



# Management of a malignant esophagopleural fistula after stent failure with a suturing pexy: time to seal the leak

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## INTRODUCTION

Palliation of malignant esophagopleural fistulas require definitive repair with surgical or endoscopic closure techniques. Spontaneous closure is rare, and many times these critically ill patients are not ideal operative candidates.<sup>1</sup> Endoscopic stent placement allows for a minimally invasive alternative with clinical success.<sup>2-4</sup> Yet, these stents are prone to migration with poor long-term outcomes in cases of leaks/fistulas.<sup>5</sup> Furthermore, anatomic challenges may impede resolution of the leak with a stent, such as the following: (1) a dilated proximal esophagus precluding a seal forming at the proximal end, and (2) leaks at the esophagogastric junction, especially when associated with a large hiatal hernia, can prevent a seal at the distal end. In this setting, nonoperative therapeutic management is limited to nil per os and enteral nutrition beyond the leak or total parenteral nutrition.

In our case, we present an additional option to palliate this difficult situation and allow resumption of per os intake using reefing sutures to narrow the hiatal hernia thereby improving stent granulation and seating with resolution of the leak (Video 1, available online at [www.videogie.org](http://www.videogie.org)).

## CASE

A 75-year-old man with metastatic lung cancer on salvage chemotherapy presented with septic shock and an empyema requiring chest tube placement. An esophagopleural

fistula was detected with food material emerging through the chest tube. There was no evidence of a bronchoesophageal fistula on bronchoscopy. A subsequent CT scan showed an indwelling right chest tube with a large right-sided pleural effusion and associated atelectasis.

Endoscopic findings revealed significant ulceration of the esophagus and clear communication with the pleural space, which was filled with food debris and liquid barium (Fig. 1). The fistula was from the distal esophagus to the left pleural space (measuring 4-5 cm). This was carefully suctioned to avoid trauma to the pleura and resulted in improved pulmonary expansion after removal of 600 mL of debris. Initially a 23- × 15-cm partially covered esophageal self-expandable metal stent (PCSEMS) (Boston Scientific, Marlborough, Mass, USA) was placed; however, he had persistent leakage around the stent (Fig. 2). Repeat CT imaging demonstrated reflux around the lower portion of the stent owing to a large sliding hiatal hernia.

Given his poor operative candidacy, a decision for stent revision with endoscopic pexy sutures (Apollo Endostitch, Austin, Tex, USA) was considered. A suturing pexy was successfully created within the large hiatal hernia in addition to primary suturing using a running stitch of the esophagopleural fistula (Figs. 3-5). The distal end of the stent was proximal to the area of the pexy.

Post-stitching contrast injection demonstrated successful pexy of the hernia sac and minimal leak from the fistula suture site before stenting (Fig. 6). A 23-mm × 12-cm PCSEMS was placed, and the patient was able to advance his diet without evidence of recurrent leakage on subsequent imaging. He was discharged home on hospice, tolerating a stent diet until he died of cancer 6 weeks after the procedure.

