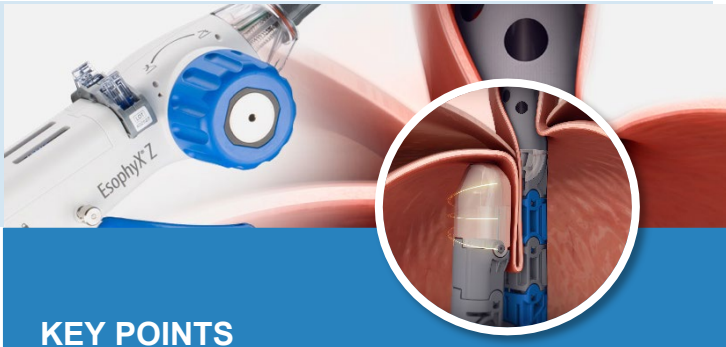
ABSTRACT

Ten Reasons for Laparoendoscopic Repair of Hiatal Hernia: Case Presentation with Long-Term Follow-Up



BACKGROUND

Laparoendoscopic hiatal hernia repair (LEHHR) involves laparoscopic repair of hiatal hernia with concomitant transoral incisionless fundoplication (TIF). The objective of this case presentation is to highlight the benefits of LEHHR in a patient with long term follow up. This patient is a 56-year-old woman with symptoms of gastroesophageal reflux disease for 40 years. Esophagogastroduodenoscopy (EGD) showed a 2 cm hiatal hernia. DeMeester score was 21.3. She underwent LEHHR 33 months ago. The patient underwent laparoscopic cholecystectomy for symptomatic biliary dyskinesia. This provided the opportunity to examine the operative anatomy. There were minimal adhesions to the liver. The partial fundoplication was intact. The angle of His was preserved. The fundus was spared from any adhesions as TIF utilizes the cardia rather than the fundus to create the wrap. The plane behind the stomach was undisturbed. LEHHR has 10 main benefits. Anatomical benefits result from the preservation of the angle of His. Functional benefits relate to a partial fundoplication which normalizes pH values. LEHHR avoids bleeding from short gastric vessels and the creation of a wrap when anatomical obstacles present. Strategic benefits are directed toward any subsequent revisional reflux surgery. The lack of adhesions, easy access to the base of left crus and sparing the fundus render revisional surgery straightforward.

METHODS

This case involves a 56-year-old woman with a medical history of osteoporosis, asthma, aspiration pneumonia, and depression. Physical examination revealed a body mass index of 21.7 Kg/m2 and an extremely small torso. She had symptoms of gastroesophageal reflux disease (GERD) and laryngopharyngeal reflux for 40 years. She presented with heartburn, regurgitation, asthma-like symptoms, hoarseness, and globus sensation. She used proton pump inhibitors (PPIs) for 10 years, including esomeprazole 40 mg for 7 years and rabeprazole 20 mg daily for 3 years, with poor control of her symptoms. Her GERD Health-Related Quality of Life (GERD-HRQL) Questionnaire, Reflux Symptoms Index (RSI) Questionnaire and GERD Symptom Score (GERSS) Questionnaire on PPI were 56, 42, and 44, respectively. *(continued next page)*

KEY POINTS

LEHHR concept has many advantages; for simplicity we list 10 reasons: 2 functional, 2 anatomical, 4 operative and 2 strategic:

1. LEHHR creates a partial wrap that is less likely to produce gas bloat syndrome or dysphagia.
2. This approach has been shown to be effective in normalizing esophageal pH scores.
3. It preserves the angle of His which is an important antireflux mechanism.
4. It does not impact the blood supply of the stomach as it does not require division of the short gastric vessels.
5. It is less likely to cause bleeding from short gastric vessels or splenic tears.
6. It involves less operative dissection as it leaves the retrogastric plane undisturbed.
7. It provides an alternative when laparoscopic fundoplication is challenging. This was highlighted in recent reports of massive caudate lobe or prominent aberrant left hepatic artery.3,4 LEHHR was beneficial in this patient with a small torso barely enough for 4 laparoscopic ports.
8. LEHHR produces a reproducible wrap which decreases variability among surgeons. A recent study evaluating a novel technique for the repair of the diaphragmatic hiatus utilized LEHHR to standardize the wrap thus focusing on the impact of cruroplasty.
9. The EsophyX device wraps the cardia thus sparing the fundus for any potential subsequent antireflux surgery (Figures 1A/2B.)
10. The access to the left crus via the retrogastric plane is a critical step in revisional antireflux surgery; this plane is undisturbed which facilitates possible future revisional surgery (Figure 2C).

