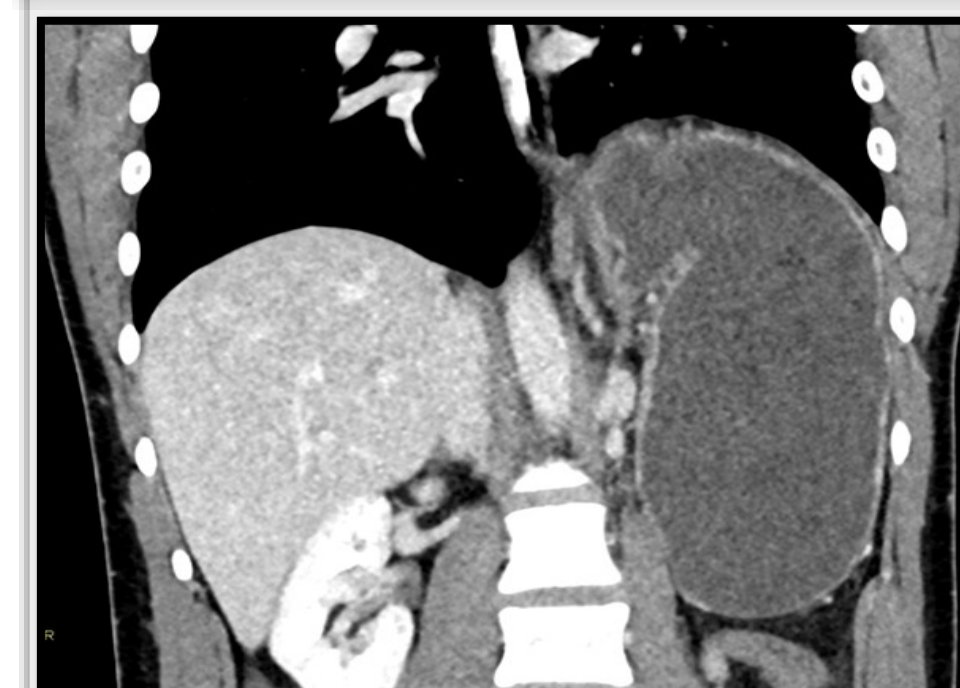


Figure 5. Coronal CT reconstruction demonstrating superior displacement of the gastric antrum relative to the fundus, consistent with mesenteroaxial rotation.

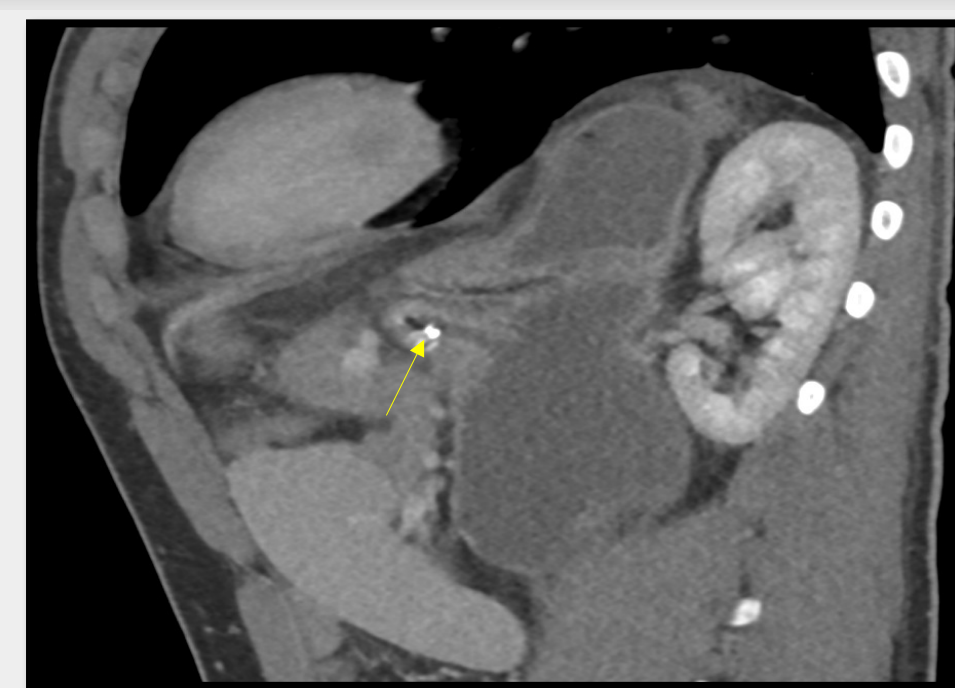


Figure 6. Sagittal CT reconstruction demonstrating inferior displacement of the nasogastric tube (arrow) within the gastric cardia relative to the superiorly displaced antrum and pylorus.

