



Gel immersion EMR of small-bowel inflammatory fibroid polyp using double-balloon endoscopy

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Currently, no consensus exists regarding endoscopic resection methods for small-bowel tumors. Underwater EMR (UEMR) has been reported as an effective treatment option for superficial nonampullary duodenal epithelial tumors (SNADETs).¹ Although the usefulness of UEMR for small-bowel tumors has also been reported,² it may not be equally effective in all cases because of the difficulty in filling the lumen of the small bowel for visualization and access. VISCOCLEAR (Otsuka Pharmaceuticals Factory, Tokushima, Japan), a gel used to enhance the visual field during endoscopy, is only available in Japan. This endoscopic gel tends to stay in the lumen because of its high viscosity. We report a case of an inflammatory fibroid polyp (IFP) of the ileum that was safely resected using gel immersion EMR (GIEMR) with double-balloon endoscopy (DBE) (Video 1, available online at www.videogie.org).

A 78-year-old man was hospitalized with liver cirrhosis and pneumonia. Laboratory tests revealed anemia (hemoglobin: 8.1 g/dL). An EGD and colonoscopy showed no bleeding sources. However, a capsule endoscopy showed active bleeding from the ileum (Fig. 1). A DBE subsequently revealed a single 15-mm polyp in the ileum with erosion (Fig. 2). A biopsy showed no malignant findings, and we diagnosed an IFP based on its endoscopic appearance. We determined that the polyp was the source of bleeding and recommended treatment, but the patient refused treatment and was followed up. Six years later, the patient had bloody stools and anemia (hemoglobin: 6.1 g/dL). An EGD and colonoscopy showed no bleeding sources. The capsule endoscopy showed a polyp in the ileum with bloody intestinal fluid around it. After explain-

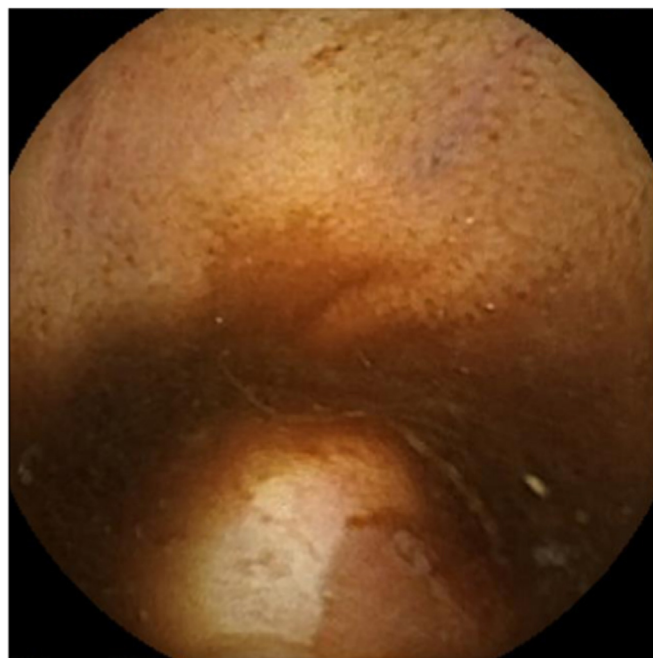


Figure 1. An elevated lesion in the ileum surrounded by dark red intestinal fluid.

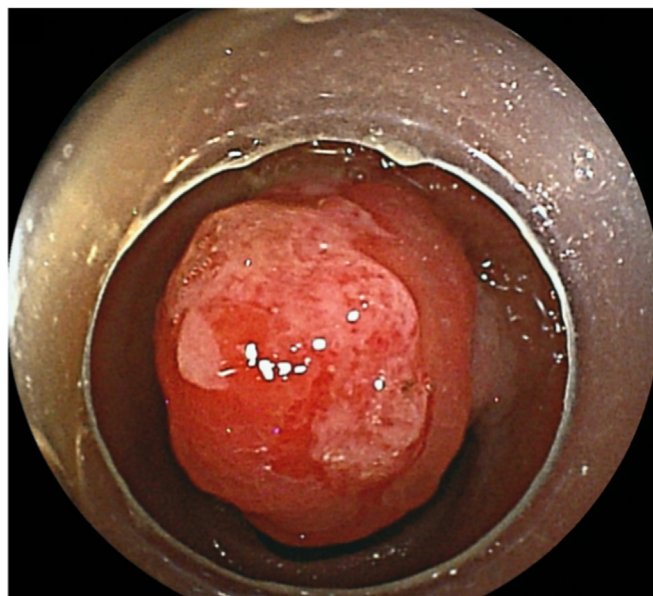


Figure 2. A double-balloon endoscopy reveals a single polyp with erosion in the ileum, measuring approximately 15 mm.

