

## Use of helical tack system for management of a high-risk fibrotic peptic ulcer



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**Background and Aims:** GI bleeding because of peptic ulcer disease is a well-described entity in its diagnosis and management. Although hemostatic clips and thermal therapy have been the primary tools in bleeding from peptic ulcer disease, some bleeds remain refractory. New data have shown that obliteration of the underlying arterial blood flow is needed to control refractory peptic ulcer bleeding. Although this has been shown with over-the-scope clips, we present a case where GI bleeding is controlled via a helical tack system. Although there are several available tools that can be used for treatment of upper GI bleeds, there remains a need for devices that can be used when standard methods of closure, such as with clips, cannot be performed because of a challenging location or friable mucosa. The aim of this video case is to demonstrate the use of a novel helical tack system as a salvage technique in the treatment of challenging upper GI bleeds.

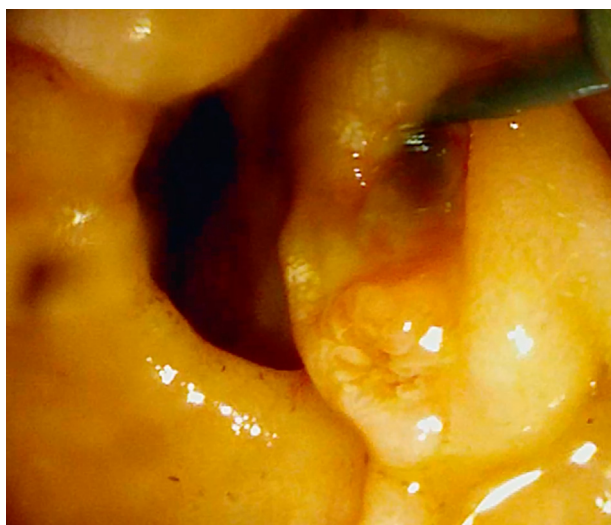
**Methods:** One case of a bleeding GI ulcer that was refractory to standard endoscopic clips was identified.

**Results:** In this case, the ulcer closure was achieved using the helical tack system. There were no adverse events. The patient did not require additional surgical or endoscopic interventions.

**Conclusions:** The helical tack system is a novel device that may be useful as a salvage method for the cessation of GI bleeds refractory to standard clips. Additional comparative studies are needed to better understand the advantages and disadvantages of this system relative to other closure tools. (VideoGIE 2023;8:42-5.)

### INTRODUCTION

Hemostatic clips, injectable agents, and thermal therapy are all methods for the endoscopic management of high-

