



Successful removal of duodenal submucosal tumors with endoscopic submucosal dissection

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Endoscopic submucosal dissection (ESD) in the duodenal bulb is technically challenging because of the thin wall and perpendicular angulation of the duodenum. However, ESD allows for the en bloc resection of both mucosal and submucosal lesions, which may theoretically allow for lower recurrence rates. We present 2 cases of ESD for resection of submucosal neoplasms in the duodenal bulb, and we highlight techniques and strategies for successful resection (Video 1, available online at www.VideoGIE.org).

The first patient was a 72-year-old man with iron-deficiency anemia who was found to have a 6-mm submucosal lesion in the duodenal bulb, identified on biopsy specimens to be a carcinoid tumor. The second patient was a 60-year-old woman with epigastric abdominal pain and acid reflux who was found to have elevated serum gastrin and a 7-mm submucosal lesion in the duodenal bulb, identified on biopsy specimens to be a gastrinoma. A 6% hydroxyethyl starch solution mixed with epinephrine and methylene blue was injected to lift each lesion, and ESD was performed with a needle-type knife (Dual Knife; Olympus America, Center Valley, Pa, USA). In the first case, the rubber band traction method was used to provide countertraction, allowing visualization of the submucosal dissection plane despite a very limited space (Fig. 1). In the second case, a tapered distal attachment cap (ST hood; Fujifilm USA, Stamford, Conn, USA) was used, allowing improved exposure of the submucosal dissection plane (Fig. 2). Both lesions were successfully resected in an en-bloc fashion without perforation. Final pathologic results showed a 7- × 6-mm carcinoid tumor in the first patient and a 6- × 5-mm gastrinoma in the second patient. Both mucosal defects were closed with a continuous running stitch by use of an endoscopic suturing device (Overstitch; Apollo Endosurgery, Austin, Tex, USA).

Multiple endoscopic resection techniques are currently available for the endoscopic management of duodenal submucosal tumors, including cap-assisted endoscopic mucosal resection (EMR-C), endoscopic submucosal resection with ligation (ESMR-L), and ESD. EMR-C is generally not recommended in the duodenum because of the risk of perforation. Several series have demonstrated successful resection with ESMR-L without perforation.¹⁻³ ESD is a challenging but promising alternative that may potentially allow better control over resection margins, thereby allowing for en bloc and complete resection for duodenal submucosal tumors.

In conclusion, the effective use of countertraction and a tapered tip cap are crucial to the safe and successful performance of duodenal ESD. Regardless of the resection technique (ESMR-L or ESD), duodenal resection defects should be closed to reduce the risk of delayed perforation.⁴

DISCLOSURE

Dr Thompson is a consultant for Boston Scientific, Medtronic, and GI Dynamics; is a consultant for, advisory board member of, and recipient of research support from USGI Medical; is a consultant for and recipient of research support from Olympus and Apollo Endosurgery; has an ownership interest in GI Windows; receives research support from Aspire Bariatrics; is a consultant for and advisory board member of Fractyl; receives research support from Spatz; and has an ownership interest in EndoTAGSS. Dr Aihara is a consultant for Boston Scientific, Olympus, Fujifilm, and Lumendi. The other author disclosed no financial relationships relevant to this publication.

Written transcript of the video audio is available online at www.VideoGIE.org.