Abbreviations: DBE, double-balloon endoscopy; GIEMR, gel immersion EMR; IFP, inflammatory fibroid polyp; SNADET, superficial nonampullary duodenal epithelial tumor; UEMR, underwater EMR.

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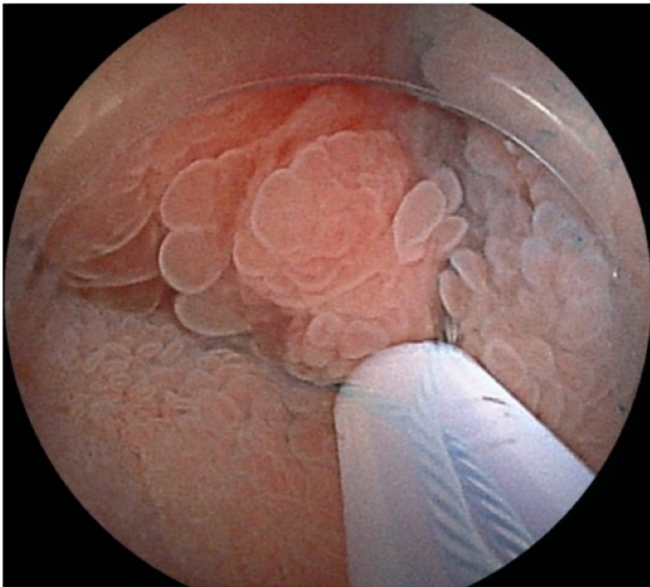


Figure 3. Snaring of the polyp.

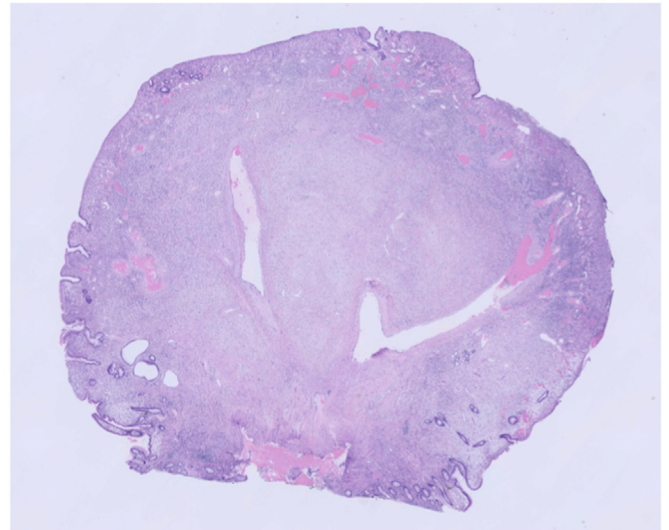


Figure 5. Whole mount view of H&E preparation.

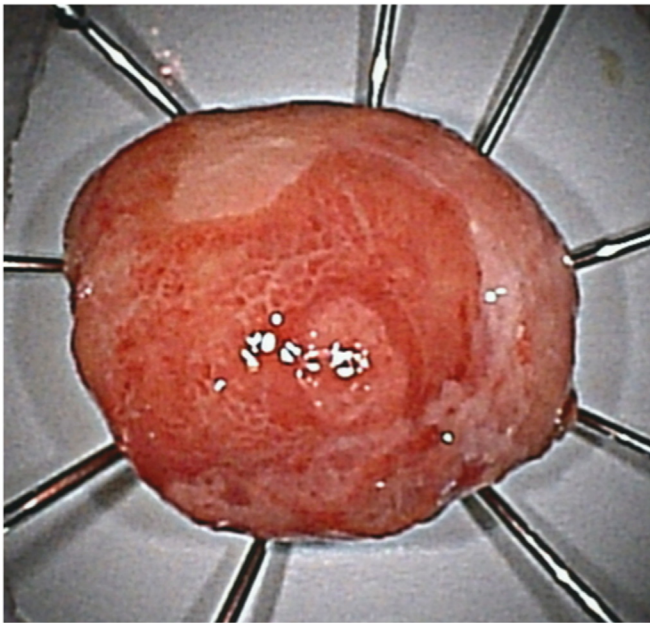


Figure 4. Resected specimen of the ileal polyp.

