Endoscopic reduction of type IV paraesophageal hernia

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BACKGROUND

Type IV paraesophageal hernias are characterized by upward dislocation of the intra-abdominal organs into the thoracic cavity and the presence of a structure other than the stomach within the hernia sac. Although surgical repair is traditionally indicated in symptomatic patients with a paraesophageal hernia, limited options are available for patients deemed to be high risk for surgical repair.1,2 In this video (Video 1, available online at VideoGIE.org), we describe a successful case of endoscopic type IV paraesophageal hernia reduction in a patient who was not able to undergo surgical repair.

CASE PRESENTATION

A 76-year-old woman with a medical history significant for anaplastic thyroid cancer with a history of radical thyroidectomy presented to our institution with inability to tolerate oral intake. Initial CT of the abdomen/pelvis revealed a very large type IV paraesophageal hernia with the chest cavity containing the stomach, transverse colon, and mesenteric fat. An upper GI series was also obtained and showed an upside-down stomach (Fig. 1). The surgical department was consulted; however, she was determined to be a high-risk candidate for surgical repair and thus was referred to gastroenterology for possible endoscopic management.

Figure 1. Upper GI tract series fluoroscopic image demonstrating an upside-down stomach and type IV paraesophageal hernia.

Figure 2. Fluoroscopic image during simultaneous endoscopy and colonoscopy to reduce the colon back into the abdominal cavity—unsuccessful attempt.
The patient underwent endoscopic paraesophageal hernia repair through simultaneous upper endoscopy and colonoscopy under direct fluoroscopic guidance. The stomach and colon were successfully reduced out of the hernia sac and back into the intra-abdominal cavity endoscopically. The initial attempt at colonoscopic reduction was unsuccessful (Fig. 2); however, the second attempt was successful in achieving full reduction of the colon out of the chest cavity (Fig. 3). To prevent recurrent herniation, the stomach was fixed in place with a PEG using a balloon-assisted pull-through technique (Fig. 4), and the colon was tacked in place with percutaneously placed T-fasteners (Entuit Secure Adjustable Gastrointestinal Suture Anchor Set–17 G × 12 cm; Cook Medical, Bloomington, Ind, USA) (Fig. 5). A schematic diagram of before and after the endoscopic reduction is shown in Figure 6.

The patient tolerated the procedure well, and T-fasteners were removed 6 weeks postprocedure. Although PEG removal is plausible and may be considered 8 to 12 weeks postplacement, the decision was made to leave the PEG tube in place given the severity of previous herniation. At 1.5-year follow-up, the patient reported significant complete resolution of nausea and vomiting and was tolerating nutrition entirely by mouth.

CONCLUSIONS

In this presentation, we describe successful endoscopic partial reduction of a type IV paraesophageal hernia. Surgical repair of a type IV paraesophageal hernia can be associated with many adverse events, particularly in high-risk patients. Endoscopic- or colonoscopic-assisted reduction followed by fixation is a feasible, safe, and effective option in select cases. Based on this case, endoscopic reduction should be considered in patients not amenable to or at high risk of surgery and in centers with clinical expertise.

DISCLOSURE

Dr Hathorn has ownership interest in Colowrap. Dr Thompson is a consultant for Apollo Endosurgery, Boston Scientific, Covidien/Medtronic, Fractyl, GI Dynamics, GI Windows, Olympus/Spiration, and USGI Medical; does research support for Aspire Bariatrics and Spatz; is a general partner with BlueFlame Healthcare Fund; is a board member at EnVision Endoscopy; and is on the advisory...
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REFERENCES

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Figure 6. Diagram representing initial type IV paraesophageal hernia (left) before successful endoscopic reduction of chest cavity contents postprocedure (right).