



MINIMALLY INVASIVE THERAPY STRATEGIES FOR UPPER GI SUBEPITHELIAL TUMORS: ENDOSCOPIC, LAPAROSCOPIC, OR COOPERATIVE (LECS –TYPE)?

Hung M Do, Thai Q Nguyen, Tam H Ngo, Duc A Nguyen, Truong N Vo, Bien T Nguyen, Han N Thai, Thai V Dinh

Center for Gastrointestinal Endoscopy and Laparoscopic Surgery, Tam Anh General Hospital, Ho Chi Minh City, Vietnam



BACKGROUND

Upper gastrointestinal subepithelial tumors (SETs), including lesions with malignant potential such as GISTs, can be managed using minimally invasive approaches. Endoscopic resection (ER), laparoscopic resection (LR), and laparoscopic-assisted endoscopic resection (LAER; a LECS-type cooperative approach) are increasingly used, yet optimal selection remains debated.

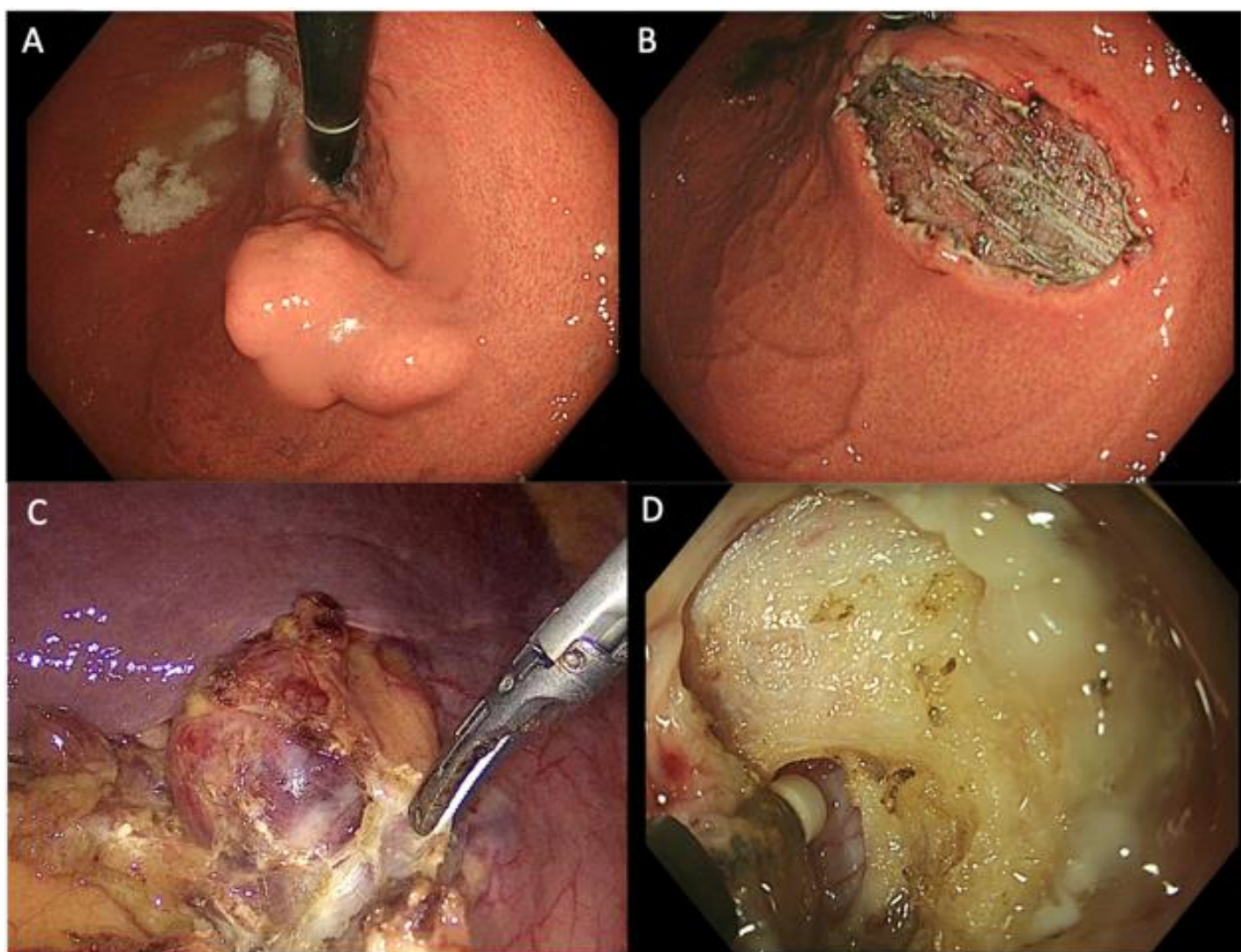


Figure 1. Minimally invasive techniques for upper GI tract SETs.
(A) ESD of a GIST.
(B) The mucosal defect after ER was closed endoscopically.
(C) Laparoscopic resection (LR) of a GIST.
(D) EFTR of a SET at the fundus with laparoscopic-assisted closure.

METHODS

Retrospective study of 49 patients treated from Aug 2022–Sep 2025 using ER (n=22), LR (n=12), or LAER (n=15). Preoperative assessment included EUS/CT, and approach selection was individualized by tumor size, location, growth pattern (intraluminal vs extraluminal), and malignancy risk. Outcomes: procedure time, length of stay (LOS), complications, R0 resection, recurrence, and follow-up.

RESULTS

Cohort: median age 56 (22–89); 47% male; median tumor size 20 mm (3–150). Most common locations: corpus 37%, cardia 16%, fundus 16%, esophagus 20%. Pathology: GIST 49%, leiomyoma 33%. R0 resection 100%. Median follow-up 12 months (2–52). Recurrence 2% (1/49).

RESULTS

Complications occurred only in ER: 1 conversion to laparoscopy for bleeding/perforation and 1 subcutaneous emphysema after STER managed conservatively.

DISCUSSION

