Management of Gastrointestinal Defects Using a Novel Endoscopic Helical Tacking System: A Case Series

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BACKGROUND

- Gastrointestinal tract defects (GITD) are traditionally repaired surgically
- Technological advancements in endoscopic defect closure offer non-invasive management
- Here we describe our initial experience with a novel endoscopic helical tacking system (EHTS)

METHODS

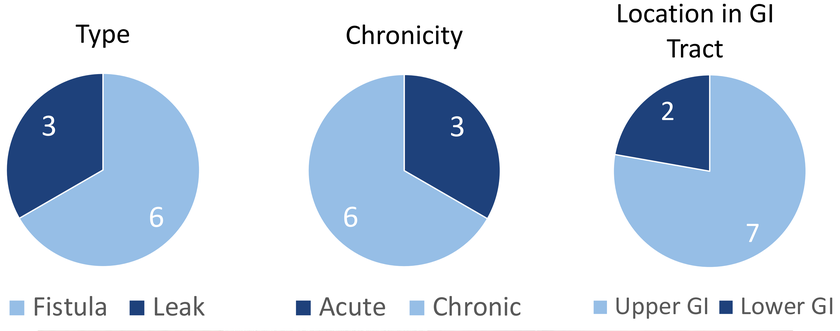
- Retrospective chart analysis at single institution from January 2020 to January 2022
- **Inclusion criteria:** adult and pediatric patients who underwent GITD management with the EHTS
- **Exclusion criteria:** EHTS use for non-GITD management
- **Primary endpoint:** definitive endoscopic closure after EHTS placement alone

EHTS DEVICE DESCRIPTION

- 4 independent helical tacks connected via 3-0 polypropylene suture (Figure 1A)
- Tissue approximates as suture is tensioned and cinched in place (Figure 1B)

RESULTS

Patient Demographics (n=9)	
Mean Age (range)	53.8 (14 to 73)
Mean BMI (SD)	25.5 kg/m^2 (± 5.66)
Gender	66.7% male



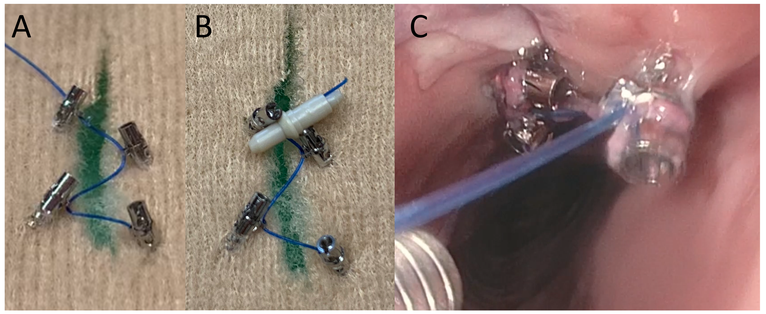


Figure 1: EHTS Demonstration; A) 4 tacks are deployed on alternating sides of the defect before (B) the EHTS is cinched down. C) Endoscopic view of EHTS placement in the esophagus.

- 100% immediate technical success
- 55.6% long-term success (n=5)
  - mean follow-up: 263 days
- 0 patients required operative procedures
- 3 patients required subsequent endoscopic interventions to achieve GITD closure
  - 2 EHTS placement
  - 1 over the scope clip placement
- Mean operative time was 73.4 minutes
- A mean of 1.4 EHTS (5 tacks) were used per defect
  - One patient required 3 EHTS and 12 tacks
- 2 separate technical failures intraoperatively:
  - 1 broken suture
  - 1 malfunctioning tack
- 1 complication: rupture of gastrotomy tube balloon by tack requiring tube replacement

CONCLUSIONS

- EHTS can be safely utilized to endoscopically close GI fistulas and leaks
- EHTS should be considered before pursuing more invasive surgical options