International Surgery Journal
Prior I et al. Int Surg J. 2025 Aug;12(8):1345-1348
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20252288

Case Report

Post-esophagectomy incarcerated hiatal hernia: a surgical emergency

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Received: 02 June 2025
Revised: 05 July 2025
Accepted: 16 July 2025

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ABSTRACT

A woman is admitted to the emergency department (ED) complaining of acute abdominal pain radiating to the left shoulder, nausea and food intolerance. She had a past history of a minimally invasive McKeown esophagectomy 2 months prior. On clinical examination, the patient had no murmur on the left hemithorax, associated with tachypnea, peripheral oxygen saturation of 83% and epigastric abdominal tenderness. Chest radiography (CXR) revealed a herniated colon within the thoracic cavity with associated distension. Abdominal X-ray (AXR) revealed a nonspecific bowel gas pattern. Thoracic and abdominal computerized tomography (CT) confirmed a transverse colon herniation to the left hemithorax, with a closed loop obstruction, associated with the distension of ileum and the collapse of the descending colon. The patient was referred to the Operating Room where she was submitted to an exploratory laparoscopy, with identification of thoracic herniation of the colon and consequent hernia reduction and cruroplasty. The patient recovered swiftly post-operatively, being discharged home on the sixth day, tolerating oral liquid intake.

Keywords: Minimally invasive McKeown esophagectomy, Incarcerated hiatal hernia, Post-esophagectomy hiatal hernia

INTRODUCTION

This report describes an incarcerated hiatal hernia in a post-esophagectomy status, that required an emergent approach for its diagnosis and management. Post-esophagectomy hiatal hernia (PHH) is an unusual complication, more common after a minimally invasive approach, according to some authors.[1] This case demonstrates an uncommon, but potentially life-threatening, late complication of a minimally invasive esophagectomy: an incarcerated colon hiatal hernia.

CASE REPORT

A woman in her mid-80s, with history of adenocarcinoma of the distal esophagus staged as T1bN0M0, submitted to a minimally invasive McKeown esophagectomy with gastric conduit, with no relevant complications post-operatively. 2 months later, the patient was admitted to the emergency department (ED) complaining of acute abdominal pain radiating to the left shoulder, nausea and food intolerance. Clinical evaluation revealed a blood pressure of 122/62 mmHg, heart rate of 93 bpm and peripheral oxygen saturation of 83% with no supplemental oxygen-therapy.

There was no murmur on pulmonary auscultation of the left hemithorax and her abdomen showed generalized tenderness on palpation. The remainder of her examination was unremarkable.

Investigations

Laboratory investigations were unremarkable: WBC: 13.8, Neu: 9.2, Hb: 10.5, Normal liver enzymes, normal renal function and c-reactive protein level of 1.45 mg/dl.

Arterial blood gas analysis demonstrated a type 1 respiratory insufficiency, associated with respiratory alkalosis with normal lactate levels (1,0). Chest X-ray revealed a large left par mediastinal digestive tract structure distended and with an air-fluid level, extending

from the cardio phrenic angle to the sixth costal level (Figure 1). An abdominal X-ray demonstrated a gas pattern consistent with loops of dilated small bowel (Figure 2). An urgent thoracic and abdominal CT confirmed a transverse colon herniation to the left hemithorax, with a closed loop obstruction with distension of ileum and collapsed descending colon. (Figures 3a and b).

Treatment

Upon arrival at the emergency department (ED), the patient received analgesia, intravenous fluid therapy, supplemental oxygen therapy and a urethral catheter was inserted. She was kept nil orally. The patient remained stable and comfortable following the first medical approach and proceeded to continue further studying.

After the CT revealed a herniated colon, she was submitted to an exploratory laparoscopy. The thoracic herniation of the colon was identified, being carefully and completely reduced (Figures 4 and 5) and a crurorraphy concluded this intervention. The post-operative period was uneventful.

Outcome and follow-up

The patient recovered well post-operatively, being discharged home on the sixth day, tolerating oral liquid intake. Thoracic radiography imaging on the second day postoperatively showed complete reduction of the hernia (Figure 6).

On post-operative follow-up appointment, the patient was reevaluated, tolerating liquid diet (just as previously to the herniation) and with no subjective complaints.