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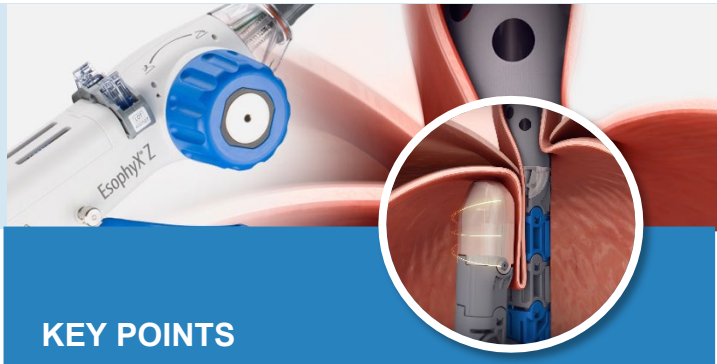

METHODS *(continued)*

Diagnostic workup included upper gastrointestinal series which showed normal motility. Esophagogastroduodenoscopy (EGD) showed a 2 cm hiatal hernia and Hill's deformity II (Figure 1B). The crura were repaired primarily. The short gastric vessels were not divided (Figure 2D). The laparoscopic portion was concluded, and TIF was performed using the EsophyX device to create a 270-degree wrap (Figure 1C).

RESULTS

The operative time was 104 minutes. There were no intraoperative or postoperative complications. She was discharged the following day and discontinued PPI therapy 2 weeks postoperatively.

The patient presented 33 months later with upper abdominal pain and nausea. EGD showed no hiatal hernia and intact TIF wrap (Figure 1D). Further workup showed biliary dyskinesia. The patient underwent laparoscopic cholecystectomy which was uneventful. This provided the opportunity to examine the operative anatomy. There were minimal adhesions to the liver. The angle of His was preserved. The wrap appeared intact. The access to the left crus was straightforward.

The patient made an uneventful recovery. The epigastric pain and nausea resolved. The pathological examination showed chronic cholecystitis. The GERD-HRQL, RSI, and GERSS at 33 months off PPI were 0, 2, and 0, respectively.

CONCLUSION

Laparoendoscopic hiatal hernia repair has functional, anatomical, operative, and strategic advantages. It provides a safe and effective alternative in challenging surgical scenarios. Prospective studies with longer follow-up are required to validate this technique.

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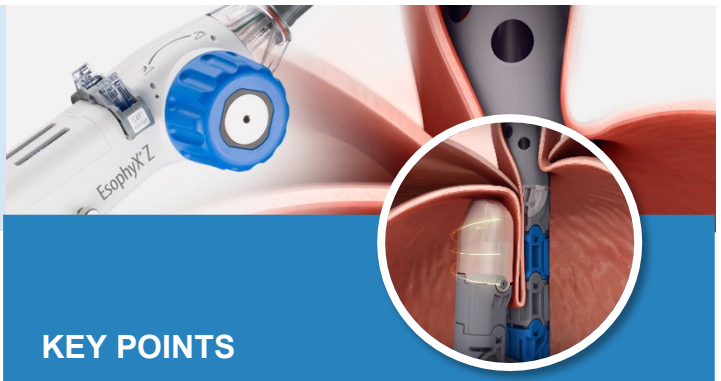

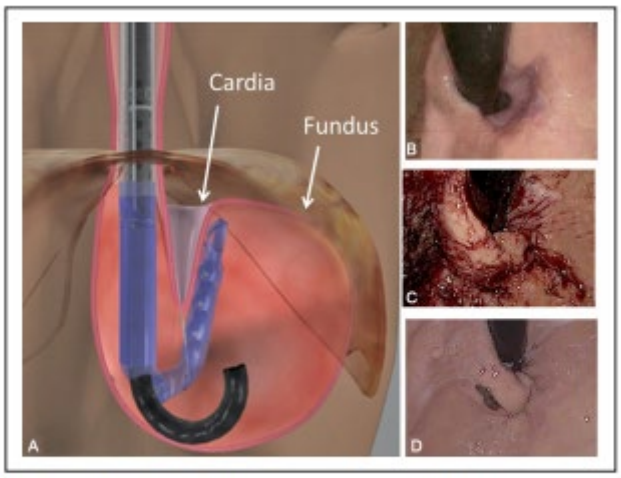

Figure 1. Retroflexed endoscopic views. (A) depiction of the cardial wrap by the Esophyx device; (B) preoperative view; (C) intraoperative view; and (D) postoperative view at 33 months.

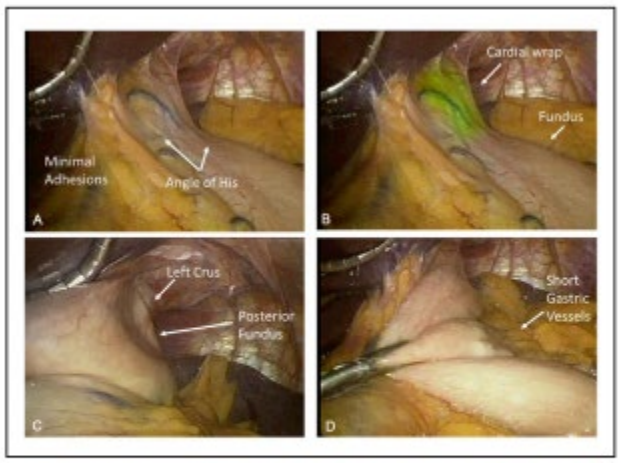

Figure 2. Operative imaging. (A) inimal adhesions and preservation of angle of His; (B) enhanced cardial wrap; (C) gastric retraction exposing left crus and posterior fundus; and (D) intact short gastric vessels.

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