Circumferential suture delivery method of polyglycolic acid sheets for gastric postendoscopic submucosal dissection ulcers

Polyglycolic acid (PGA) sheets with fibrin glue are reportedly effective in preventing post-procedural bleeding in gastric endoscopic submucosal dissection (ESD) [1–4]. However, it is challenging to deliver and place the PGA sheet over the target ulcer in the correct position as the sheet is easily crumpled.

We have developed an innovative and reliable delivery method by sewing the circumferential margin of the PGA sheet with a polydioxanone suture (suture size 0), which creates tension and prevents the PGA sheet from crumpling during delivery (▶ Fig. 1; Video 1). An important step is that the start and end points of the suture must intersect in order to secure it (▶ Fig. 1 a). The polydioxanone suture is not only absorbable but also thick enough to create sufficient tension. An 81-year-old man was referred to our hospital for ESD treatment of a 20-mm early gastric neoplasm in the mid-body of the stomach (▶ Fig. 2a). The lesion was successfully resected (▶ Fig. 2 b, c), resulting in a 40-mm post-ESD ulcer. A PGA sheet equipped with a polydioxanone suture that had been prepared as described above was applied to the ulcer. Forceps were used to grasp the point of suture intersection. As a result, the shape of the PGA sheet was maintained, even as it passed through the overtube and esophagus, and the sheet was delivered and placed in the correct position within 2 minutes (▶ Fig. 2 d, e). A second-look endoscopy performed on the day after the ESD showed that the PGA sheet had remained in place (▶ Fig. 2 f). The patient was discharged without any complications.

The PGA sheet equipped with a polydioxanone suture is a simple and reliable method that can be applied to any ulcer size to increase the success rate and efficiency of PGA sheet placement.

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Fig. 1 Photograph showing: a the polyglycolic acid (PGA) sheet with the circumferential polydioxanone suture in place; b the equipment required for this method including the PGA sheet and the polydioxanone suture (needle length 36 mm, suture size 0).

Video 1 A novel method is demonstrated to deliver a polyglycolic acid sheet to a post-endoscopic submucosal dissection ulcer without crumpling on passage through the esophagus and overtube.

Competing Interests

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References


Fig. 2 Endoscopic images showing: a a 20-mm early gastric neoplasm in the mid-body of the stomach; b the area to be resected by endoscopic submucosal dissection (ESD); c the subsequent post-ESD ulcer (40 mm in size); d the polyglycolic acid (PGA) sheet equipped with the polydioxanone suture in position over the post-ESD ulcer; e the PGA sheet after fixation to the ulcer with fibrin glue; f on the day after the ESD, the PGA sheet still in position over the ulcer.

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