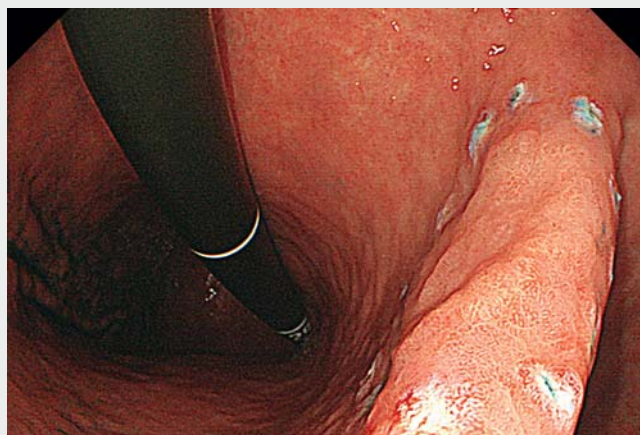


## “Floating” method and “lifting up” method: novel techniques of gastric endoscopic submucosal dissection for treating difficult-to-approach lesions

Endoscopic submucosal dissection (ESD) of lesions located on the lesser curvature of the gastric body is challenging because of the difficulty in approaching the lesion [1]. Although using a multibending endoscope or a special attachment device is a good solution in such a situation [2,3], these devices are often unavailable except in specialty institutions because of their limited applications and relatively high cost. Here, we present novel techniques using an attachment balloon usually used in endoscopic injection sclerotherapy (EIS) (► **Video 1**; ► **Fig. 1**). With the patient in the left lateral position, gravity pulls the endoscope toward the greater curvature of the gastric body, thus pulling the tip of the endoscope away from a target lesion located on the lesser curvature (► **Fig. 2a, b**). However, in a retroflex maneuver using the attachment balloon for EIS, the inflated balloon pushes away the gastric wall of the greater curvature, lifting the endoscope upward (► **Fig. 2c**); while in a forward maneuver, the stomach is partially filled with water, and the buoyancy of the inflated balloon enables the endoscope to float closer to the target lesion (► **Fig. 2d**). We performed ESD using these two approach techniques in four cases.

The procedures were performed using a conventional single-channel endoscope with water-jet function (GIF-Q260; Olympus, Tokyo, Japan). The EIS balloon (TOP Corporation, Tokyo, Japan) was attached approximately 5 cm from the endoscope tip. In all four cases, including a lesion with fibrosis, the endoscope tip successfully reached each lesion closely and tangentially. Curative resection was achieved in all cases. The median size of the resected specimens was 37.5 mm and the median procedure time was 67 min.

Our novel techniques could be effective for ESD of lesions located on the lesser curvature of the gastric body and can be



► **Video 1** Gastric endoscopic submucosal dissection using an attachment balloon usually used in endoscopic injection sclerotherapy.



► **Fig. 1** Conventional endoscope with attachment balloon for ordinary use in endoscopic injection sclerotherapy.

a favorable option because of their simplicity.

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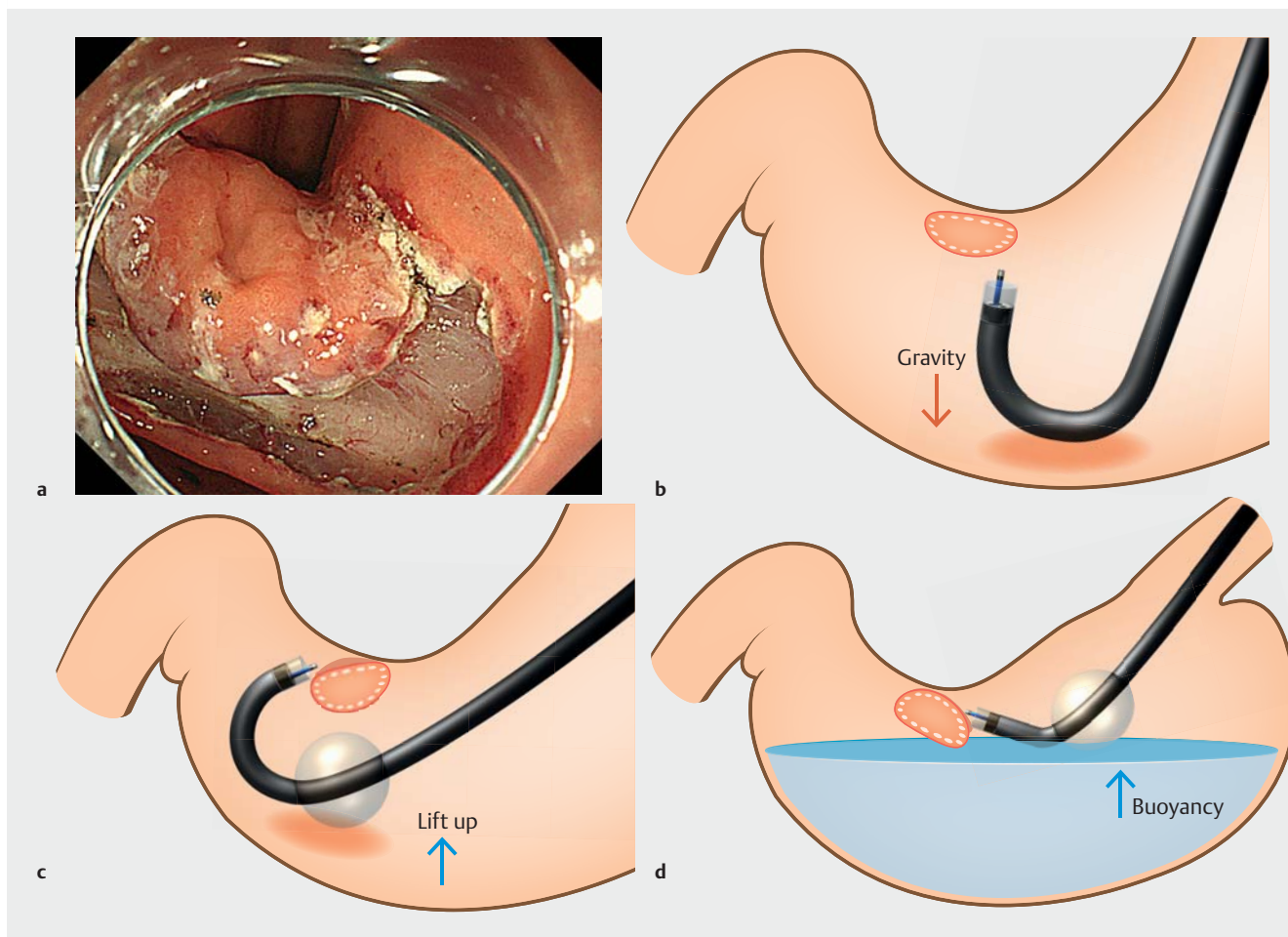
### Competing interests

The authors declare that they have no conflict of interest.

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► **Fig. 2** **a** Endoscopic view during gastric endoscopic submucosal dissection of a lesion located on the lesser curvature of the gastric body. **b** Conventional endoscopic approach. Gravity pulls the tip of the endoscope away from the target lesion. **c** “Lifting up” method. In a retroflex maneuver, the inflated balloon lifts the endoscope up toward the target lesion. **d** “Floating” method. In a forward maneuver, the buoyancy of the inflated balloon floats the endoscope up toward the target lesion.

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