Robotic Recurrent Hiatal Hernia Repair, Collis Gastroplasty, and Nissen Fundoplication

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Abstract

Introduction: Recurrent hiatal hernia repair may be indicated in cases wherein symptoms are uncontrolled with medications coupled with an anatomic recurrence.^{1,2} Up to 15% of patients may develop a recurrent hiatal hernia on imaging at 1 year postoperatively, but only 10% of these patients are symptomatic. The size of the index hernia is an independent predictor of recurrence, and although mesh may decrease short-term recurrence, it has not been found to impact long-term recurrence rates.³ This video shows the case of a 59-year-old male, with a history of two prior hiatal hernia repairs with Nissen fundoplication. This video was first presented at the American College of Surgeons 2018 Clinical Congress in Boston, Massachusetts.

Methods: The patient presented to our institution with recurrent reflux symptoms including heartburn and regurgitation. Maximal nonoperative management failed to improve symptoms. A preoperative upper gastrointestinal (GI) swallow study and esophagogastroduodenoscopy demonstrated slippage of the fundoplication through the hiatus and recurrent reflux. His DeMeester score was 28 on pH impedance testing and his manometry was normal. We recommended a robotic redo hiatal hernia repair and Nissen fundoplication, with the possibility for a Collis gastroplasty. The patient was at risk for a gastroplasty secondary to the prior mediastinal dissection and esophagitis that may induce

esophageal shortening. The gastropasty would extend the length of his intra-abdominal esophagus and allow for a tension-free fundoplication. The reoperative hiatal hernia surgery started by defining the crural mechanism and dividing the attachments from the previous repair. The dissection extended into the mediastinum to the level of the pulmonary vessels. During take down of the Nissen fundoplication, the posterior border of the wrap was identified to avoid injuring the esophagus. Once the wrap was dissected from the esophagus, there was <3 cm of intra-abdominal esophagus. A stapled Collis gastropasty was then performed, excising a wedge of fundus and thereby lengthening the intra-abdominal esophagus before performing a symmetric Nissen fundoplication.

Results: The upper GI swallow study performed on postoperative day 1 demonstrated adequate neoesophageal length without a leak. The patient was discharged on postoperative day 2 tolerating a soft diet. He was recently seen at 1 year follow-up and is symptom free, with an upper GI study demonstrating an intact subdiaphragmatic wrap.

Conclusion: In our experience, robotic surgery—with benefits of improved visualization and precisely controlled dissection—provides a safe and effective approach to challenging reoperative hiatal hernia repairs. The robot facilitates an extended dissection needs into the mediastinum and stapler angles that can be challenging for a wedge fundectomy.

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Runtime of video: 9 mins 33 secs

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Keywords: hiatal hernia, paraesophageal hernia, Collis gastropasty, Nissen fundoplication, redo

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