Rectal polyp reaching the dentate line: underwater EMR without submucosal lift

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A rectal polyp reaching the dentate line (RPDL) is challenging to resect. Traditionally, such polyps are referred for surgery, and patients are offered either major abdominoperineal resection (with a high rate of adverse events) or minimally invasive transanal endoscopic microsurgery (TEMS). Endoscopic submucosal dissection can also be technically challenging, with a steep learning curve and rates of adverse events of 2% for bleeding, 4% for perforation, and 4% for recurrence.[1] EMR of an RPDL is technically difficult, although it results in fewer adverse events than does TEMS, but it has a higher recurrence rate (32% vs 10%). The lower rectum poses

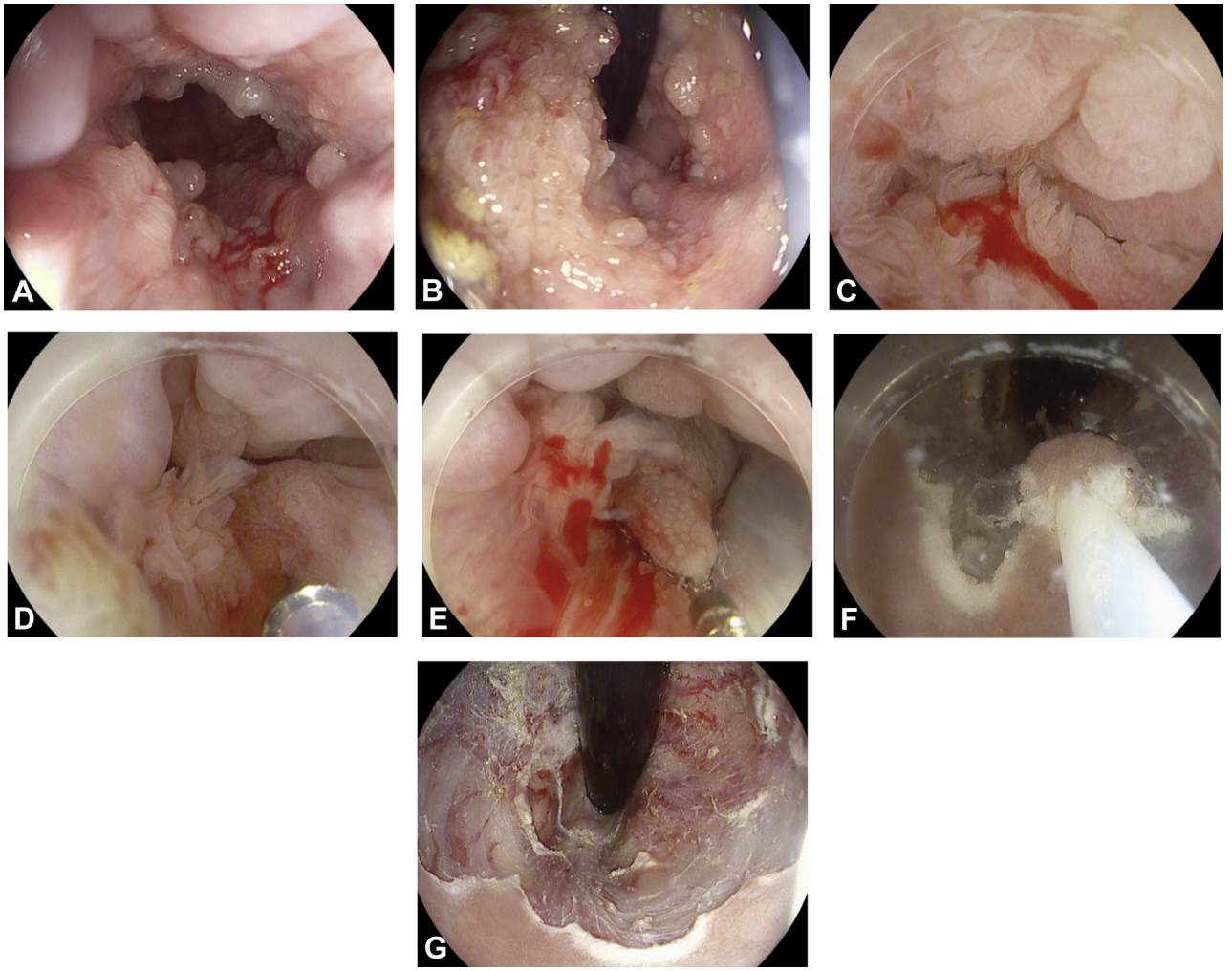

Figure 1. Underwater view of a large 60-mm rectal granular-type laterally spreading tumor. **A,** View from dentate line. **B,** Retroflexed view. **C,** Underwater views with transparent cap. **D,** Lidocane injection at dentate line. **E,** First snare from dentate line. **F,** Underwater polypectomy underway without submucosal lifting. **G,** After underwater EMR.

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

anatomic and technical challenges. Operating space is limited for conventional EMR with submucosal lifting. Inability to insufflate because of anal air leakage further hampers the view. Involvement of the dentate line can make the procedure painful. Underwater polypectomy is an emerging technique in which submucosal lifting is usually not required.[2,3] We modified this technique by using a transparent cap to resect an RPDL. The technique is demonstrated in Video 1 (available online at www.VideoGIE.org).

The patient was referred for resection of a recurrent circumferential rectal polyp extending to the dentate line measuring 90 mm, a granular type laterally spreading tumor, with Kudo classification IIIL and IV pit patterns (Video 1 and Fig. 1). After assessment of the polyp, the colonic lumen was collapsed by aspiration of all air and was filled with water until complete filling of the lumen was achieved. The margin of the polyp was identified by use of i-Scan 1 (Pentax EPK-i7000 processor, Tokyo, Japan). Underwater EMR (cap-assisted) was performed with SnareMaster (25-mm braided snare; Olympus, Tokyo, Japan) by use of endocut current effect 3, duration 1, and interval 6 (Erbe VIO 200, Erbe, Tubingen, Germany). Lidocaine gel was used to numb the anal canal, and 2 injections of 3 mL lidocaine were administered at the dentate line to anesthetize it. Water immmersion allowed reasonable