# Endoscopic full-thickness resection of a gastric GI stromal tumor

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Endoscopic full-thickness resection (EFTR) is used to achieve R0 resection and comes from the need to overcome the limitations of endoscopic submucosal dissection in the management of lesions arising from, or infiltrating, the muscularis propria (subepithelial tumor) and of nonlifting or partially treated lesions.[1] Several techniques have been developed over time.[2,3] Initially, exposed techniques, which consist of creating an open wound followed by secure closure, were investigated. These techniques include submucosal tunneling with endoscopic resection,[4,5] endoscopic submucosal excavation,[6] and endoscopic full-thickness resection with secondary closure (exposed EFTR).[7,8]

Nontunneling techniques such as endoscopic submucosal dissection, endoscopic submucosal excavation, and exposed EFTR have demonstrated safety and effectiveness in achieving R0 resection. The limitations are linked to the risk of perforation, infection, and postoperative stricture. To overcome those limitations, the submucosal tunneling with endoscopic resection tunneling technique was developed, with excellent results. Other techniques are collaborative between surgeons and endoscopists.[3]

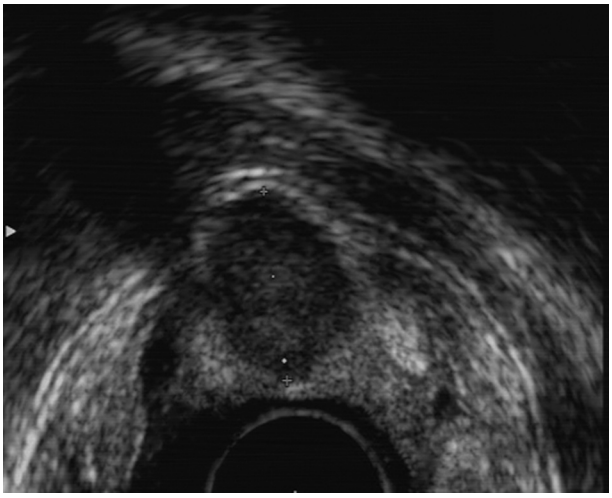

**Figure 1.** Initial EUS view showing a subepithelial tumor in the gastric fundus.

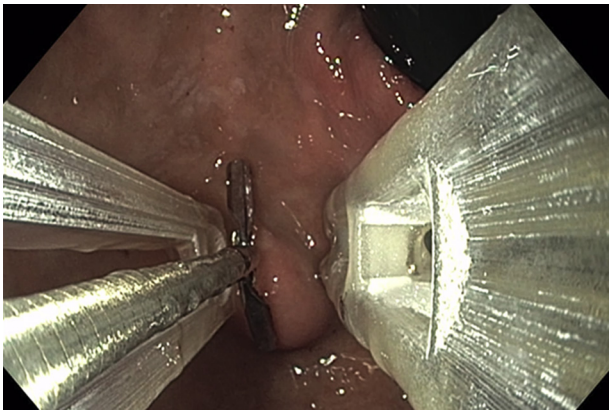

**Figure 2.** Endoscopic image showing the subepithelial tumor, the Endomina device in place, and a grasper ready to pull the tissue in between the device.