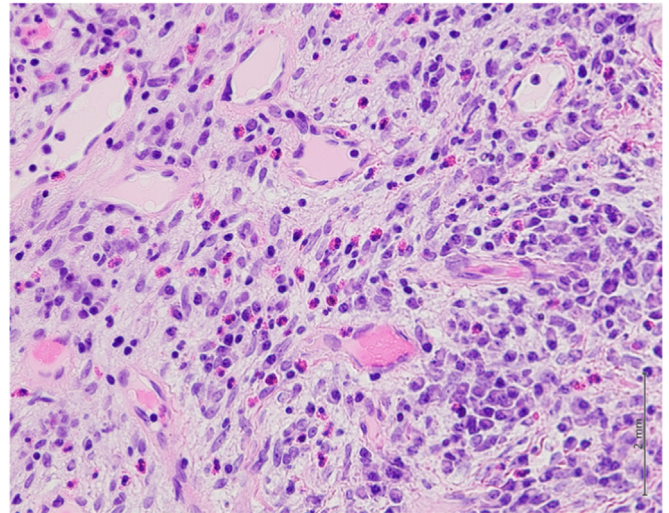


Figure 6. Histopathologic findings show edematous stroma, capillary and fibroblast hyperplasia, and a severe chronic inflammatory cell infiltrate consisting mainly of eosinophils and plasma cells (H&E, orig. mag. $\times 400$).

ing that the polyp was the source of bleeding and the possibility of repeated bleeding, the patient consented to treatment. We attempted to treat the polyp using UEMR with DBE. However, filling the small-bowel lumen with water was difficult. Therefore, we opted to use GIEMR. In addition to using the endoscopic gel, insufflation of the endoscope balloon prevents gel backflow, making it easier to fill the small-bowel lumen (Fig. 3). The polyp was resected for 11 minutes using a high-frequency electrical generator (VIO

300 D; Erbe Elektromedizin, Tübingen, Germany) with the following settings: ENDO CUT Q mode, effect 2, duration 2, interval 3 (Fig. 4). The usage volume of the endoscopic gel was approximately 150 g. There were no adverse events, including bleeding or intestinal perforation. Histopathologic findings showed edematous stroma, capillary and fibroblast hyperplasia, and a severe chronic inflammatory cell infiltrate consisting mainly of eosinophils and plasma cells, leading to the diagnosis of IFP (Figs. 5 and 6). After resection by GIEMR, anemia has improved and no bloody stools have been observed.

An inflammatory fibroid polyp is a benign tumor of the GI tract, most commonly located in the stomach (66%-

75%) followed by the small bowel (18%-20%), mainly located in the ileum.³ IFP is a submucosal tumor-like lesion that is pedunculated or semi-pedunculated. They often have a glans penis-like appearance with erosions and ulcerations at the apex. In the case of the small bowel, the symptoms often include abdominal pain due to intestinal intussusception. Therefore, IFP of the small bowel has usually been treated by surgery. There are few reports of endoscopic treatment by balloon-assisted endoscopy.^{4,5} In this case, the patient had decompensated cirrhosis. Thus, we tried to treat him with endoscopic resection, being as minimally invasive as possible.

Recently, GIEMR of SNADETs has been reported as having the potential to reduce procedure duration compared to UEMR, and it might be effective in areas where water immersion is difficult.⁶ In underwater immersion, filling the lumen of the small bowel is difficult because there is a risk of the resected specimen flowing away. In addition, endoscopic visibility is impaired by a mixture of blood. However, gels can overcome these drawbacks because of their high viscosity.⁷ We applied GIEMR to the small bowel using DBE. In addition to the benefits of gel immersion, DBE prevents distal gel outflow. In conclusion, we believe that GIEMR with DBE is a potential treatment option for small-bowel tumors.

DISCLOSURE

The authors did not disclose any financial relationships.

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