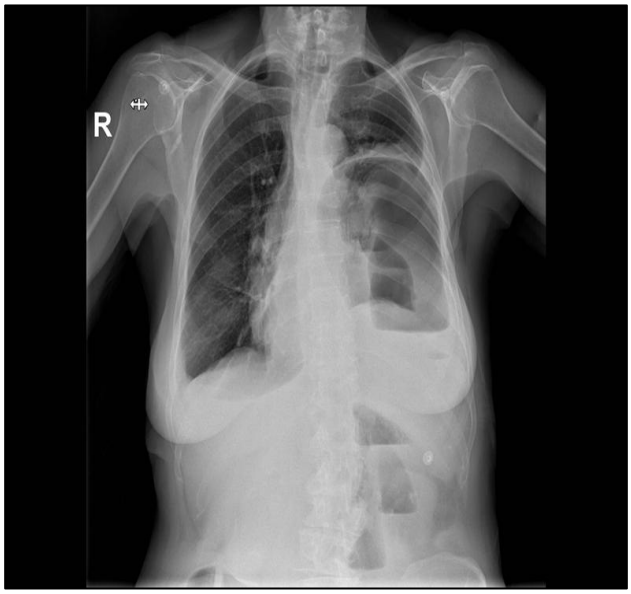

Figure 1: Chest X-ray with large left paramediastinal digestive tract structure distended and with an air-fluid level (hiatal hernia).

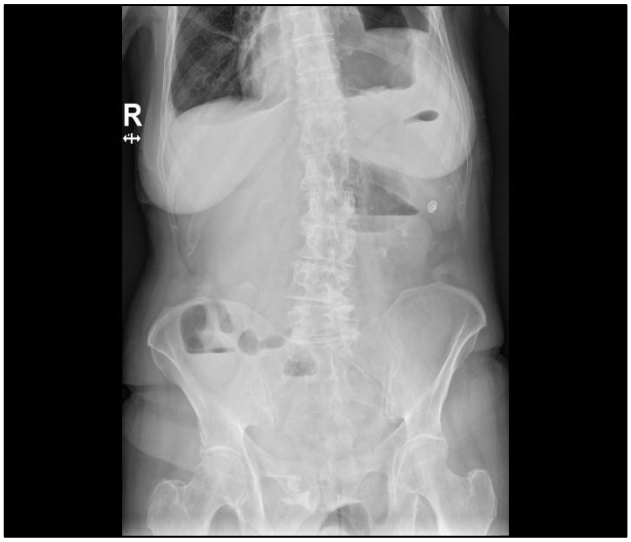

Figure 2: Abdominal X-ray demonstrated a gas pattern consistent with loops of dilated small bowel.

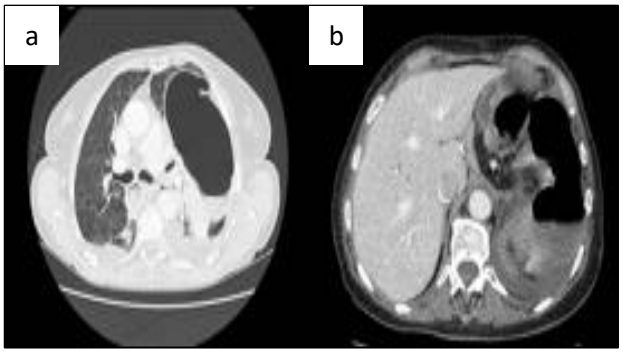

Figure 3 (a and b): Thoracic and abdominal Ct shows transverse colon herniation to the left hemithorax, with a closed loop obstruction with distension of ileum and collapsed descending colon.

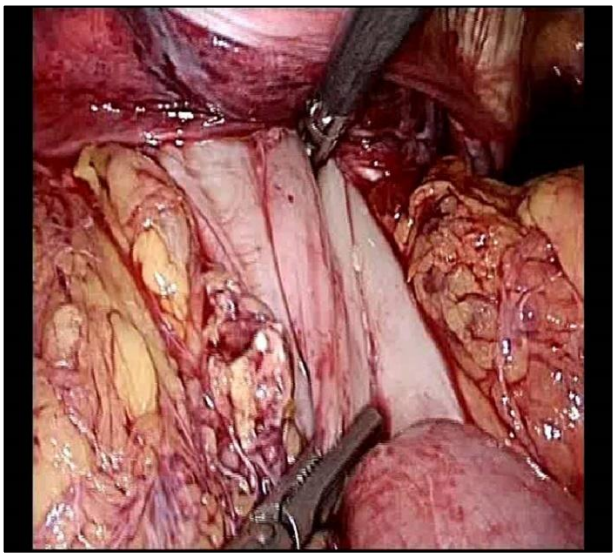

Figure 4: Laparoscopic view of hiatal hernia with colic content.