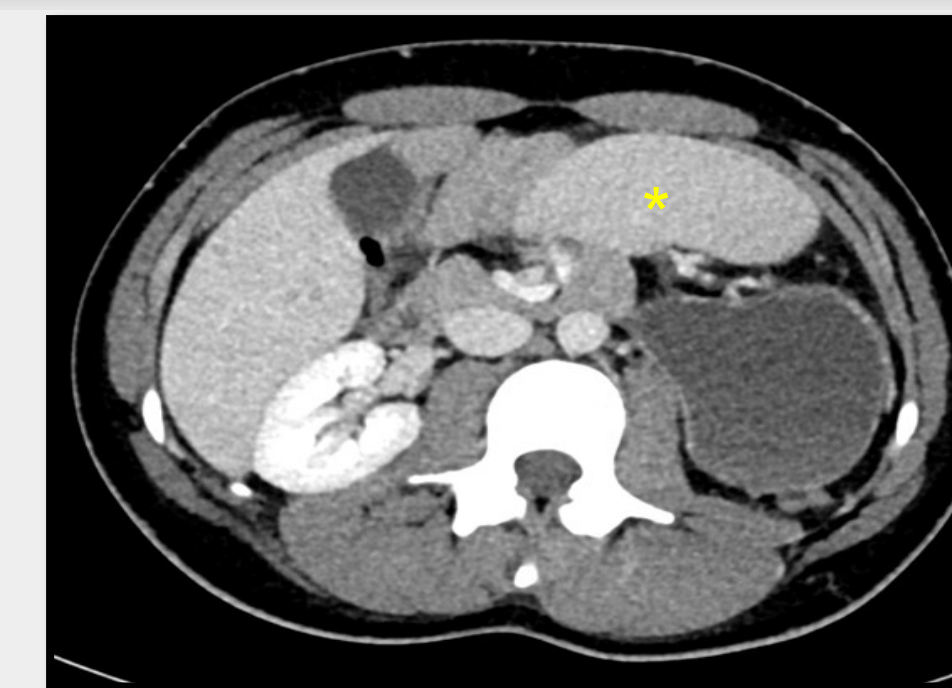


Figure 7. Axial CT image showing twisted mesenteric vessels at the mesenteric root, with the spleen lying more anteromedially than expected (*).



Figure 8. Axial CT image demonstrating relatively high positioned left kidney in the left subphrenic region.

Conclusion

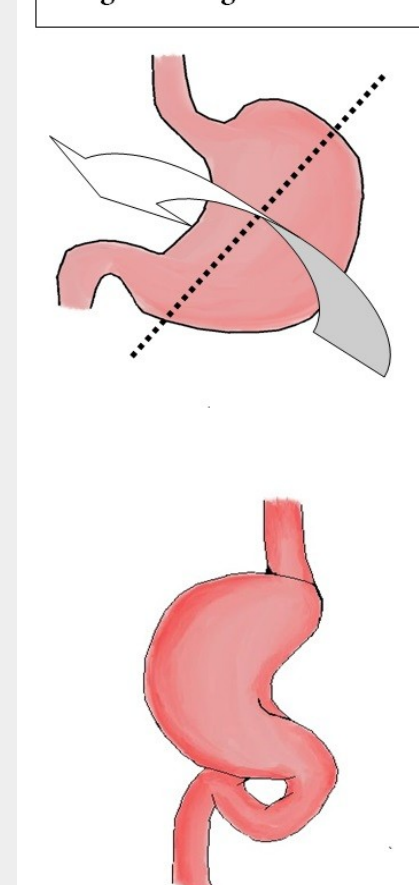
- Mesenteroaxial volvulus is less common than the organoaxial type and often presents with nonspecific symptoms.
- Diagnosis relies heavily on imaging, as physical examination can be inconclusive.
- Recognition of Borchardt's triad (epigastric pain, retching or inability to vomit, and difficulty passing a nasogastric tube), together with characteristic imaging findings, is essential for prompt diagnosis and timely surgical management.

