

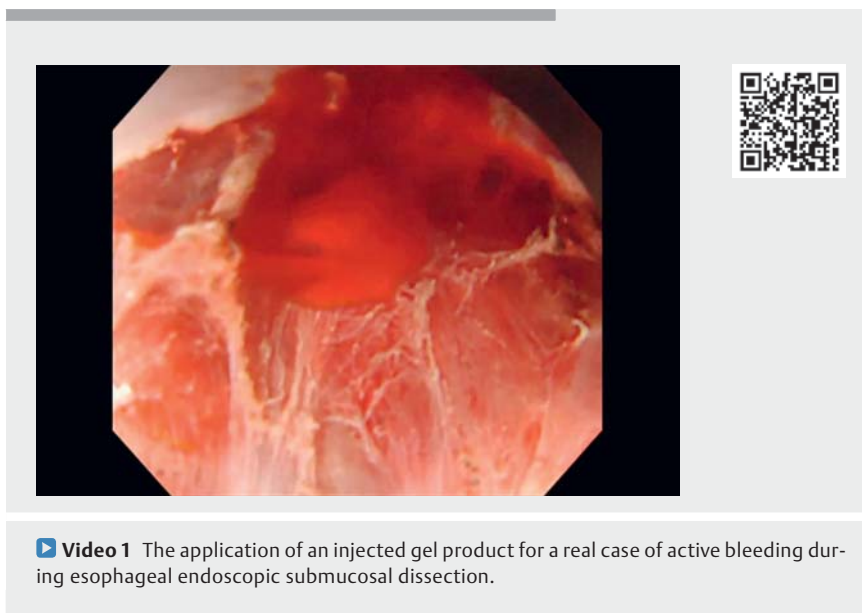
Efficacy of a gel injected using an endoscopic water jet for visualization bleeding during esophageal endoscopic submucosal dissection

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Active bleeding often occurs during esophageal endoscopic submucosal dissection (ESD), making it difficult to identify the bleeding point. During esophageal ESD, bleeding on the left wall of the esophagus is often difficult to visualize because of the difficulty of the patient's changing position. We report a new method using a gel product to secure the visual field of esophageal ESD when hemostasis is difficult.

We show the application of this method in a real case of active bleeding during ESD (▶ **Video 1**). The present case was an 80-year-old man who underwent ESD for early esophageal cancer. The 15-mm flat lesion was located on the left wall of the lower esophagus (▶ **Fig. 1**). Active hemorrhage occurred during dissection on the left wall side of the lesion (▶ **Fig. 2**). First we injected distilled water using an endoscopic water jet (GIF-H290T; Olympus Medical Systems, Co., Tokyo, Japan) to secure the field of view, but the blood spread quickly and we could not secure an adequate field of view. Subsequently, 200 ml of a 25% aluminum chloride gel (Visco Clear; Otsuka Pharmaceutical Factory, Inc., Tokushima, Japan) was injected using an endoscopic water jet [1–3]. The gel remained in the esophagus long enough to allow easy visualization and pinpoint hemostasis despite the active bleeding (▶ **Fig. 3**). After pinpoint hemostasis was achieved, ESD was completed without complications (▶ **Fig. 4**). The gel product was transparent and had sufficient viscosity, and suppressed the diffusion and flow of blood. In addition, the gel product was less viscous than lubricating jellies and could be easily injected into the esophagus using the endoscopic water jet. This method of injecting gel using an endoscope with a water-jet function can easily identify the active bleeding point during esophageal ESD, minimizing the risk of complications [4].

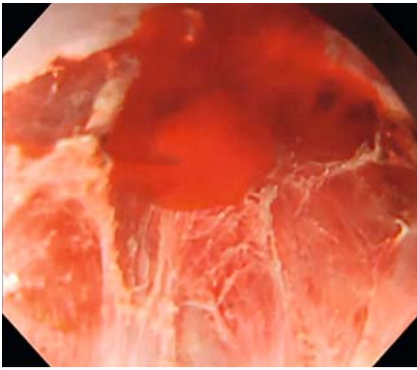
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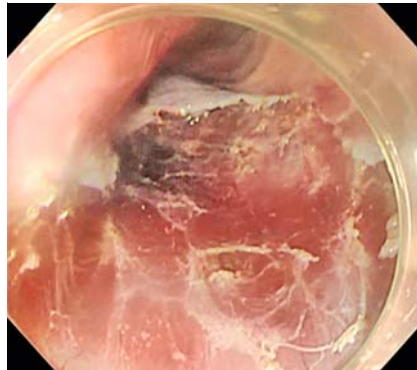
Competing interests

The author, Hidekazu Suzuki, has received service honoraria from AstraZeneca K.K., Astellas, Co., Daiichi-Sankyo Co., Otsuka Pharmaceutical Co. Ltd., Otsuka Pharmaceutical Factory, Inc. and Takeda Pharmaceutical Co. Ltd. and is the recipient of research grants from Daiichi-Sankyo Co., MSD Co., Otsuka

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► **Fig. 3** The gel product helped to easily identify the active bleeding point.



► **Fig. 4** ESD was completed without complications.

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