Closed-Loop Obstruction in a Paraconduit Diaphragmatic Hernia

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KEYWORDS: Diaphragmatic Hernia; Ivor-Lewis Esophagectomy

CASE PRESENTATION

A 53-year-old man with a past medical history significant for esophageal squamous cell carcinoma treated with neo-adjuvant chemoradiation followed by remote open Ivor-Lewis esophagectomy, hypertension, gastroesophageal reflux disease, chronic alcohol-related pancreatitis with pancreatic insufficiency, chronic pain on oxycodone, and ongoing tobacco use presented to a community emergency department (ED) with one day of severe, left upper-quadrant abdominal pain and nausea. He described a similar, brief, self-resolving episode one week prior. He denied emesis, fever, chills, or weight loss.

In the ED, laboratory studies showed leukocytosis to 15 x10^9 cells/L and lactate elevation to 2.2 mEq/L. Computed tomography (CT) of the chest and abdomen with contrast demonstrated a large, left hemidiaphragmatic hernia with two components, intrathoracic small bowel obstruction, mesenteric edema, and interloop ascites concerning for a strangulated hernia with developing ischemia. No free air or pneumatosis was present.

Figure 1. Axial CT image showing dilated small bowel loops herniated into the left hemithorax adjacent to the gastric conduit.

Figure 2. Coronal CT reconstruction demonstrating transition point with mesenteric edema and interloop ascites concerning for developing ischemia.

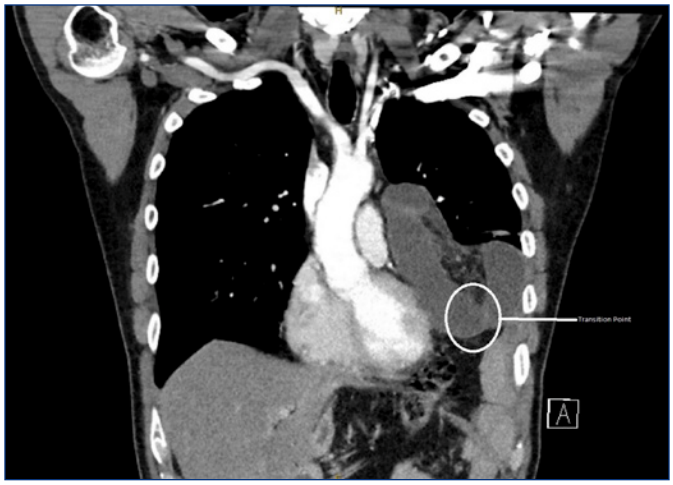

Figure 3. Sagittal CT view outlining the diaphragmatic defect and displacement of small bowel into the thoracic cavity.

Surgical oncology and thoracic surgery were consulted, and the patient underwent robotic-assisted laparoscopy with extensive lysis of adhesions, reduction of herniated small bowel, repair of an intraoperative enterotomy, and mesh repair of the diaphragmatic defect. Intraoperatively, nearly the entire small bowel was found to be herniated into the left hemithorax adjacent to the gastric conduit. A dense fibrotic band was identified at the transition point and divided, relieving the obstruction. The bowel appeared viable after reduction. A 13 × 8 cm PTFE mesh was used to bridge the large defect. He tolerated the procedure well and was admitted to the surgical intensive care unit postoperatively; he was ultimately discharged in stable condition three days post-procedure.

DISCUSSION

Diaphragmatic hernia is an uncommon complication of esophagectomy with gastric conduit reconstruction. Symptomatic hernias requiring surgical intervention occur in 3.1% to 8% of patients.[1-4] While herniation is most likely to occur within two years of surgery, it has infrequently been observed occurring five or more years after esophagectomy.[5-6] Presenting symptoms can be nonspecific, with respiratory distress being a common chief complaint when presenting within 30 days of surgery[7]; bowel obstruction and abdominal pain, accompanied by nausea and/or vomiting, are common in more delayed cases.[1] Other symptoms include chest pain and pressure, dysphagia, diarrhea, and constipation.[8]

Prior esophagectomy should trigger consideration of conduit-related complications when evaluating abdominal or chest pain. CT scan of the chest and abdomen represents the gold standard diagnostic modality; addition of intravenous contrast is not required for diagnosis but allows for earlier and more reliable detection of bowel ischemia.[9-10] Images should be scrutinized for ischemic features, including decreased bowel wall enhancement, mesenteric edema, interloop fluid, pneumatosis, or free air.[10-11]

CONCLUSION

In patients who have had a previous esophagectomy who present with chest or abdominal pain, consideration of an intra-thoracic bowel obstruction is important as rapid recognition and expedited surgical intervention are essential to prevent bowel infarction and improve outcomes. This case highlights how a post-esophagectomy patient presenting with acute abdominal pain can harbor a complex diaphragmatic hernia with closed-loop obstruction, diagnosed in the ED through CT and managed successfully with surgical repair.

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