# Endoscopic Full-Thickness Resection of Gastric Ulceration with Persistent Low-Grade Dysplasia Using the Full-Thickness Resection Device

Natalie Wilson, MD[1], Nicholas McDonald, MD[2], Mohamed Abdallah, MD[2], Mohammad Bilal, MD[3]

[1]University of Minnesota, Department of Internal Medicine, [2]University of Minnesota, Division of Gastroenterology and Hepatology, [3]Minneapolis VA Medical Center

## INTRODUCTION

- Endoscopic mucosal resection (EMR) and endoscopic submucosal dissection (ESD) are well-established treatment methods for resection of precancerous gastric lesions and early gastric cancers[1]
- Ulcerated or scarred lesions are challenging to resect with EMR or ESD due to submucosal fibrosis and scarring, and hence, carry increased risk for perforation[2]
- Endoscopic full-thickness resection (EFTR) using the full-thickness resection device (FTRD, OVESCO Endoscopy AG, Tuebingen, Germany) can effectively and efficiently resect mucosal lesions[3,4]
- The FTRD can resect mucosal lesions ≤2.5 cm and subepithelial lesions ≤1.5 in the upper GI tract
- A small number of case reports and case series demonstrate use of the FTRD for resection of mucosal and subepithelial upper GI tract lesions[5,6] but data is limited in its use for resection of precancerous or cancerous gastric lesions with overlying ulceration or scarring
- Here, we describe a patient with an ulcerated gastric lesion with persistent low-grade dysplasia who underwent successful resection of the lesion using the FTRD

**Figure 1**. A 15 mm ulcer located in the gastric antrum is seen on EGD

**Figure 2.** Follow up EGD shows partial healing of the ulcer after PPI therapy

## CASE

- 75-year-old male with a history of diffuse gastric intestinal metaplasia was found to have a 15 mm ulcer in the gastric antrum (Figure 1)
- Biopsies of the ulcer demonstrated low-grade dysplasia (LGD), while biopsies from the surrounding gastric antrum and body showed incomplete gastric intestinal metaplasia
- The patient was started on a proton pump inhibitor twice daily with plan for repeat endoscopy for surveillance
- Subsequent upper endoscopy 12 and 24 months later showed partial healing of the gastric ulcer (Paris classification 0-IIa+c) as shown in Figure 2, however, biopsies showed persistent LGD
- Given this, and the possibility of advanced histology beyond LGD within the lesion, treatment was pursued
- After a multidisciplinary discussion, the decision was made to pursue endoscopic full-thickness resection using the FTRD for resection of the lesion

## PROCEDURE

- Upper endoscopy revealed a partially healed antral ulcer in the background of diffuse gastric intestinal metaplasia
- The borders of the lesion were marked using a marking probe
- The FTRD was mounted on a modified therapeutic upper endoscope (1T scope, Olympus GIF-1TH190) and advanced into the stomach; the lesion was identified by the surrounding markings
- The grasping forceps were advanced through the working channel and the lesion was grasped and pulled into the FTRD cap
- Given the significant fibrosis and scarring of the lesion, gentle intermittent suction was applied through the working channel to fully retract the lesion into the cap
- The clip was deployed and electrocautery was used to resect the lesion. The endoscope and resected specimen were withdrawn (Figure 3)
- Examination of the resection site demonstrated appropriate positioning of the clip and no evidence of bleeding (Figure 4)
- The patient tolerated the procedure well and no adverse events occurred within 4 weeks of the procedure
- The final pathology report confirmed focal low-grade dysplasia (Figure 6) with negative resection margins (R0)

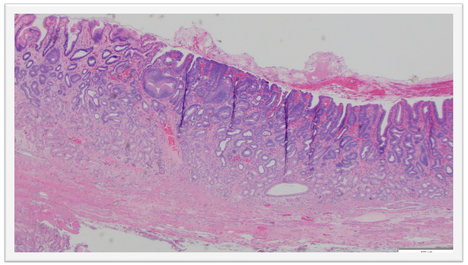

**Figure 6.** Final pathology of the lesion shows focal low-grade dysplasia (right side of image) with negative lateral margins

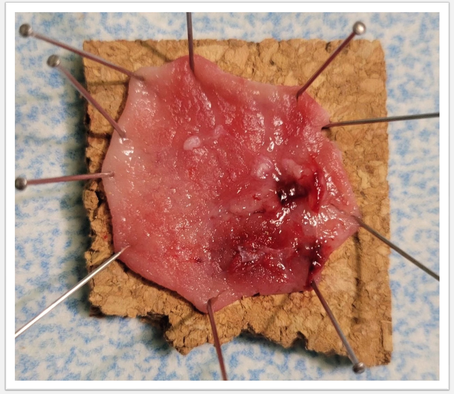

**Figure 4.** Resected gastric specimen

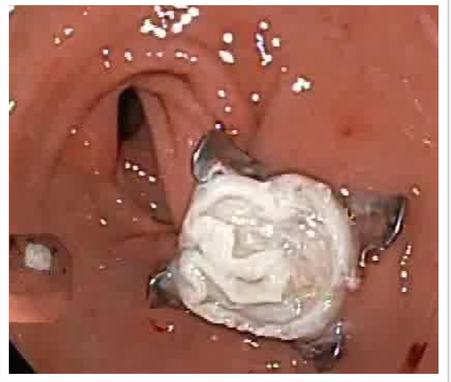

**Figure 5.** Evaluation of the resection site showing good clip position and no surrounding bleeding

## CONCLUSION

- EFTR using the FTRD device offers a safe and effective approach to treat ulcerated or scarred gastric lesions that are less amenable to conventional resection techniques
- Underlying submucosal fibrosis and scarring would have made ESD challenging and time-consuming in this case and thus EFTR using FTRD was chosen instead
- In lesions with significant scarring or ulceration, judicious intermittent suction while applying constant backward tension on the grasping forceps might help with R0 resection
- Suction should be used cautiously due to the risk of entrapment and injury to adjacent structures or incomplete resection from the cap sliding off-target
- Use of a single channel scope can limit the amount of suction applied due to the presence of the grasping forceps in the endoscope
- EFTR using the FTRD may offer an alternative approach to resect ulcerated or scarred gastric lesions in select cases

## REFERENCES

1. Wang KK, Prasad G, Tian J. Endoscopic mucosal resection and endoscopic submucosal dissection in esophageal and gastric cancers. *Curr Opin Gastroenterol*. 2010 Sep;26(5):453-458.
2. Ahmed Y, Othman M. EMR/ESD: Techniques, Complications, and Evidence. *Curr Gastroenterol Rep*. 2020 Jun 15;22(8):39.
3. Cai MY, Martin Carreras-Presas F, Zhou PH. Endoscopic full-thickness resection for gastrointestinal submucosal tumors. *Dig Endosc*. 2018 Apr;30 Suppl 1:17-24.
4. Hajifathalian K, Ichkhanian Y, Dawod Q, et al. Full-thickness resection device (FTRD) for treatment of upper gastrointestinal tract lesions: the first international experience. *Endosc Int Open*. 2020;8(10):E1291-E1301
5. Bauder M, Schmidt A, Caca K. Endoscopic full-thickness resection of duodenal lesions-a retrospective analysis of 20 FTRD cases. *United European Gastroenterol J*. 2018;6(7):1015-1021.
6. Meier B, Schmidt A, Glaser N, et al. Endoscopic full-thickness resection of gastric subepithelial tumors with the gFTRD-system: a prospective pilot study (RESET trial). *Surg Endosc*. 2020;34(2):853-860.