Gastrointestinal stromal tumors (GISTs) are the most common sarcomas of the gastrointestinal tract. Those that are \(<5\text{ cm with} \leq 5\text{ mitoses per 50 high power fields (HPFs)}\) are considered low risk for metastasis and may be treated by local resection. Duodenal GISTs account for \(4\%–5\%\) of all GISTs, they are usually retroperitoneal, which can make a surgical approach more challenging [1–4]. Herein, we present a case of a duodenal GIST treated by full-thickness resection via natural orifice transluminal endoscopic surgery (NOTES).

A 68-year-old man, with a previous history of Billroth I reconstruction for benign disease and radical cystectomy with Bricker for urothelial carcinoma, presented with a 2.5-cm GIST, confirmed histologically on previous biopsies, in the third part of the duodenum. An extraluminal component was seen on computed tomography (CT) scan (Fig. 1). Owing to the difficulty of a laparoscopic approach, it was decided, after multidisciplinary team discussion, that an endoscopic resection should be attempted (Video 1).

The procedure was performed with the patient under general anesthesia in a supine position, and with antibiotic prophylaxis. A submucosal injection was performed, followed by a mucosal incision around the intraluminal component of the GIST to expose the pseudocapsule. Double clip and rubber-band traction was then applied on the mucosal surface of the GIST to help with exposure of the resection plane (Fig. 2). Next, a full-thickness resection was initiated, and a retroperitoneal dissection of the extraluminal component was performed (Fig. 3). Clip-with-line transoral traction was applied directly to the extraluminal component of the GIST to bring the lesion into the luminal side and finish the resection. The specimen was recovered, and an endoscopic suturing device on a double-channel endoscope was used for closure of the full-thickness defect (Fig. 4).

Subsequently the patient remained asymptomatic and was discharged on the second week without complications. The final histology showed a 2.5-cm low risk GIST (0 mitosis/50 HPF).

Exposed endoscopic full-thickness resection with suturing of the defect is feasible in the duodenum, and might be an alternative to surgery in selected cases.
Competing interests

The authors declare that they have no conflict of interest.

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Fig. 2 Endoscopic images showing the double clip and rubber-band traction method being used to help expose the resection plane beneath the gastrointestinal stromal tumor (GIST).

Fig. 3 Endoscopic view showing retroperitoneal dissection of the extraluminal component of the gastrointestinal stromal tumor with an insulated-tip knife.

Fig. 4 Endoscopic views and schematic showing the steps involved in closure of the full-thickness defect with an endoscopic suturing device.