

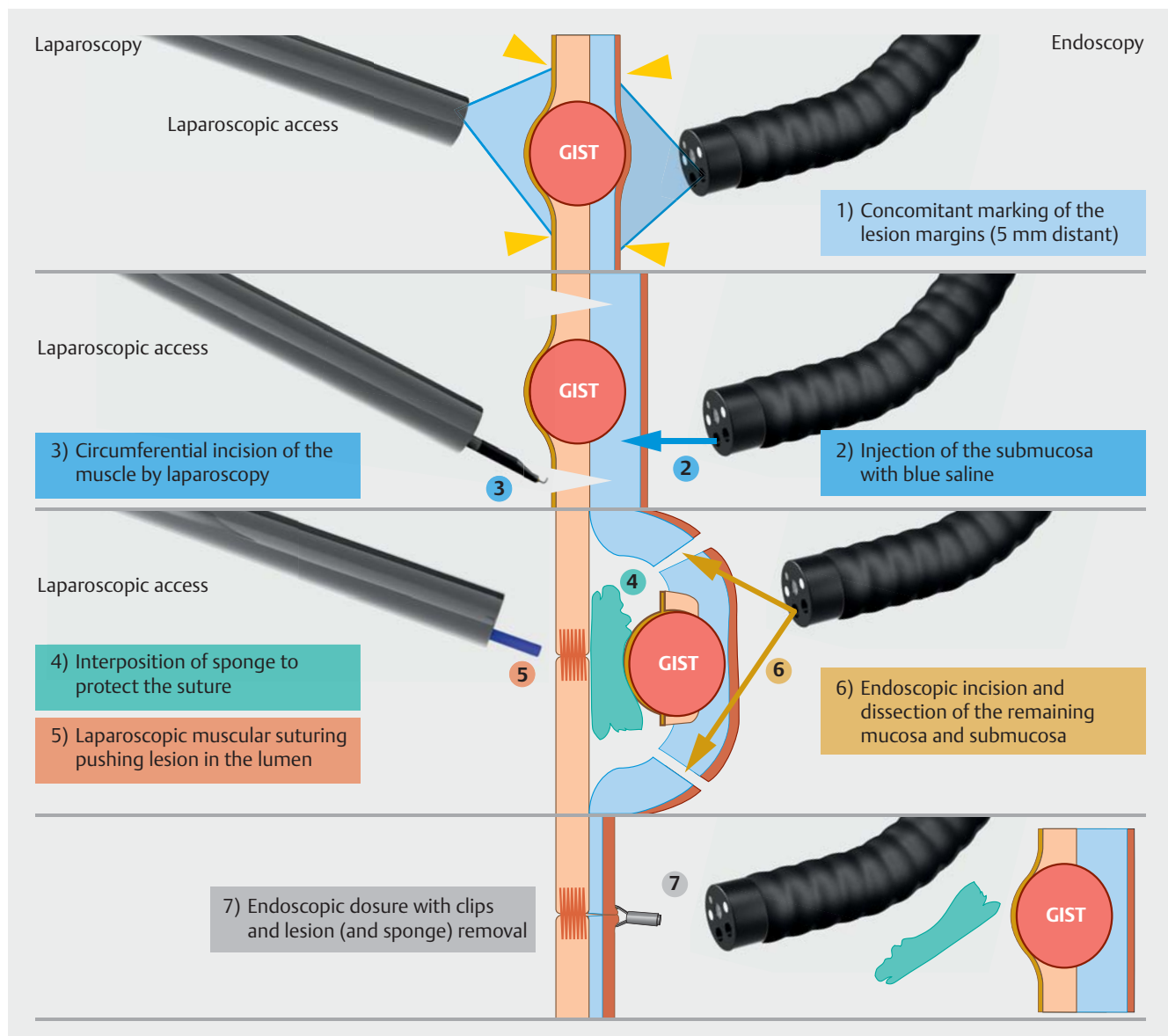
## Successful non-exposed endoscopic wall-inversion surgery for gastric stromal tumor and gastric ESD for dysplastic lesion during a single procedure