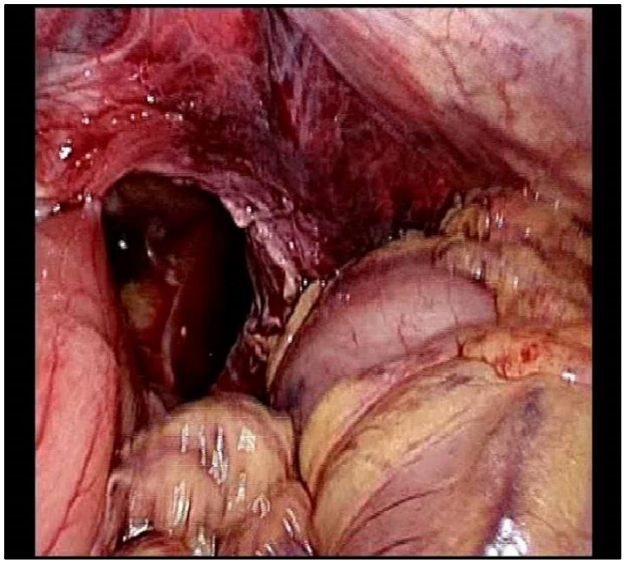

Figure 5: Laparoscopic view of hiatal hernia reduction.

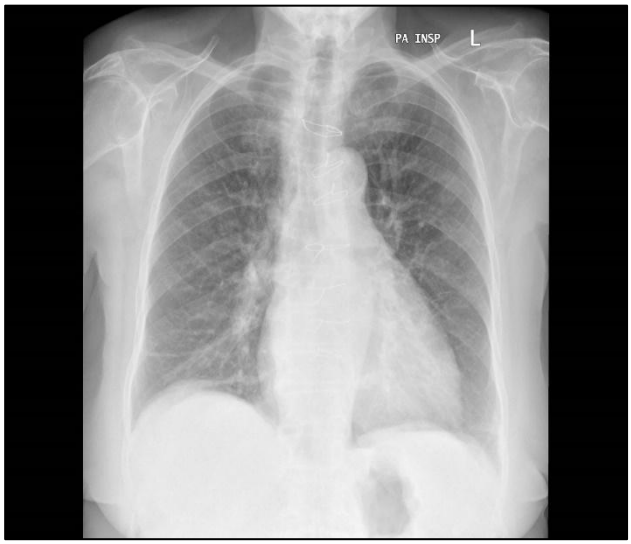

Figure 6: Post operative control chest radiography.

DISCUSSION

A hiatal hernia is defined as the herniation of abdominal content through the diaphragmatic esophageal hiatus into the mediastinum. The risk of developing a hiatal hernia increases after an esophagectomy since it usually requires the enlargement of the hiatus to allow passage of the conduit into the chest/neck and prevent its obstruction later on. Another risk factor associated with minimally invasive techniques (MIT) is the lack of adhesions, predisposing the development of PHH. Evidence and studies regarding the greater risk of PHH after MIT, compared to open approach, is inconsistent. Some authors believe that minimally invasive esophagectomy, compared to a conventional approach, leads to an increased incidence that can go up to 20%[1-4,8]. On the other hand, other studies found no significant difference between both groups.[6] Some authors identify some protective factors, such as neoadjuvant chemotherapy and radiation, eventually because of consequential local inflammatory response and fibrosis.[7]

This clinical entity can have variable presentations. Some patients may report gastroesophageal reflux (a typical symptom present on hiatal hernias), but also respiratory distress, intestinal obstruction, pain (chest or abdomen) or lower gastrointestinal bleeding.[2,5] However, most of these patients are asymptomatic.

The role of surgery after the diagnosis of an asymptomatic postoperative hiatal hernia is still controversial, since the risk of acute complications is not currently quantifiable, and so surgical risk must be weighed on.[7-9] However, symptomatic hernia (even in emergency context such as a bowel obstruction) should be addressed laparoscopically, since it has a perioperative morbidity and mortality rate much lower than reported for the open approach.[2] One major concern in post-esophagectomy hiatal hernia is the possibility of ischaemia/necrosis/perforation of the conduit due to increased pressure on the hiatus, but also, in an early post-esophagectomy setting, a potential development of anastomotic fistula due to conduit obstruction. Fortunately, in this rare case, surgical management was performed early enough to prevent these complications and allow for a relatively simple procedure with an uneventful recovery.

CONCLUSION

This case report tries to raise awareness of the surgical community of post-esophagectomy incarcerated hiatal hernia, that can occur in an early post-operative period. The main concern of this clinical entity is the high risk of evolving to strangulation, not only this being a life-threatening state to the patient, but also putting at risk the conduit with isquemic changes and consequently disabling the curative chances of the previous esophagectomy.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Prior I, Paula D, Andrade R, Antunes T, Lazaro A, Tralhão JG. Post-esophagectomy incarcerated hiatal hernia: a surgical emergency. Int Surg J 2025;12:1345-8.