Complications of Iatrogenic Hiatal Hernias: A Case Study of Robotic Post-Esophagectomy Hiatal Hernia Repairs

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Introduction

Esophagectomy, regardless of indication or approach, inevitably requires enlargement of the diaphragmatic hiatus. For those who are able to survive the immediate postoperative course, this defect may produce iatrogenic Type IV hiatal hernias. These may be detected incidentally during routine follow up or manifest as digestive, respiratory or cardiac symptoms acutely or chronically. While the literature supports repair of symptomatic post-esophagectomy hiatal hernias, the vast majority of minimally invasive cases have been performed laparoscopically with no consensus on cruroplasty or mesh graft reinforcement. We report a three patient case study using the Intuitive DaVinci robot to repair post-esophagectomy hiatal hernias during the 2021 calendar year.

Patient Presentation

Our patients all underwent an Ivor-Lewis esophagectomy. Indications were T1N1M0, T2N1M0 esophageal adenocarcinoma, and idiopathic achalasia refractory to Heller myotomy. They presented with symptoms ranging from persistent gastric reflux to acute thoracic small and large bowel obstructions.

Focused Preoperative Workup

Two patients had hiatal hernias detected on outpatient CT scans ordered by primary care providers as part of routine symptom workup. One patient presented with acute obstruction requiring semi-urgent repair. All repairs were conducted by a single surgical attending with reduction of hernia sac, small and large intestine, left lateral cururoplasties, and mesh reinforcement.

Intraoperative Photographs

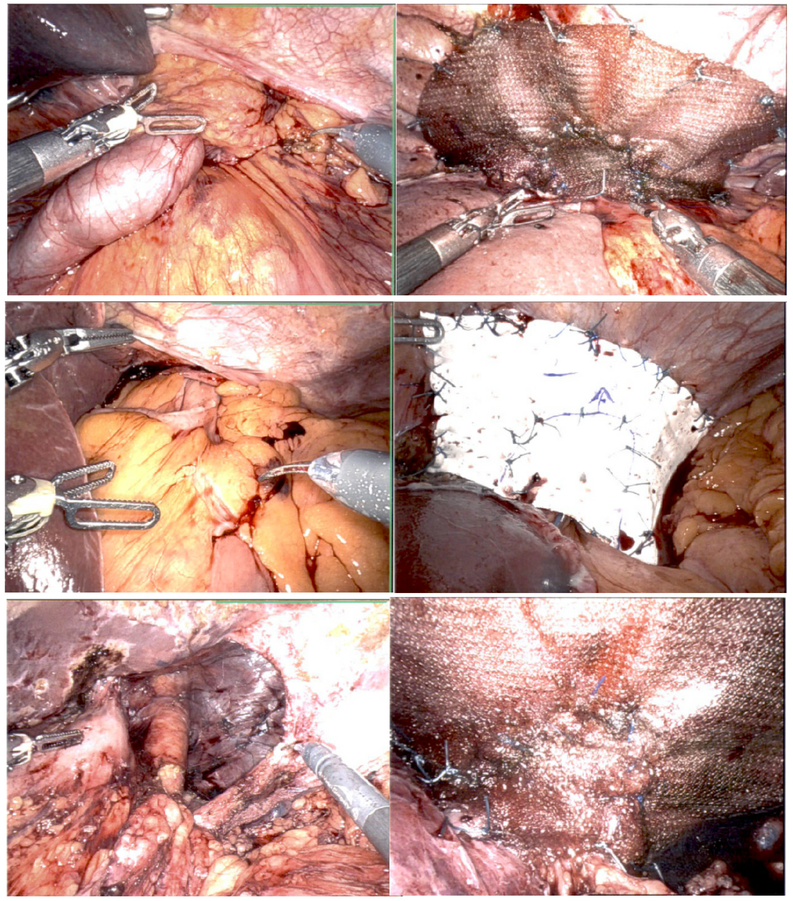


Figure 1. Before and after intraoperative photographs demonstrating the reduction of the hernia sac, gastric conduit, and hiatal defect as well as respective mesh placement. PTFE was used instead of polypropylene for one case.

Operative Intervention

Hiatal hernias were approached robotically in standard fashion with transverse robotic incisions across the upper abdomen. Hernia contents were reduced and the hernia sac taken down with particular attention to the right gastroepiploic artery to prevent devascularization of the gastric conduit. With the sac reduced, a left lateral curoplasty was performed in all cases using simple interrupted permanent sutures to reapproximate the diaphragm anterior to posteriorly as tension would allow. The repair was then reinforced with mesh underlay, providing a minimum of 4 cm of overlapping mesh from the suture line and included coverage of the residual hernia defect, left open at one edge to allow egress of the gastric conduit.

Outcomes

The mean hospitalization was 3 days and no postoperative complications were noted during admission. One patient represented to the emergency department with CT demonstrated omental infarction that was successfully resolved with outpatient analgesics.

Conclusions and Future Directions

As early detection and multimodal therapy continue to improve detection and treatment of esophageal cancer, we anticipate that post-esophagectomy survival will continue to increase, portending to more post-esophagectomy hiatal hernias. We propose that robotic post-esophagectomy hiatal hernia repairs, accompanied by left lateral cruroplasty and mesh reinforcement, is a safe and feasible treatment modality for this growing patient population in the future.

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