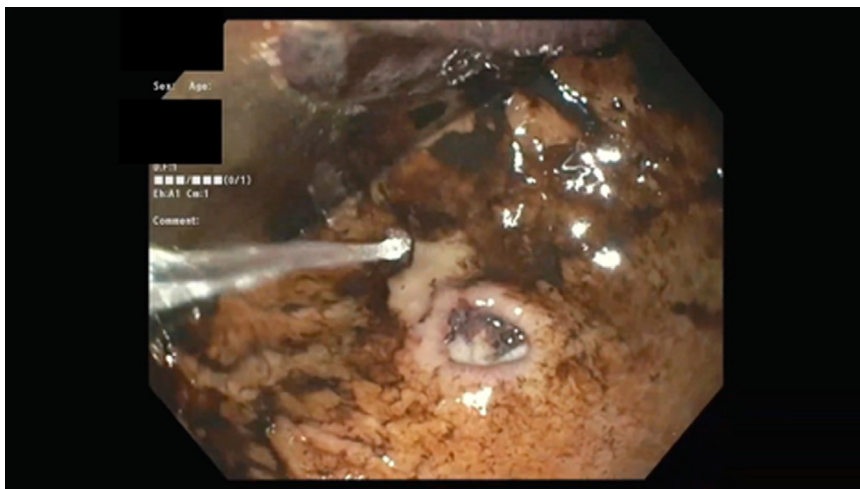


**Figure 1.** The biliary tree is swept and blood is not found during the second ERCP.

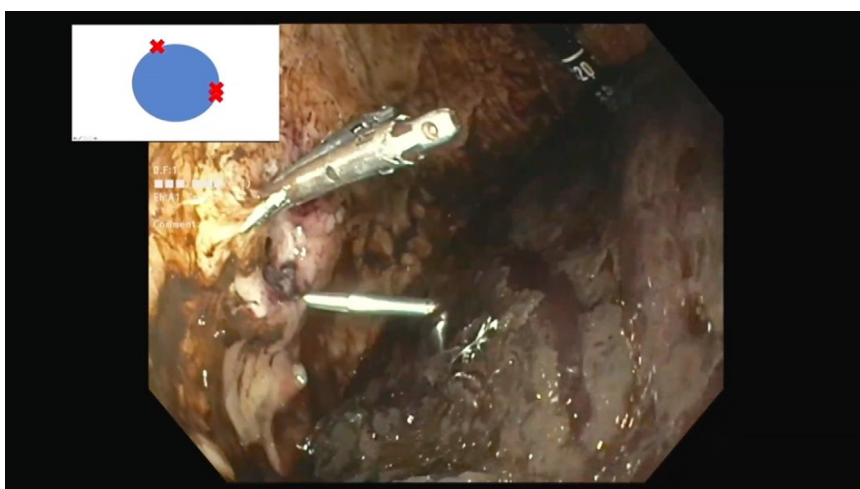
risk peptic ulcers.<sup>1</sup> In cases of refractory bleeding, submucosal arterial obliteration may be warranted.<sup>2,3</sup> A recently introduced helical tack system offers endoscopists another option for achieving ulcer closure. The system can be deployed through-the-scope (TTS) and uses up to 4 tacks connected with a polypropylene suture. The tacks are drilled into a defect in the submucosa adjacent and cinched together to achieve closure. We present a case



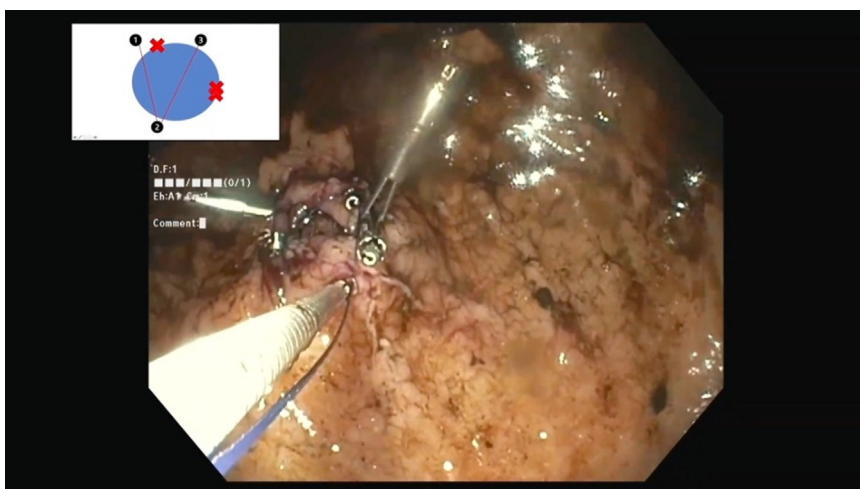
**Figure 2.** Because an ulcer was present at the sphincterotomy site, a covered metal stent is placed for hemostasis.



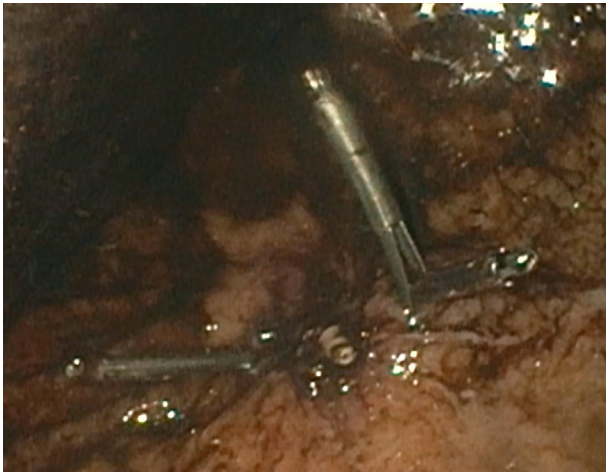
**Figure 3.** An ulcer with a visible vessel is noted on the lesser curvature.



