Gel immersion endoscopic submucosal dissection using a novel gel product for a duodenal epithelial tumor

Endoscopic submucosal dissection (ESD) for duodenal epithelial tumors is technically difficult, with high risks of perforation and bleeding [1]. Therefore, the development of a safe and reliable endoscopic resection method is warranted for these tumors.

Recently, saline or gel (OS-1 Jelly; Otsuka Pharmaceuticals Factory, Tokushima, Japan) immersion ESD has been performed for a number of gastrointestinal tumors, offering good intraoperative visualization and safe outcomes [2–5]. However, in these reports [2–4], the use of bipolar devices for ESD is recommended, because electrical energy using a monopolar device is dispersed in an electrolyte solution such as saline or OS-1 Jelly, which has an electrical conductivity higher than that of human body tissue. Bipolar devices are not in widespread use; therefore, many ESD operators use a monopolar device and may be unfamiliar with the use of bipolar devices. Herein, we report a technically difficult duodenal ESD using a monopolar device that was successfully performed using a recently developed novel gel with electrolyte removal (Visco-clear; Otsuka Pharmaceuticals Factory).

A 57-year-old man was referred to our institute for a flat elevated tumor (25 mm in diameter) in the duodenal bulb (Fig. 1).

During gel immersion ESD (Video 1), after submucosal injection of hyaluronic acid, we injected gel through the accessory channel (Fig. 2) without CO2 insufflation. We performed slight submucosal dissection on the proximal side of the tumor. 

▶ Video 1 Successful gel immersion duodenal endoscopic submucosal dissection using a novel gel product for a duodenal epithelial tumor.

▶ Fig. 1 Endoscopic image showing a 25-mm flat elevated tumor located in the anterior wall of the duodenal bulb.

▶ Fig. 2 Photograph of a therapeutic endoscope (GIF-H290T; Olympus, Medical Systems Co., Tokyo, Japan) with the BioShield irrigator (US Endoscopy, Mentor, Ohio) that was used to inject the gel, allowing use of an electrosurgical monopolar knife (DualKnife J; KD655Q Olympus) at the same time through this accessory channel.
mor. As a beneficial effect of solution immersion, the buoyancy effect on the tumor allowed easy insertion of the endoscope under the submucosal layer (▶ Fig. 3). When unexpected bleeding occurred, the gel immersion secured a space for sufficient endoscopic visualization and hemostasis was achieved immediately and easily (▶ Fig. 4). The tumor was completely excised in 40 minutes without perforation (▶ Fig. 5).

Gel immersion provided space for endoscopic visualization and submucosal dissection in the duodenum. To the best of our knowledge, this is the first report describing duodenal ESD using this novel gel product.

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The authors declare that they have no conflict of interest.

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