Incarcerated Diaphragmatic Hernia as a Cause of Mechanical Bowel Obstruction

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Introduction

- Acute abdominal pain is one of the most common chief complaints of patients presenting to the emergency department.
- Of the many potential etiologies, mechanical bowel obstruction remains a common cause, typically the result of abdominal adhesions in patients who have undergone previous abdominal surgery.
- However, rarer causes exist and present a diagnostic challenge to the clinician due to the similarity of presenting symptoms.
- In this report, we present a case of bowel obstruction caused by a non-traumatic, strangulated diaphragmatic hernia.

Patient Description

- A 58-year-old female presented to the emergency department with acute, severe right upper abdominal pain with associated shortness of breath and nausea and vomiting.
- She reported three days of constipation and was awakened the morning of her presentation with severe abdominal pain.
- She had a surgical history of appendectomy, tubal ligation, and bladder sling and otherwise had medical history consisting of hypertension, and type 2 diabetes mellitus.
- On arrival, the patient was found to be tachycardic in the 110s but was afebrile with otherwise reassuring vital signs.
- Her exam was limited secondary to significant pain, but she had reproducible right upper quadrant tenderness.
- Chest x-ray was concerning for an elevated right hemidiaphragm and associated free air.
- CT imaging revealed a right diaphragmatic hernia with an incarcerated cecum in the right chest cavity and a mildly dilated ileum, suggestive of a low-grade partial small bowel obstruction (Figures).

Figure 1. Traumatic right diaphragmatic hernia

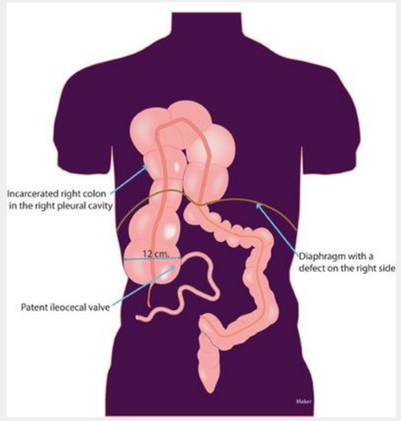


Figure 2. CT chest, abdomen, and pelvis axial view demonstrating large segment of bowel in right chest cavity.

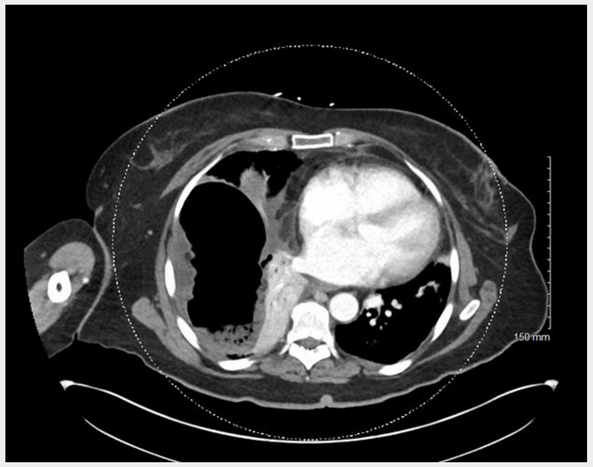
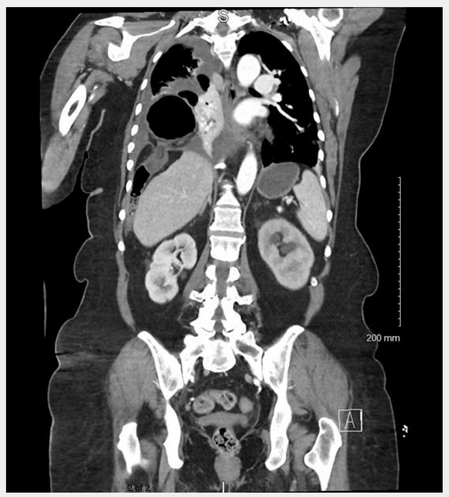


Figure 3: CT chest, abdomen, and pelvis coronal view with visible herniation of bowel through the right diaphragm.



Intervention

- The patient was subsequently taken for exploratory laparotomy and received broad-spectrum antibiotics.
- On surgical entry into her abdomen, the surgical team encountered purulent fluid and an incarcerated, necrotic colon in the right chest.
- The patient underwent further hernia reduction, ileocecectomy, chest washout, and placement of two right-sided chest tubes and two abdominal JP drains.
- Post-operatively, the patient did well.
- She did develop a further loculated right-sided pleural effusion which required an interventional radiology-placed pleural drain; however, she was ultimately discharged on post-operative day 8.

Conclusions

- Mechanical bowel obstruction can have rare, complex causes.
- Obtaining a focused clinical history can aid the clinician in raising diagnostic suspicion.
- Plain film imaging can provide radiographic evidence in severe cases.
- CT imaging is paramount in cases where x-ray imaging is inconclusive, or the clinician has high clinical suspicion and is essential to assist with characterization of the defect.
- Early diagnosis and medical and surgical intervention are critical to minimize morbidity and mortality.