ORIGINAL ARTICLE

Endoscopic resection of a gastric GI stromal tumor using the helix-snaring technique

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Gastrointestinal stromal tumor (GIST) is the most common mesenchymal neoplasm affecting the GI tract.[1] Most GISTs present as subepithelial lesions (SELs), incidentally identified during a nonrelated EGD.[2] After the initial diagnosis, risk stratification is warranted to prevent neoplastic progression and usually relies on imaging and histopathological features.[3] While tumor size remains one of the most important predictors for malignant GISTs, biopsy specimens cannot precisely provide the full spectrum of information needed to stratify its aggressiveness, especially the mitotic rate.[4] Consequently, surgical specimens remain the most reliable ones.

Smaller GISTs (<2 cm) typically present a more benign clinical course. Therefore, the surgical risk is not justified, and most guidelines recommend only endoscopic follow-up.[5] However, less invasive techniques combining precise specimen procurement and curative treatment could alter that balance.

In this sense, several endoscopic techniques have been recently proposed to treat GISTs. However, most entail submucosal dissection,[6] submucosal tunneling, or a combined surgical-endoscopic approach that can be cumbersome and time consuming and demand a long learning curve. This video report presents a straightforward, alternative technique to treat small gastric GISTs.

Abbreviations: GIST, GI stromal tumor; SEL, subepithelial lesion.

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A 72-year-old woman was diagnosed with a 2-cm antral SEL during an EGD for heartburn investigation. EUS interrogation showed a hypoechogenic lesion mostly within the third layer (submucosa), plus some spots showing no clear distinction with the second layer. It also presented a predominant intraluminal growth. The patient was concerned about these findings but refused surgical resection. After a discussion with a multidisciplinary team, we decided to attempt an endoscopic resection. For the procedure, the patient was positioned in a left lateral decubitus under general anesthesia. She was also given prophylactic antibiotics (cefazoline 2 g intravenously, 30 minutes before the procedure). Using a dual-channel endoscope and carbon dioxide inflation, we stabilized the lesion with a 27-mm polypectomy snare through one of the working channels (RotaSnare; Medi-Globe, Rohrdorf, Germany). Then, a Helix device (Apollo Endosurgery, Austin, Tex, USA) was deeply inserted into the center of the lesion and was used to accommodate it inside the snare. After tumor resection, a clear target sign in the center of the resection bed suggested full-thickness excision was achieved. Then, the Apollo Overstitch device (Apollo Endosurgery) was used to close the defect (Fig. 1). The patient had an uneventful post-procedural course. She was discharged 1 day after the procedure (Video 1, available online at www.videogie.org) and was kept on a liquid diet for a week. A full-dose proton pump inhibitor was also prescribed for a month. She returned for office visits at weeks 1 and 4, and she underwent a repeat EGD 2 months later that showed no signs of a residual tumor.

Histopathologic evaluation showed a well-defined nodular tumor densely populated with fusiform cells and free lateral and deep resection margins. Interestingly, the tumor was located in the submucosal space. Immunohistochemistry demonstrated CD117, Ki-67 (<5%), and CD34 positivity; desmin and s100 were negative (Fig. 2). Those findings were consistent with a low-grade GIST in the submucosal space. Considering the EUS findings, this probably constitutes a GIST arising Cajal cells from the muscularis mucosa, with a growth pattern toward the submucosa.

Locations where suturing is challenging, such as the gastroesophageal junction and gastric fundus, and lesions with no intraluminal bulging or those with extrinsic

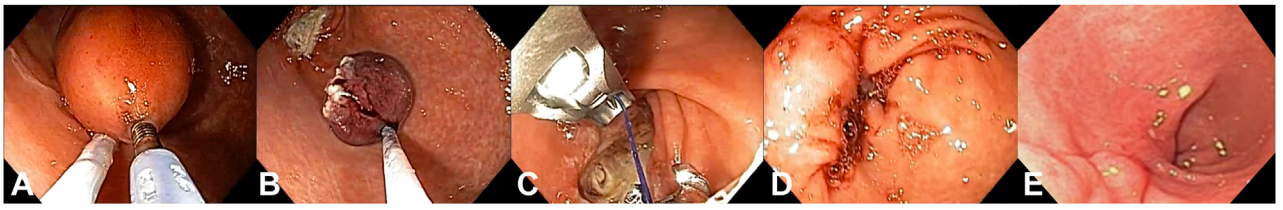

Figure 1. A, Endoscopic appearance of the gastric subepithelial lesion after snare adjustment and traction with the Helix device. **B,** Immediate postresection aspect. **C,** Defect closing with Overstitch. **D,** Final aspect of defect closure with Overstitch. **E,** Follow-up endoscopy at 30 days revealing healed resection site.