distension of the lower rectum. A cap was positioned at the anal canal at the dentate line, and polypectomy was started at the dentate line. The snare was positioned at the 6 o'clock position to resect the rim of normal tissue close to the polyp margin. Polypectomy continued in the same plane proximally. This created a corridor and provided a plane of resection circumferentially. Polypectomy was completed in piecemeal fashion; resected pieces that floated away from the polypectomy site, not obscuring the view, were subsequently removed with a Roth net (US Endoscopy, Mentor, Ohio, USA). Polyps that could be resected were resected in a forward and retroflexed position.

During polypectomy we encountered an arterial spurter. Under water, it was easy to identify the bleeding point because it made a blood trail upward. The patient's position was changed to expose the bleeding point, which was treated successfully with coagulation forceps by use of a 40-W coagulation current. The procedure time was 50 minutes. Histologic analysis confirmed the lesion to be a tubulovillous adenoma with low-grade dysplasia. The patient is awaiting the 3-month base check.

EMR with submucosal injection and the use of air or carbon dioxide (CO_2) insufflation significantly distends the colonic lumen and thins the colonic wall during EMR, which may increase the risk of adverse events. In addition, submucosal injection prolongs the procedure time and increases the potential risk of seeding neoplastic cells into deeper wall layers.[4] Endoscopic US studies of the water-filled colon have shown that the colonic wall retains its natural thickness.[4] Hence, an underwater immersion floating effect of mucosa over the submucosa keeps it apart from the muscularis propria. This makes underwater EMR technically easier and safer. In addition, thermal injury to deeper layers during underwater immersion is less likely because of the cooling effect of water. Patient tolerance is better because the lumen is not distended, and less distension-related pain occurs.

Underwater EMR of an RPDL is a novel technique. In our limited experience, it seems to be an effective, safe, and well-tolerated procedure. Because no submucosal lifting or marking of the lesion is needed, it reduces the procedure time and cost. It can be an alternative to traditional EMR, which requires either air or CO_2 insufflation.

DISCLOSURE

All authors disclosed no financial relationships relevant to this publication.

Abbreviations: CO_2, carbon dioxide; RPDL, rectal polyp reaching the dentate line; TEMS, transanal endoscopic microsurgery.

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