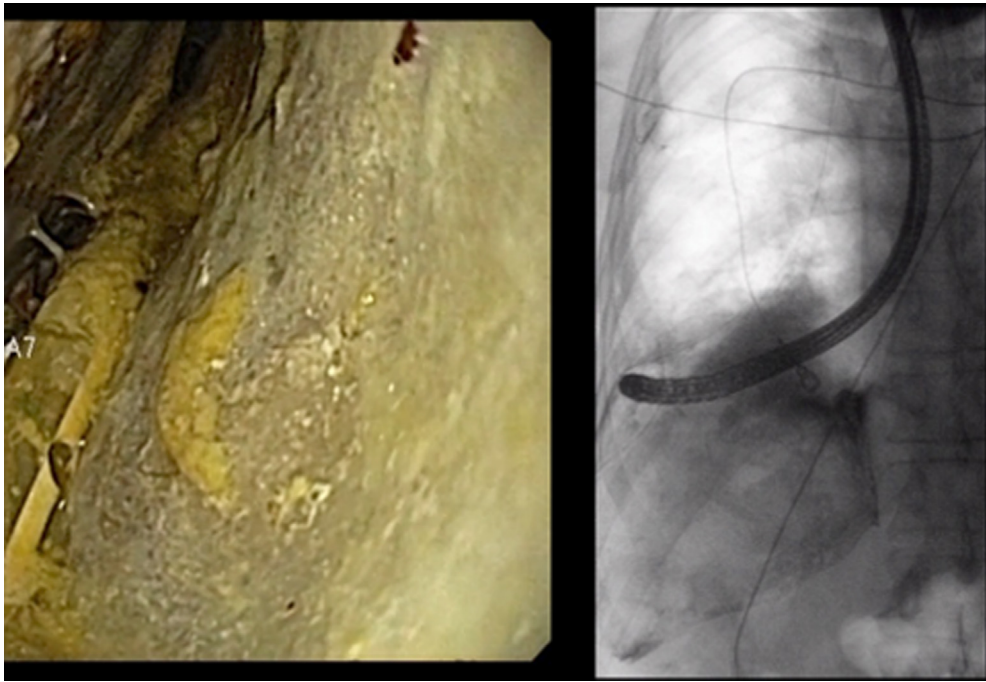
## CONCLUSION

Reefing sutures can be used to plicate the stomach and reduce lumen size for various indications. In this video, plication of the hernia sac allowed for adequate sealing around the stent and resolution of the leak. This appears to be a feasible technique to facilitate resolution of an esophageal leak in a nonoperative candidate that has failed stenting alone. Larger studies are needed to establish safety and efficacy of this approach.

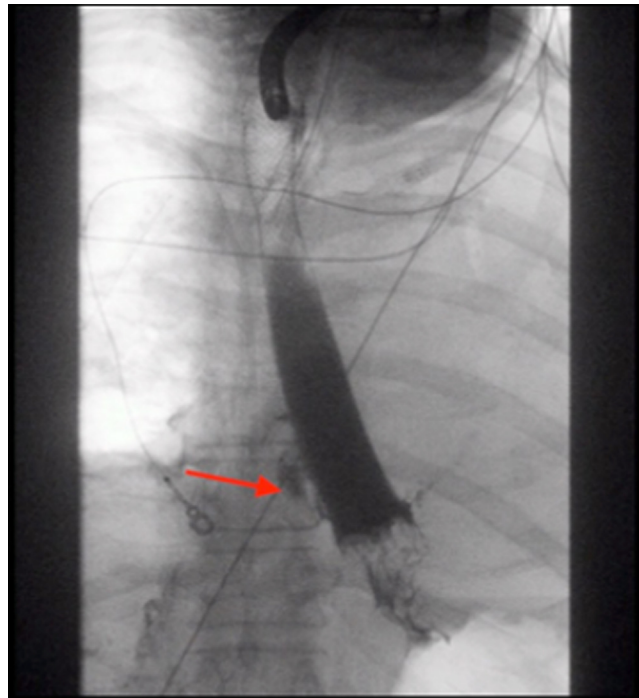
*Abbreviation: PCSEMS, partially covered esophageal self-expandable metal stent.*

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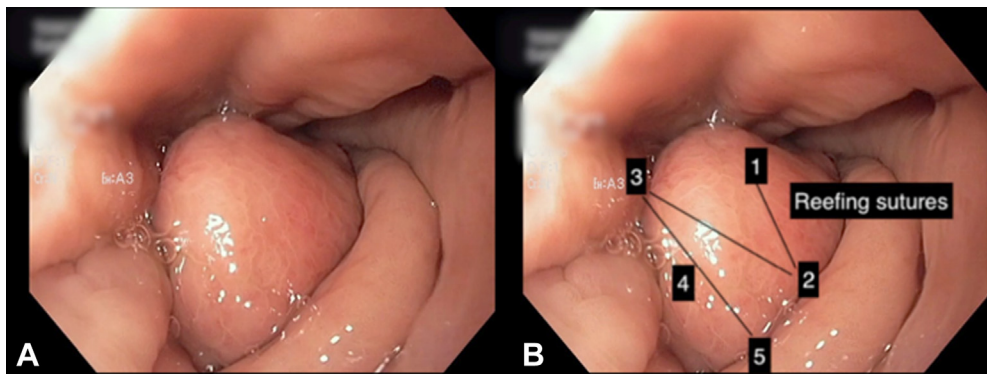
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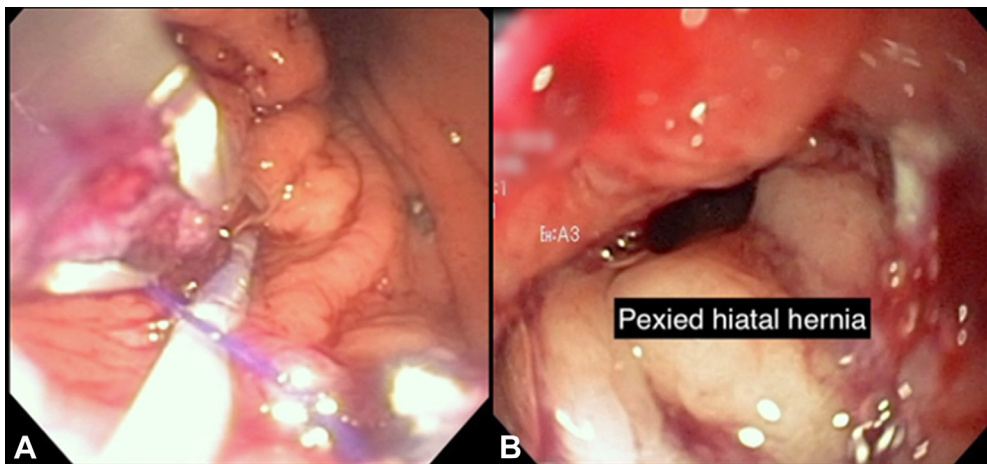
**Figure 1.** Endoscopic and fluoroscopic images of contents of large esophagopleural fistula.