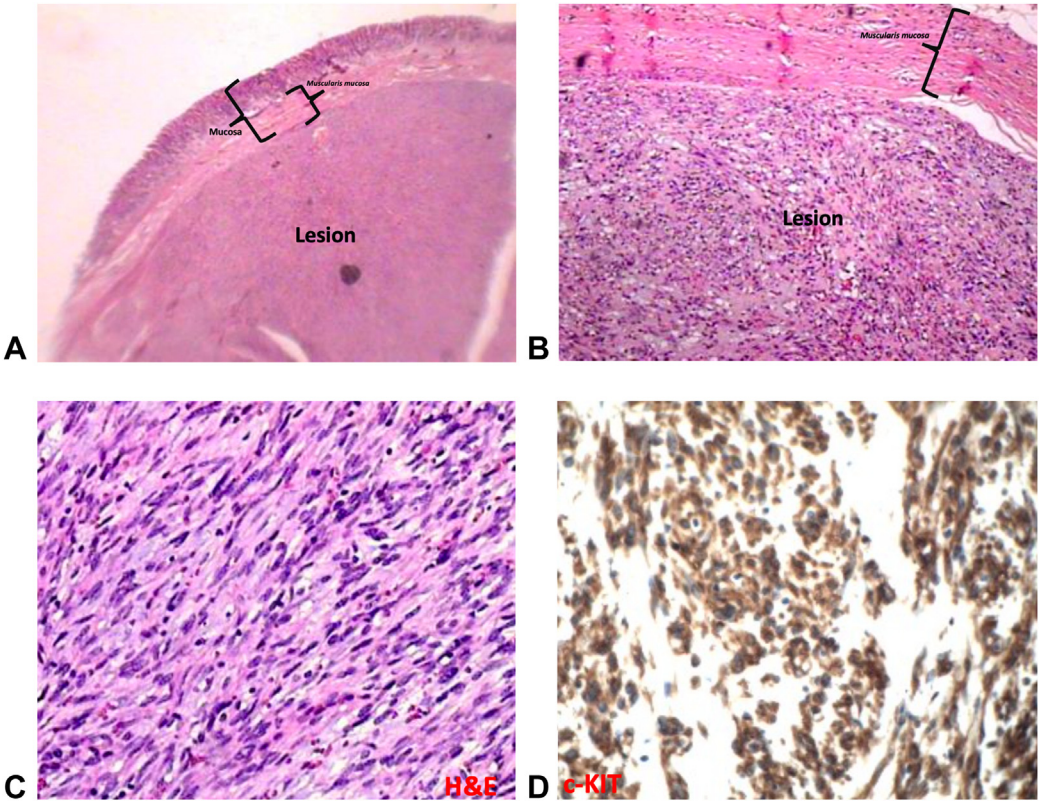

Figure 2. Histology slide showing a proliferation of fusiform cells. **A**, H&E, orig. mag. X100; **B**, H&E, orig. mag. X200; **C**, H&E, orig. mag. X400. **D,** Immunohistochemistry showing CD117 (cKIT) positivity (orig. mag. X400).

growth could limit the application of the helix-snaring technique. Still, it seems feasible and may provide a definitive diagnosis and treatment for small gastric GISTs, precluding the need for continued surveillance. In addition, it creates another alternative to our armamentarium and could be a good option when other endoscopic full-thickness resection devices are unavailable.

DISCLOSURE

Dr Gustavo de Quadros is a consultant for Apollo Endosurgery. Dr Galvao Neto reports receiving personal fees for lectures from Erbe Elektromedizin GmbH, and he is a consultant for GI Dynamics, Apollo Endosurgery, USGI, Colubris Mx, Scitech, and MITech. Dr Galvao Neto is also a scientific advisor for Apollo Endosurgery and Keyron, as well as a speaker for Olympus LA, Erbe, and Medtronic LA. Dr Aby Dayyeh is a consultant for Boston Scientific, Medtronic, BFKW, Endogenex, Hemostasis, Spatz Medical, and Endo-TAGSS Metamodix. He is also a recipient of research support from Apollo Endosurgery, USGI Medical, Boston Scientific, Medtronic, Endogastric Solutions, Spatz Medical, and Aspire Bariatric, and he is a speaker for Olympus and Johnson & Johnson. All other authors disclosed no financial relationships.

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