This retrospective comparison reflects individualized selection rather than randomization; therefore, differences in tumor size/location across groups likely explain part of the outcome differences. ER provided the shortest procedure time and LOS, and appears best suited for small, low-risk, intraluminal tumors in accessible locations. LAER (LECS-type) proved useful for lesions in functionally critical or technically challenging sites (e.g., cardia/fundus), enabling precise local resection with secure defect closure while preserving gastric function. For large tumors, predominant extraluminal growth, or high-risk features, LR should be considered to prioritize oncologic handling and minimize rupture risk.

DISCUSSION

Overall morbidity was low, with complications occurring only in the ER group, and the single recurrence occurred after LR in a large high-risk tumor, suggesting tumor biology may drive recurrence more than approach. Key limitations include the retrospective design, group heterogeneity, and limited follow-up for long-term recurrence assessment.

CONCLUSION

ER, LAER (LECS-type), and LR are safe minimally invasive options for upper GI SETs. In this real-world series, all three approaches achieved 100% R0 resection with low morbidity. Technique selection should be individualized by tumor size, location, growth pattern, and risk assessment.

KEY LEARNING POINTS

- All approaches achieved 100% R0 resection; overall complication rate was 4%.
- ER offers the shortest LOS when tumors are small/low-risk and accessible.
- For challenging locations, LAER (a LECS-type cooperative strategy) offers precision and secure closure.
- LR is preferred for large/extraluminal or high-risk tumors; recurrence in our series appeared related to tumor biology rather than approach.

Variable	ER (n=22)	LR (n=12)	LAER (n=15)	P
Tumor size (mm)	15 (3–50)	33.5 (20–150)	20 (10–40)	<0.001
Procedure time (min)	50 (4–550)	130 (67–302)	160 (70–690)	0.048
Hospital stay (days)	1 (0–7)	5 (3–19)	4 (2–6)	<0.001
Complications	2 (9%)	0	0	—
Recurrence	0	1 (8.3%)	0	—