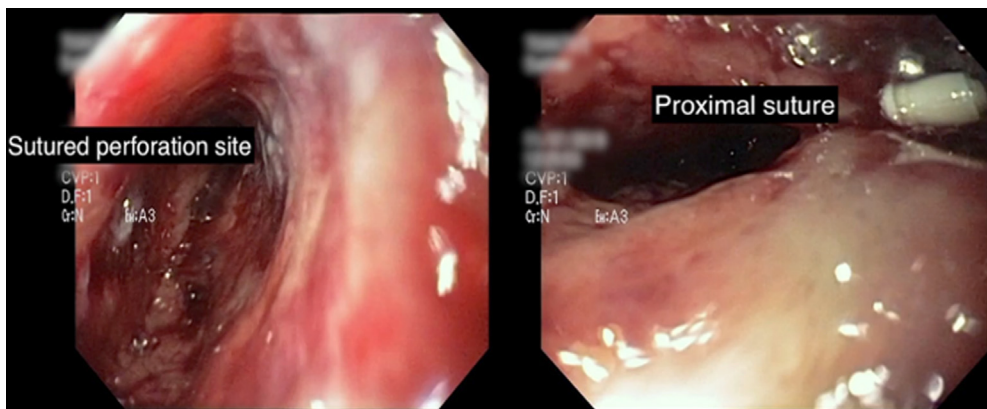
**Figure 2.** Persistent leak around initial stent owing to reflux around distal end of stent.



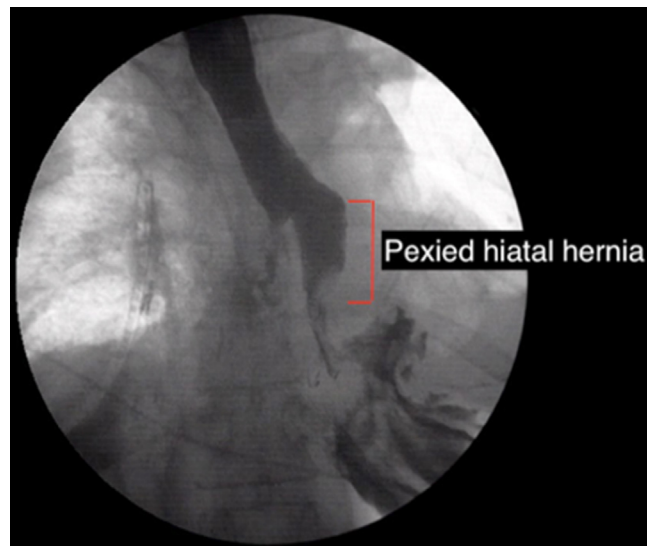
**Figure 3.** A, Endoscopic view of the hiatal hernia. B, Plan for reefing sutures.



**Figure 4.** Endoscopic placement of the reefing sutures (A) and their placement to allow distal end of stent to sit better (B).



**Figure 5.** Sutures placed to close the site of malignant esophagopleural fistula.



**Figure 6.** Final view after suturing and contrast injection showing narrowing of the distal esophagus and hiatal hernia allowing stent to seal the leak subsequently.

## DISCLOSURE

*Dr Irani is a consultant for Boston Scientific and Gore. Drs Higa and Canakis disclosed no financial relationships.*

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