For gastrointestinal stromal tumors, the risk of lymph node metastasis is considered negligible and partial gastric resection without lymphadenectomy is accepted [1]. However, conventional gastric wall resections are associated with intentional perforation with a risk of bacterial contamination and tumor cell seeding

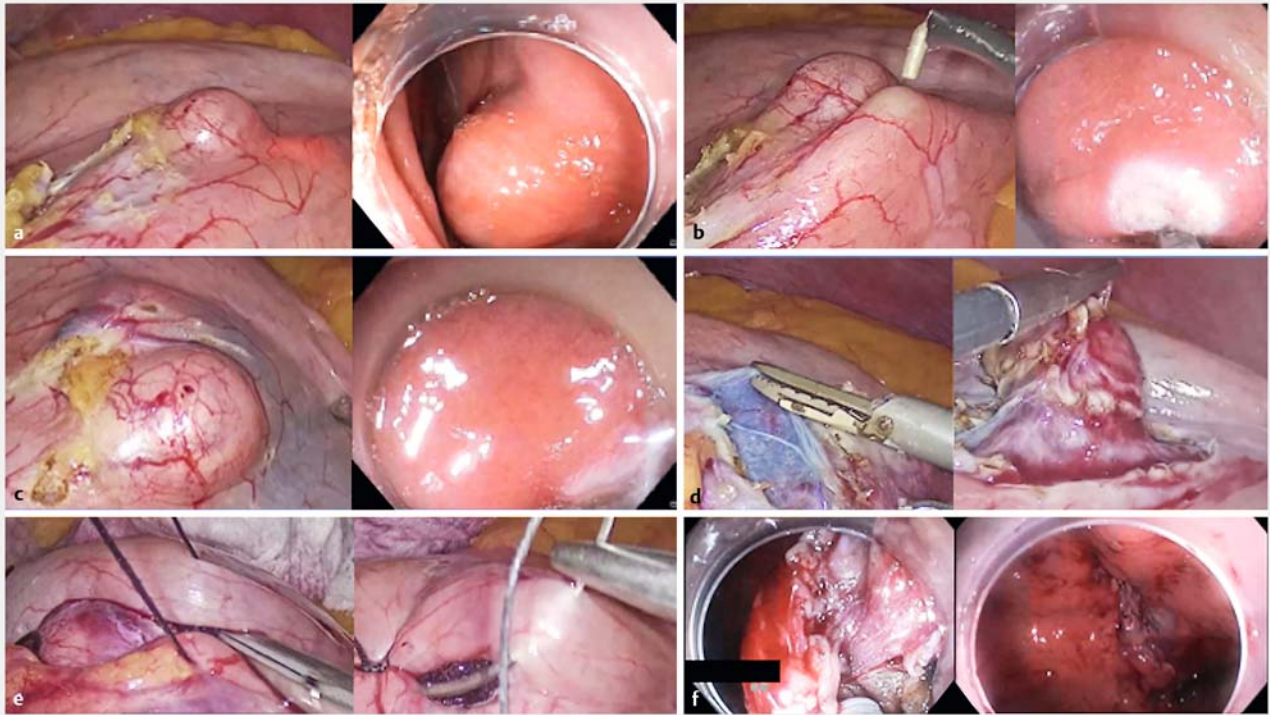
into the peritoneum. To avoid this dissemination, non-exposed endoscopic wall-inversion surgery has been developed [2, 3] but never reproduced outside Japan [4].

