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A novel submucosal injection material comprising a fully synthetic and self-assembling peptide solution for endoscopic resection of large colorectal laterally spreading tumors

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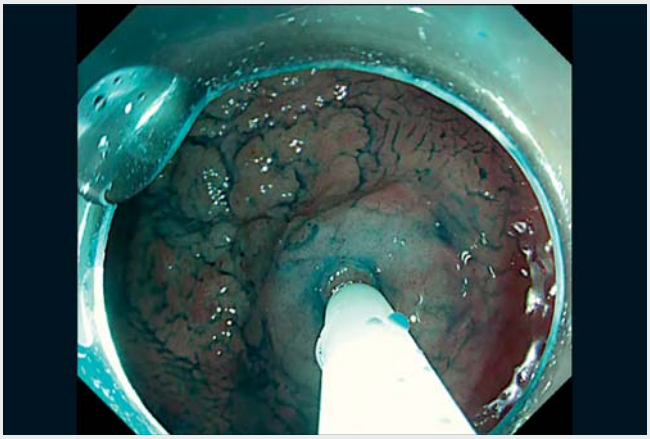
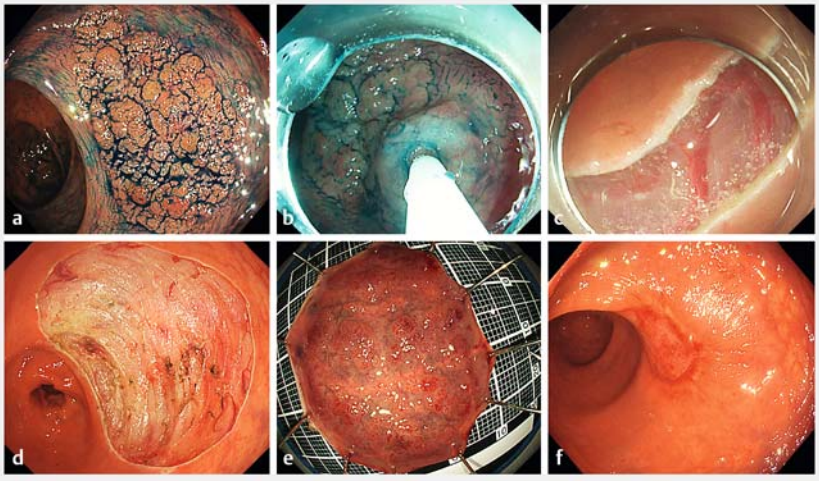
An injection solution is required to create a submucosal cushion to allow safe endoscopic resection [1, 2]. The fully synthetic and self-assembling peptide solution submucosal injection material (PuraLift; 3-D Matrix, Tokyo, Japan) is a non-biologic preparation that self-assembles to create a gel formed of nanofibers when in contact with a neutral pH [3]. It has the same ingredients as the peptide hemostatic agent (PuraStat; 3-D Matrix) [4]. Here we report the first two cases of the use of PuraLift (▶ **Video 1**).

Case 1: A 74-year-old woman with a 35-mm laterally spreading tumor (LST) located in the lower rectum (▶ **Fig. 1 a**). We diagnosed the lesion as an intramucosal adenocarcinoma (Tis) and performed endoscopic submucosal dissection (ESD) using PuraLift as a submucosal injection agent without any coloring or mixing. The ESD procedure was performed with a colonoscope (PCF-290TI; Olympus, Tokyo, Japan) with an endoscopic cap, a needle-type knife (DualKnife J; Olympus), and a 25G injection needle (Super Grip; Top Co, Kumamoto, Japan). En bloc resection of a 40 × 30-mm specimen was achieved in 35 min without any adverse events (▶ **Fig. 1 b, c, d, e**). Overall, 20 mL of PuraLift was injected. The histological diagnosis was Tis with curative resection. Follow-up colonoscopy was performed 1 month after ESD, showing almost complete healing of artificial ulcers (▶ **Fig. 1 f**).

Case 2: A 60-year-old woman with a 60-mm LST located in the transverse colon (▶ **Fig. 2 a**). We diagnosed the lesion as Tis and performed ESD under the same conditions as Case 1. En bloc resection of a 70 × 40-mm specimen was achieved in 130 min, without any delayed adverse events (▶ **Fig. 2 b–f**). Overall, 75 mL of PuraLift was injected. The histological diagnosis was Tis with curative resection.



Video 1 Endoscopic submucosal dissection of colorectal laterally spreading tumors using PuraLift as the submucosal injection material.



▶ **Fig. 1** Endoscopic images showing a lateral spreading tumor in the lower rectum. **a** Chromoendoscopy using indigo carmine. **b** PuraLift was injected into the submucosal layer, and good lifting was achieved. **c** Mucosal incision. **d** Large mucosal defect. **e** The resected specimen. **f** Follow-up endoscopy 1 month after endoscopic submucosal dissection.

This new submucosal injection material was safe and feasible for ESD on large LSTs.

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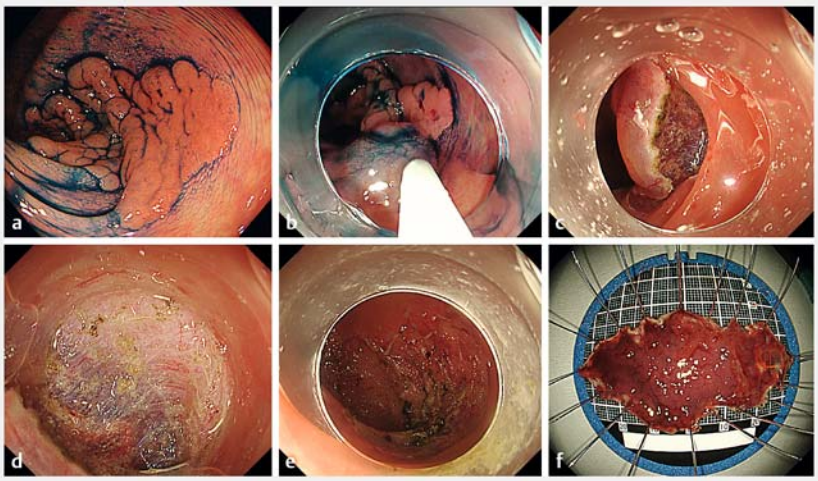

▶ **Fig. 2** Endoscopic images showing a lateral spreading tumor in the transverse colon. **a** Chromoendoscopy using indigo carmine. **b** PuraLift was injected into the submucosal layer, and good lifting was achieved. **c** Mucosal incision. **d** Submucosal dissection. **e** Large mucosal defect. **f** The resected specimen.

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Competing interests

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