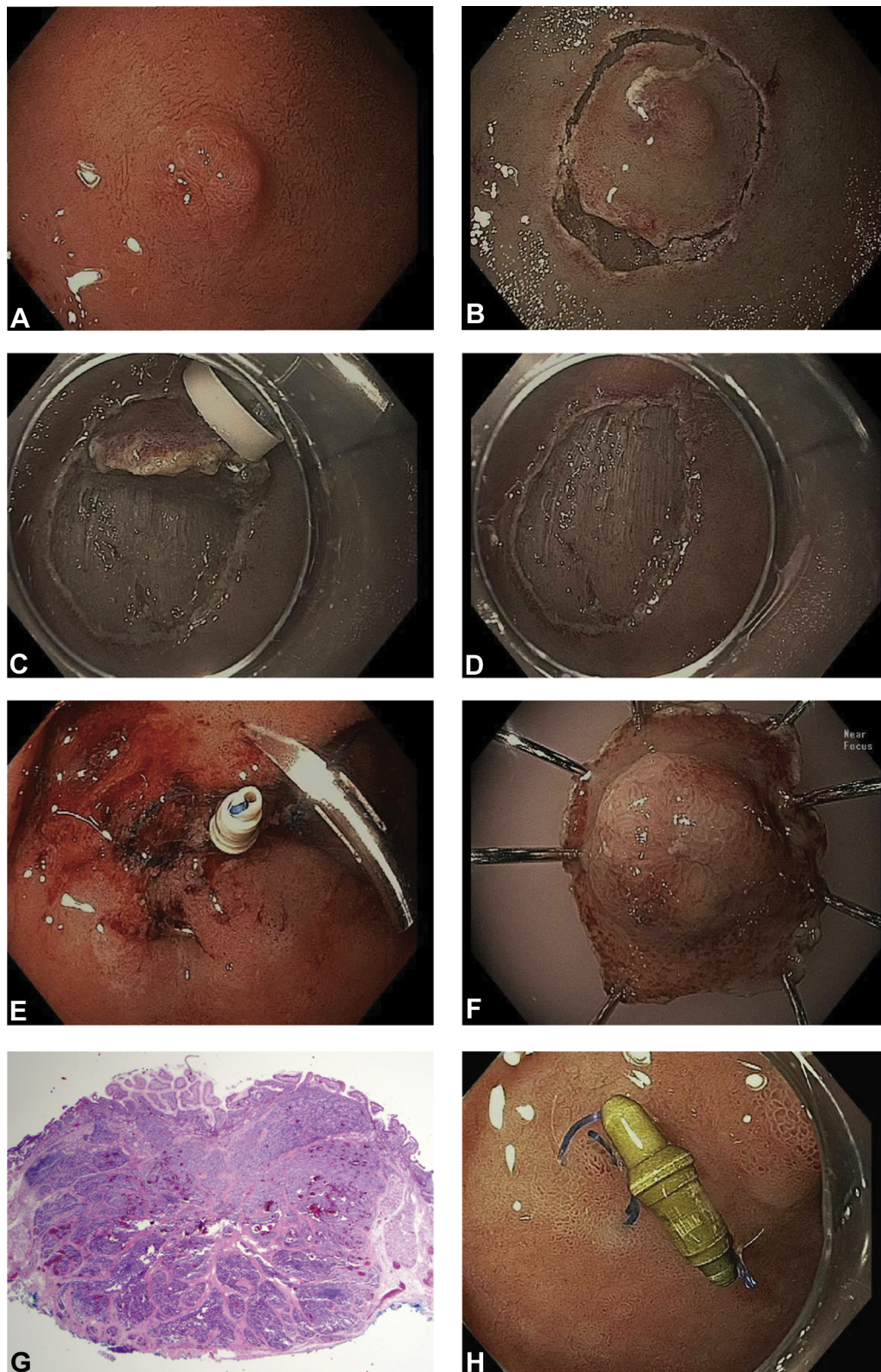


Figure 1. Patient 1. **A**, 6-mm submucosal lesion in the duodenal bulb. **B**, Circumferential incision. **C**, Rubber band traction method used to facilitate visualization of the submucosal dissection plane. **D**, En bloc resection. **E**, Sutured closure of the resection defect to avoid delayed perforation. **F**, Final en bloc resection specimen showing negative margins. **G**, Histopathologic view of resection specimen (H&E, orig. mag. ×12.5). **H**, Follow-up endoscopic view at 6 months showing no evidence of recurrence.

