Colorectal endoscopic submucosal dissection (ESD) is becoming the standard of care for colorectal tumors; however, troubleshooting for complications remains a challenge, particularly when dealing with large intraoperative perforations [1–3]. Here, we present a case where such a large perforation was successfully treated with polyglycolic acid (PGA) sheets and a purse-string suture method using a detachable snare.

A 76-year-old woman was referred to our institution for treatment of a large flat-elevated rectal tumor. Colonoscopy revealed that the tumor involved two-thirds of the circumferential surface, and covered the area above and below the peritoneal reflection, and extended to the anal margin (Fig. 1). The entire lesion was soft, and magnifying chromoendoscopy using crystal violet staining identified type IV and V irregular low-pit patterns; thus, we diagnosed the lesion as adenoma or intramucosal adenocarcinoma. Computed tomography (CT) showed no lymph node or distant metastasis, and ESD was performed.

The lesion was difficult to dissect because of the high degree of fibrosis. However, when approximately 90% of the dissection was completed, a large, approximately 40 mm, perforation was identified (Fig. 2). The lesion was excised as quickly as possible, and the purse-string suture method was used to close the perforation (Fig. 3). PGA sheets were used to fill the gap, and fibrin glue was sprayed (Video 1). CT, obtained immediately after the procedure, showed fluid retention, increased lipid density around the rectum, and retroperitoneal emphysema extending around the right kidney. The patient was managed conservatively, she resumed eating 7 days post ESD and was discharged on Day 11.

Although colonoscopy performed 8 weeks after discharge showed mild post-operative stenosis, partial obstruction was not observed, and no local recurrence occurred (Fig. 4). The resected specimen was 80 × 66 mm in size and contained a 78 × 64 mm tumor. Histopathological analysis revealed high-grade tubular adenoma.

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Competing interests

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