Subtypes

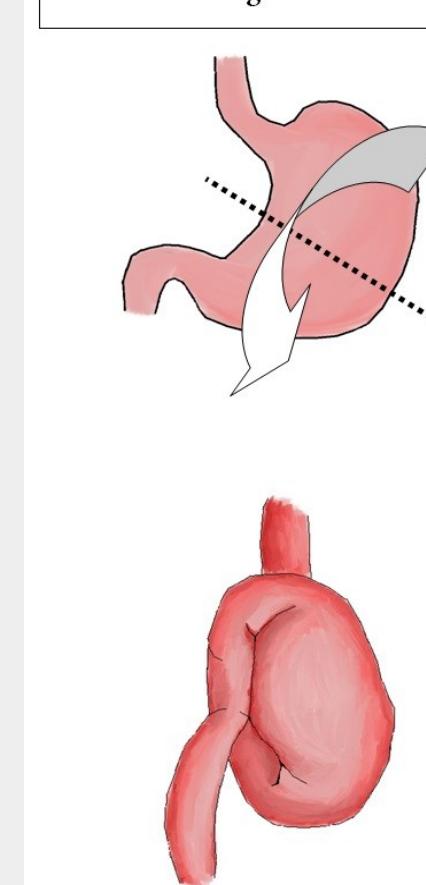
Organo-axial volvulus

- more common of the two types in adults (2/3 of cases)
- commonly occurs in the setting of trauma or para-esophageal hernia
- stomach is rotated along its long axis (along the cardiopyloric line, which is drawn between the cardia and the pylorus)
- mirror image of normal anatomy can occur with reversal of the greater and lesser curves
 - antrum rotates anterosuperiorly
 - fundus rotates posteroinferiorly
- complete rotation ($>180^\circ$) present with obstruction or ischemia
- incomplete rotation ($<180^\circ$), also called organo-axial position of the stomach, usually asymptomatic

Organoaxial gastric volvulus



Mesenteroaxial gastric volvulus



Mesentero-axial volvulus

- less common in adults, but is more common in the pediatric population (59% of gastric volvulus)
- rotation around short axis from the lesser to greater curvature (i.e. perpendicular to the cardiopyloric line)
 - usually incomplete $<180^\circ$
- displacement of antrum above gastro-esophageal junction; stomach appears upside-down with the antrum and pylorus superior to the fundus and proximal body
- coincides with the axis of mesenteric attachment and is associated with severe obstruction and strangulation
- less associated with diaphragmatic defect
- plain films may show an intrathoracic stomach with two air fluid levels

References

1. StatPearls Lopez PP, Megha R. Gastric Volvulus. StatPearls Publishing; updated 2025.
2. Khalifa et al. Khalifa A, Tawadros A, Broder A. Chronic Intrathoracic Gastric Volvulus Management: Could Less Be More? Clin Med Insights Case Rep. 2023;16:23247096231173400.
3. Bathobakae et al. Bathobakae L, Jariwala M, Hajdarmataj E, et al. Acute Mesentero-Axial Gastric Volvulus in the Setting of a Paraesophageal Hernia: A Rare Case Report. Clin Med Insights Case Rep. 2023;16.
4. Comune et al. Comune R, Guida F, Marte G, et al. Gastric outlet obstruction in uncomplicated mesentero-axial gastric volvulus associated to hiatal hernia. Radiology Case Reports. 2024;19(7):2698–2702.
5. Hare et al. Hare M, Salas-Parra R, Neal J, Patel V. Acute idiopathic mesenteroaxial gastric volvulus managed laparoscopically. BMJ Case Rep. 2024;17:e260253.
6. Radiopaedia: Gastric Volvulus. Accessed June 2026.