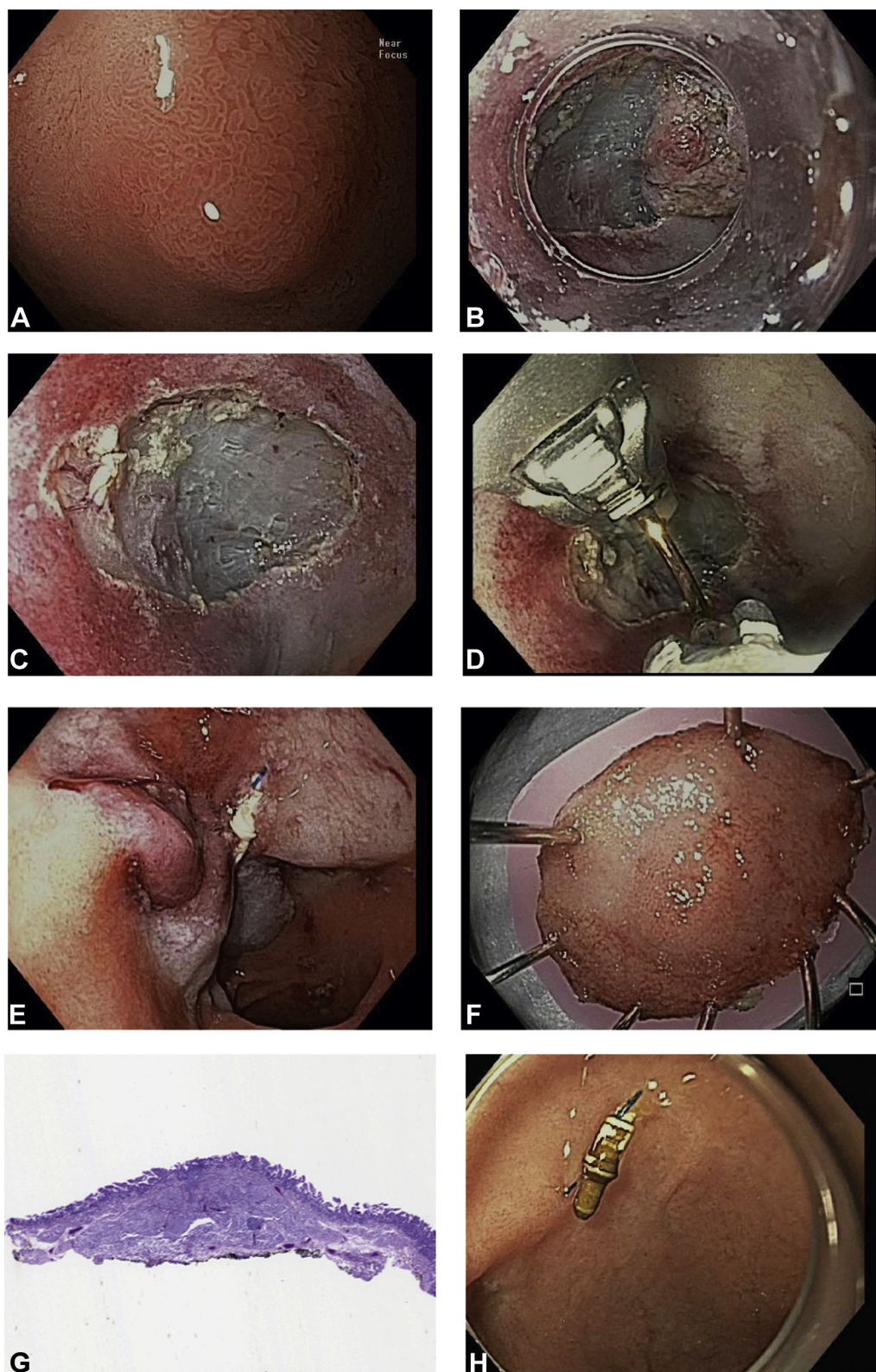


Figure 2. Patient 2. **A**, 7-mm submucosal lesion in the duodenal bulb. **B**, Tapered distal attachment cap used to facilitate visualization of the submucosal dissection plane. **C**, En bloc resection. **D**, Advancement of endoscopic suturing device. **E**, Resection defect sutured closed to avoid delayed perforation. **F**, Final en bloc resection specimen showing negative margins. **G**, Histopathologic view of resection specimen (H&E, orig. mag. $\times 12.5$). **H**, Follow-up endoscopic view at 6 months showing no evidence of recurrence.

Abbreviations: ESD, endoscopic submucosal dissection; EMR-C, cap-assisted endoscopic mucosal resection; ESMR-L, endoscopic submucosal resection with ligation.

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