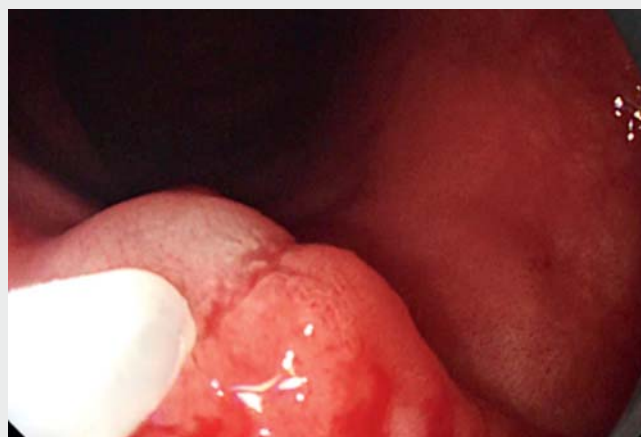


## Utility of under-gel endoscopic mucosal resection with partial submucosal injection for a laterally spreading tumor

Conventional endoscopic mucosal resection (EMR) is a widely used technique in the treatment of colorectal tumors. When resecting laterally spreading tumors (LSTs) with conventional EMR, the distal edge is difficult to dissect and tends to be piecemealed. However, the nongranular pseudodepressed type (LST-NG-PD) has a high risk of malignancy, requiring en bloc resection [1]. Endoscopic submucosal dissection (ESD) can ensure high en bloc resection rates, but it also has drawbacks such as high perforation rates, high cost, and long procedure times. Binmoeller et al. introduced underwater EMR (UEMR) as a useful alternative to ESD for LSTs [2]; however, treating the distal end remains a challenge and could cause segmental resection. In addition, the use of water in UEMR may impair clarity of view if bleeding occurs. Partial submucosal injection improves visualization of the distal edge [3], and gel immersion improves the endoscopic visual field [4,5]. Here, we report that under-gel EMR with partial submucosal injection is an effective means of achieving en bloc resection of LST-NG-PD (► **Video 1**).

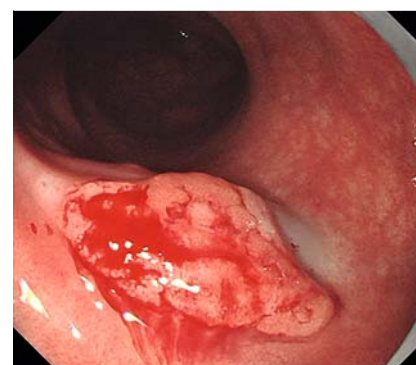
A 43-year-old woman was referred to our hospital for treatment of a colonic tumor. The lesion was observed in the rectosigmoid (► **Fig. 1**). Because of poor scope maneuverability and difficulty visualizing the distal edge, a partial submucosal injection was performed along the distal edge of the lesion (► **Fig. 2**). Initially, UEMR was considered, but the rapid mixing of fresh blood with water compromised visibility; therefore, we used Viscoclear gel (Otsuka Pharmaceuticals Factory, Inc., Japan). The lesion was successfully captured by an electrocautery snare (► **Fig. 3**) and resected without remnant (► **Fig. 4**). The histopathological diagnosis was well-differentiated tubular adenocarcinoma, and the histopathology was negative for vertical and horizontal



► **Video 1** Laterally spreading tumor of the nongranular pseudodepressed type effectively treated by a combined method of under-gel endoscopic mucosal resection with partial submucosal injection.



► **Fig. 1** A 16-mm laterally spreading tumor (LST) was found in the rectosigmoid colon. Using indigo carmine dye, a central depression was revealed on the surface of the polyp, which was classified as the nongranular pseudodepressed type of LST.



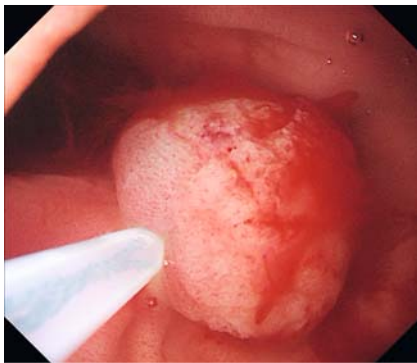
► **Fig. 2** Partial submucosal injection of sodium hyaluronate was performed only along the distal edge of the lesion.

margins (► **Fig. 5**). In this case, under-gel EMR with partial submucosal injection was effective for LST.

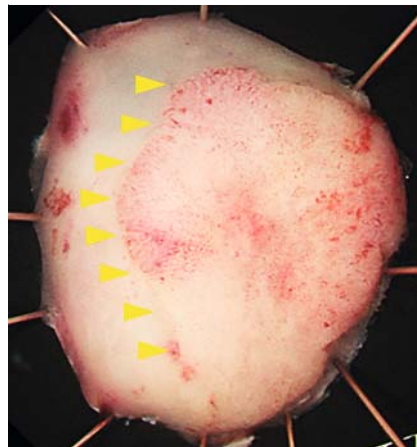
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### Competing interests

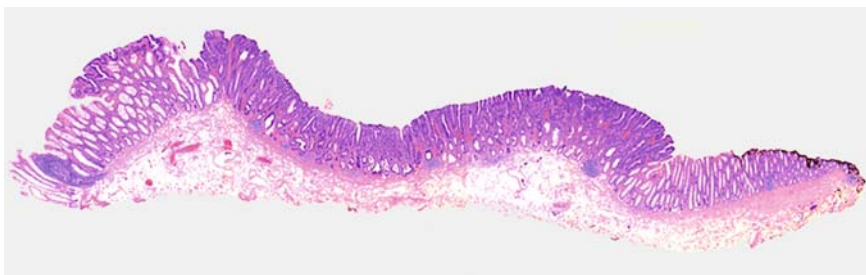
The authors declare that they have no conflict of interest.



► **Fig. 3** Intraluminal air was removed, the colon was filled with water, but the mixing of blood from the lesion with the water compromised visibility. Therefore, Viscoclear gel was used. The viscosity of the gel improved the poor visual field and the lesion, including the distal edge, was successfully captured with an electrocautery snare.



► **Fig. 4** Resected specimen. Yellow arrows show the distal edge of the lesion. The distal end was adequately resected due to use of a partial submucosal injection technique to improve its visibility.



► **Fig. 5** The histopathological diagnosis was well-differentiated tubular adenocarcinoma, and the histopathology was negative for vertical and horizontal margins.

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