**Figure 4.** Hemostatic clips fail to close the ulcer.



**Figure 5.** A through-the-scope tack system is used to close the ulcer.



**Figure 6.** The ulcer is fully closed after use of the helical tack system.

where the helical tack system is successfully used to treat a challenging peptic ulcer disease (PUD).

## CASE PRESENTATION

A 50-year-old man presented to the emergency department (ED) with abdominal pain and was diagnosed with acute cholecystitis. He underwent an uncomplicated laparoscopic cholecystectomy, but his total bilirubin rose to 5.9 mg/dL postoperatively, prompting ERCP with subsequent stone removal. The patient returned to the ED 1 week after initial discharge with melena, altered mental status, and hemorrhagic shock. His hemoglobin had dropped

from 11.2 to 6.9 g/dL. Emergent ERCP was performed for presumed postsphincterotomy bleeding, during which a small ulcer was noted at the sphincterotomy site, and a covered metal stent was placed (Figs. 1 and 2). However, upon withdrawal, a separate, large gastric ulcer with a visible vessel was noted along the lesser curve (Fig. 3). The ulcer was not because of the patient's prior ERCP but was thought to be secondary to nonsteroidal anti-inflammatory drug use. The endoscopic approach was difficult because of the ulcer's location and presence of clotted blood, since the stomach could not be suctioned down without obscuring visualization. Epinephrine injection and 3 hemostatic clips failed to definitively manage the defect (Fig. 4). Ulcers are often associated with submucosal fibrosis; therefore, the jaws of clips were unable to capture enough tissue to be effective. Alternatively, the screwing motion of TTS helical tacks captures the muscularis propria to achieve adequate tissue apposition for hemostasis. After attempting to close the ulcer for 11 minutes, the decision was made to use a TTS helical tack system. Despite the presence of the previously placed clips, 4 tacks were successfully deployed around the ulcer in a Z pattern (Figs. 5 and 6). The total procedure time was 34 minutes, with 15 minutes for ERCP, 11 minutes for conservative therapy of the ulcer, and 8 minutes for the helical tack system. The patient was in hemorrhagic shock with a high risk for rebleeding; therefore, anticoagulation was restarted 48 hours later.<sup>4</sup> One month following the procedure, the patient had no further melena and his anemia resolved. Repeat endoscopy showed complete closure of the ulcer, with persistence of the helical tacks while the hemostatic clips had fallen off (Fig. 7).



**Figure 7.** Follow-up endoscopy shows complete closure of the ulcer and that the helical tacks are still in place.

## CONCLUSION

This case is unique because a Forrest 1b ulcer was controlled with the TTS helical tack system after standard therapies failed. Hemostasis at a submucosal level appears to be essential in improving PUD rebleed rate.<sup>2,3</sup> Although the helical tack system is not approved for ulcer bleeding, recent multicenter trials have shown successful ulcer closures.<sup>5</sup> Previous studies have demonstrated the use of over-the-scope clips as initial hemostasis in PUD; however, the presence of previously placed clips can limit its effectiveness as a salvage treatment.<sup>2,6</sup> The helical tack system has the advantage of being used as a primary or salvage therapy device. It can be deployed from distance and around previously placed clips. The new helical tack system provides a safe and effective alternative to the current arsenal available to gastroenterologists asked to control refractory bleeding from PUD. Comparative studies are needed to fully understand the benefit of the helical tack system relative to other techniques (Video 1, available online at [www.giejournal.org](http://www.giejournal.org)).

## DISCLOSURE

*Dr Marya is a consultant for Boston Scientific. All other authors disclosed no financial relationships.*

*Abbreviations: ED, emergency department; PUD, peptic ulcer disease; TTS, through the scope.*

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