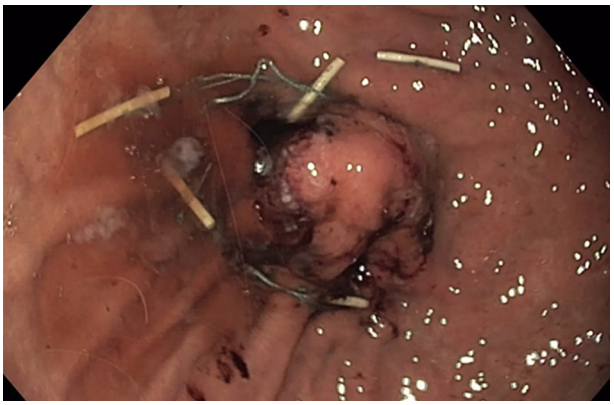

**Figure 3.** Result after placement of 3 pairs of tags around the lesion.

**Figure 4.** Result after tightening the tags; bulging lesion surrounded by tags.

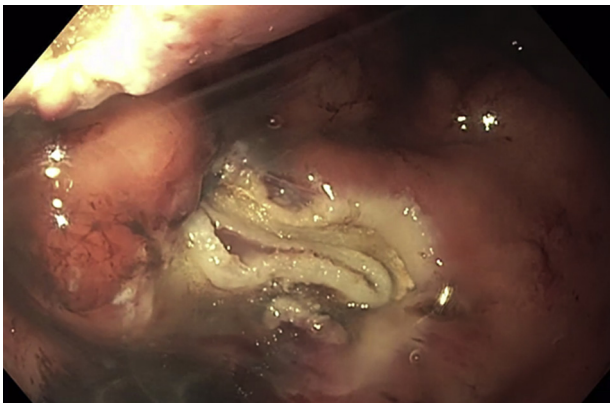

**Figure 5.** After resection of the specimen the serosa is visible, revealing the full-thickness resection.

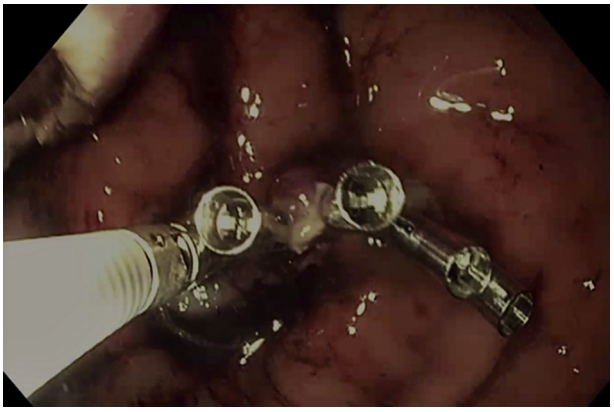

**Figure 6.** After placement of 5 hemoclips to further secure the resected area.

Nonexposed EFTR is another alternative. The idea is to clip or suture at first to secure the resection site and cut afterwards. The aim is no loss of the operative field because of insufflation, and possibly lower risk of infection. To achieve nonexposed EFTR, dedicated devices are needed. The Endomina triangulation platform (Endotools SA, Gosselies, Belgium) is Conformité Européene-approved for endoluminal suturing and has been used to perform endoscopic full-thickness suturing.

We report the use of the Endomina device to achieve nonexposed EFTR (Video 1, available online at www.VideoGIE.org). An asymptomatic 76-year-old woman presented with a 23-mm gastric GI stromal tumor (GIST) in the fundus, on the greater curvature. Workup (including fine-needle aspiration and bite-to-bite biopsies) showed a GIST without lymph node involvement (Fig. 1) and a significant increase in size on imaging at 1-year follow-up (from 11 to 23 mm), which triggered the decision to treat.

The procedure was done with the patient under general anesthesia with orotracheal intubation. After the device was introduced over the guidewires, the first step was to place sutures to surround the entire lesion (Fig. 2). In retroflex vision, the lesion was grasped between the arms of the Endomina, and piercing was done under direct visualization. T-tags were released from both sides of the lesion. Those steps were repeated until the entire lesion appeared to be surrounded by suturing material (Fig. 3). The second step was to tighten the sutures and evaluate the bulging of the lesion. If needed, additional tags were placed (Fig. 4). The third step was resection of the bulging lesion by use of a standard polypectomy snare (Lariat snare; US Endoscopy, Mentor, Ohio, USA) (Fig. 5). Finally, 5 hemoclips (Instinct clip; Cook, Bloomington, Ind, USA) were placed to further secure the resection line (Fig. 6). The whole procedure was performed in 1 hour 51 minutes; this was the first use of this device in a human being for this particular indication.

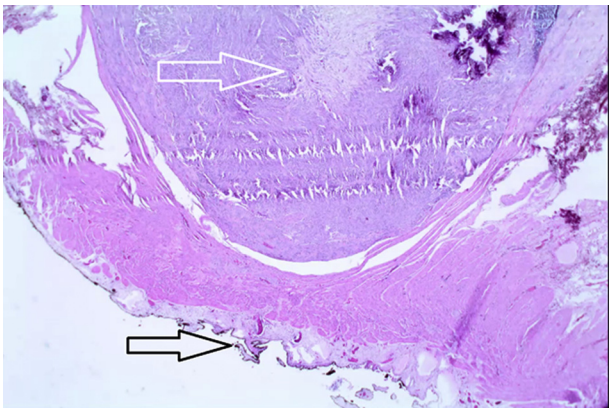

**Figure 7.** Histologic view showing a gastric GI stromal tumor, R0 full-thickness resection (H & E, orig. mag. × 4). *Black arrow,* serosa; *white arrow,* GIST.

The specimen was analyzed in toto, and histologic examination showed R0 resection of a 23-mm gastric GIST (low mitotic count, L0, V0, pT1Nx UICC 2017). The patient remained asymptomatic and was discharged the next day (Fig. 7).

This case report shows that nonexposed EFTR using the Endomina platform is feasible. A prospective trial is currently ongoing to assess clinical and efficacy (NCT03608540, Ethics committee ULB Erasme Approval number P2018/263).

## DISCLOSURE

*Drs Huberty and Deviere are shareholders in EndoTools Therapeutics, a startup company of Brussels Free University. The other author disclosed no financial relationships relevant to this publication.*

*Abbreviations: EFTR, endoscopic full-thickness resection; GIST, GI stromal tumor.*

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