FEASIBILITY AND SAFETY OF A GASTROSCOPY-GUIDED LAPAROSCOPIC LOCAL RESECTION FOR DUODENAL SUBMUCOSAL TUMOR

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INTRODUCTION

- **Submucosal tumors of the duodenum**
  - →Neuroendocrine tumor, GIST, adenoma, and mucosal cancer
  - →Complete en bloc resection with a negative surgical margin without LND
  - →Standard Treatment
- **Laparoscopic local resection (Good choice)**
  - → determining the excision range is impossible in many cases
- **Local resection for duodenal tumors**
  - → high risk of causing deformity or stenosis in terms of duodenal passage
  - → Challenging to gastric surgeon

PURPOSE OF THIS PRESENTATION

- To evaluate the feasibility and safety of gastroscopy-guided laparoscopic wedge resection (GLWR) for duodenal submucosal tumors to overcome the above difficulties

PREVIOUS REPORTS

- LAPAROSCOPIC-ENDOSCOPIC COOPERATIVE SURGERY FOR DUODENAL TUMORS: A UNIQUE PROCEDURE THAT HELPS ENSURE THE SAFETY OF ENDOSCOPIC SUBMUCOSAL DISSECTION
  <T Irino, S Nunobe et al. Endoscopy 2015;47:349-351>
- LAPAROSCOPIC AND ENDOSCOPIC CO-OPERATIVE SURGERY FOR NONAMPULLARY DUODENAL TUMORS *<D Ichikawa, S Komatsu et al. World J Gastroenterol 2016;22(47):10424-10431>*
- LAPAROSCOPIC AND ENDOSCOPIC COOPERATIVE SURGERY VERSUS ENDOSCOPIC SUBMUCOSAL DISSECTION FOR THE TREATMENT OF LOW-RISK TUMORS OF THE DUODENUM
  <T Ojima, M Nakamori et al. J Gastrointest Surg 2018;22(5):935-940>



Categories	ESD (n = 56)	LECS (n = 18)	*P* value
Operation time, median (range), min	61 (15–127)	116.5 (34–244)	0.007
En bloc resection, n (%)	40 (86)	18 (100)	0.052
En bloc with R0* resection, n (%)	26 (52)	18 (100)	0.001
Size of resected lesion, median (range), mm	16.5 (5–32)	26.5 (8–70)	0.001
Any complication†, n (%)	14 (25)	0	0.011
Perforation or postoperative anastomotic leakage (%)	8 (14)	0	
Postoperative bleeding, n (%)	5 (8)	0	
Stricture, n (%)	2 (4)	0	
Biliary injury, n (%)	1 (2)	0	
Time to first oral intake, median (range), POD	2 (2–10)	2 (1–3)	0.052
Length of stay, median (range), POD	3 (2–50)	7 (4–18)	0.135
Follow-up period, median (range), month	64.5 (10–141)	11 (2–48)	

→LECS for patients with low-risk tumors of the duodenum is a safe, feasible, and ideal alternative to ESD with regard to short-term surgical outcomes

GNUH STRATEGY IN OPERATION FOR LOW-RISK DUODENAL TUMORS

Without Intraoperative Endoscopy

- Exophytic type → Laparoscopic WR of duodenum
- Endophytic type
  - → ESD (technically difficult d/t narrow duodenal lumen and thin wall)
  - → Open conversion & duodenotomy and tumor resection
  - → Segmental or radical duodenectomy

With Intraoperative Endoscopy

→ Gastroscopy guided WR

METHODS

- Total 16 cases underwent GLWR for duodenal submucosal tumor
- GLWR procedure
  - ① endoscope was used to provide sufficient dissection around duodenal tumor
  - ② locations was confirmed by endoscope
  - ③ full thickness of wedge resection was performed using a laparoscopy
- The clinicopathological characteristics and surgical results were analyzed

RESULT

Age	57.4 (41 ~ 72)
Sex (M : F)	14 : 2
Operation time	101 min (60 ~ 140)
Hospital stay	6.8 (5~8)
BMI	24.4
Tumor location 1	1st portion 12 2nd portion 4
Tumor location 2	Anterior wall 8 / Posterior wall 2 Outer wall 4 / Inner wall 2
Open conversion	0
Pathology	Neuroendocrine tumor 7 Gastrointestinal stromal tumor 6 Heterotrophic pancreas 1 Traumatic neuroma 1
Complication	0 (no leakage, stricture and bleeding)
Recurrences	0

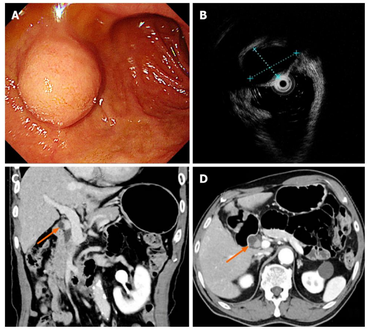


Figure 1. Preoperative tumor evaluation
A: Upper gastrointestinal endoscopy showing a lesion protruding into the lumen of the duodenal bulb; B: Endoscopic ultrasonography showing a hypoechoic lesion 1.8 cm in size; C: Coronary view of abdominal computed tomography (CT) showing a small enhancing nodule 1.4 cm in size (orange arrow) between the cystic duct and the duodenal bulb; D: Axial view of abdominal CT showing the lesion (orange arrow)

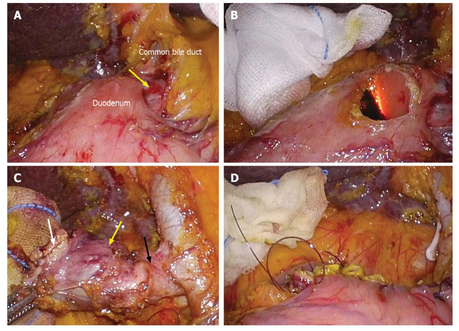


Figure 2. Operative procedure of laparoscopic endoscopic cooperative surgery for duodenal neopla는
A: Lesion (yellow arrow) between the duodenal bulb and common bile duct; B: Partial perforation of the duodenal wall using insulation-tipped electrosurgical knife during endoscopy; C: Lesion (yellow arrow) is difficult to identify between the resected duodenal wall (white arrow) and cystic duct (black arrow); D: View after resection of lesion and repair of duodenal wall.

TECHNICAL TIPS

- Sufficient dissection around duodenal tumor → EGD localization
- Reliable coagulation of small vessels around tumor → duodenal wall cutting
- Endoscopic and laparoscopic full thickness resection
- Barbed suture for primary closure of duodenal defect
- Jejunal clamp
- Prevent spillage of bowel contents → Irrigation and drainage
- Minimal handling of tumor

→ safe and reliable method

SUMMARY

- EGD guided laparoscopic wedge resection of duodenal tumor
  → Excellent choice
- Intraoperative bleeding → most concern problem
- Intra-operative endoscopy → integral part of surgery
  → improving surgical outcome
- Intraoperative smooth communication with endoscopists

CONCLUSION

- **GLWR is a feasible and safe treatment option for duodenal submucosal tumors, as reliable minimal invasive procedure to avoid duodenal deformity through fine localization.**

THANK YOU

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