# Endoscopic submucosal dissection of early gastric cancer in the gastric fundus: challenges and techniques





**Video 1** Endoscopic submucosal dissection of early gastric cancer in the gastric fundus using the underwater approach and an external traction technique.

Endoscopic submucosal dissection (ESD) of tumors located in the gastric fundus is technically challenging. The wall is thin and has a rich vascularization, which increases the risk of perforation and bleeding [1]. The procedure is mostly performed in retroflexion, and the tip of the endoscope has limited reach.

In this video (> Video 1), we presented a case of a 73-year-old patient with upper gastrointestinal endoscopy showing an elevated superficial lesion (0–IIa) measuring 30 mm×20 mm, in the gastric fundus (> Fig. 1). Biopsies showed high-grade dysplasia.

The procedure was performed with an optical magnification gastroscope (EG-760Z, Fujifilm Medical). The knife used was an injectable needle knife (ORISE ProKnife; Boston Scientific).

Due to the gastric fundus thin wall, it was possible to visualize the visceral fat through the wall. At two points, the dissection was deepened into the muscular layer, without complete perforation. The underwater technique was then performed to avoid over-distension of the organ, an undesirable distance of the resection area and to position the tip of



▶ Fig. 1 Elevated superficial lesion (Paris 0–IIa) measuring approximately 30 mm × 20 mm, in the gastric fundus. Targeted biopsies showed high-grade dysplasia. **a** and **b** White light aspect of the lesion. **c** LCI. **d** BLI. Abbreviations: BLI, blue laser imaging; LCI, linked color imaging.



**Fig.2** Underwater approach. The tip of the knife is almost parallel to the muscle layer, which makes dissection safer against perforation.

the knife more parallel to the muscular layer [2] (► Fig. 2).

External traction method with clip and snare was also used [3] (► **Fig.3**). This traction technique allows you to pull or push the snare, which was attached to

the clip, applying the appropriate tension to safely expose the submucosa.

After complete resection of the lesion, it was placed two clips over the submucosa and then, complete closure of the ulcer area (> Fig. 4).



▶ Fig. 3 External traction technique using clip and snare. This traction technique allows you to pull or push the snare, which was attached to the clip, applying the appropriate tension to safely expose the submucosa.

Regarding histopathology, the resection was classified as endoscopic curability C-2 (eCuraC-2) (> Fig. 5). Therefore, the patient must undergo surgical completion [4].

With the case presented, we can conclude that the endoscopist must be prepared to use techniques such as external traction and underwater dissection for the viability of technically challenging ESD's. The monobloc resection ensured accurate staging and reinforced surgical indication.

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# **Conflict of Interest**

The authors declare that they have no conflict of interest.

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▶ Fig. 4 Final aspect of the procedure. Two clips were applied into the dissection layer, followed by the complete closure of the ulcer.



**Fig. 5** a The green dotted line corresponds to the muscularis mucosae. The content of the yellow rectangle corresponds to the invasion of the submucosa. **b** The arrows correspond to the angiolymphatic emboli.

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