We proposed such a procedure to a 57-year-old man for a 22-mm submucosal tumor of the fundus on the anterior

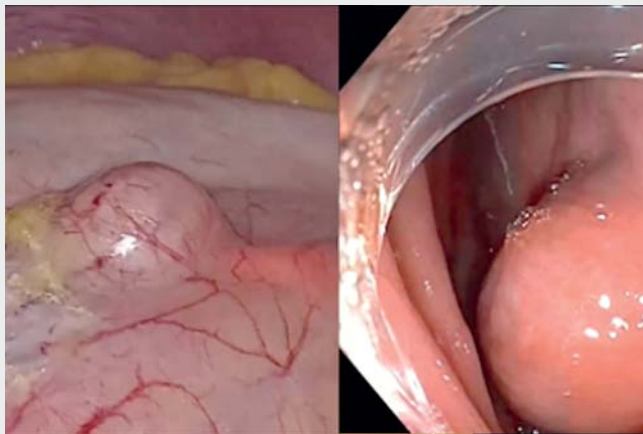
wall close to the lesser curvature. Unfortunately, while surgeons were inserting the laparoscope, a small sessile gastric lesion with a depressed area on the top and an irregular mucosal pattern was detected just below the cardia during the endoscopy. To avoid cancelling the procedure, we performed an en bloc en-



► **Fig. 1** Schematic description of the procedure.



► **Fig. 2** Description of the procedure. **a** Laparoscopic and endoscopic aspects of the stromal tumor. **b** Concomitant marking on the two sides. **c** Submucosal injection with blue saline solution. **d** Seromuscular incision up to the blue submucosal cushion. **e** Suture on a sponge to push the lesion into the stomach. **f** End of procedure with endoscopic mucosal incision and submucosal dissection and then clip closure.



► **Video 1** Successful non-exposed endoscopic wall-inversion surgery for gastric stromal tumors and gastric endoscopic submucosal dissection for dysplastic lesion during a single procedure.

sponge were placed against the tumor in order to cover the area with a suture of the gastric wall, pushing the lesion towards the gastric lumen. Once that step was complete without any gastric leakage, the mucosa and remaining submucosa were cut circumferentially by ESD using a DualKnife (Olympus, Tokyo, Japan). The full-thickness specimen was removed endoscopically. Patient resumed eating on day three after the lack of leakage was confirmed (gastric opacification) and was discharged on day five.

To summarize, non-exposed endoscopic wall-inversion surgery is an exciting technique combining endoscopy and laparoscopic surgery to remove gastric tumors without any perioperative communication of the gastric lumen with the peritoneum, thus reducing the risk of cell seeding. This technique is reproducible outside Japan and seems minimally invasive.

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doscopic submucosal dissection (ESD) procedure of the lesion (► **Video 1**), and then sent the specimen for extemporaneous pathology examination, which confirmed the lack of invasive adenocarcinoma. Non-exposed endoscopic

wall-inversion surgery was pursued [2, 3] with circumferential marking (► **Fig. 1**, ► **Fig. 2**) and submucosal injection with blue saline; surgeons performed the muscular and submucosal incision laparoscopically. Then, two small pieces of

## Competing interests

The authors declare that they have no conflict of interest.

## The authors

**Arnaud Pasquer<sup>1</sup>**, **Gilles Poncet<sup>1</sup>**, **Florian Rostain<sup>2</sup>**, **Jérôme Rivory<sup>2</sup>**, **Valérie Hervieu<sup>3</sup>**, **Julie Périnel<sup>1</sup>**, **Mathieu Pioche<sup>2</sup>**

- 1 Digestive Surgery Unit, Edouard Herriot Hospital, Hospices Civils de Lyon, Lyon, France
- 2 Endoscopy and Gastroenterology Unit, Edouard Herriot Hospital, Hospices Civils de Lyon, Lyon, France
- 3 Pathology Division, Hospices Civils de Lyon, Lyon, France

## Corresponding author

**Mathieu Pioche, MD**  
Endoscopy Unit – Digestive Disease  
Department, Pavillon L – Edouard Herriot  
Hospital, 69437 Lyon Cedex , France  
mathieu.pioche@chu-lyon.fr

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Endoscopy 2021; 53: E452–E454  
**DOI** 10.1055/a-1324-2249  
**ISSN** 0013-726X  
**published online** 4.2.2021  
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Georg Thieme Verlag KG, Rüdigerstraße 14,  
70469 Stuttgart, Germany

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