EUS-Guided Gastroenterostomy vs. Enteral Stenting for Palliation of Benign and Malignant Gastric Outlet Obstruction

Monica T. Dzwonkowski, DO[1], Umair Iqbal, MD[2], Angela Berger[3], Bradley Confer, DO[2], Vikas Kumar, MD[2], David L. Diehl, MD[2], Harshit S. Khara, MD[2]

1 Department of Internal Medicine, 2 Division of Gastroenterology, 3 Department of Statistics; Geisinger Medical Center, Danville, PA

Geisinger

Introduction

- Gastric outlet obstruction (GOO) can occur due to benign or malignant etiologies
- Enteral stenting (ES) using self-expanding metal stents has been around for decades and is widely used in palliation of GOO
- Endoscopic ultrasound (EUS) techniques and advent of lumen-apposing metal stents has led to EUS-guided gastroenterostomy (EUS-GE) to be adopted as a novel technique for treating GOO
- We conducted a retrospective study to evaluate the outcomes of technical and clinical success and safety in patients with GOO undergoing EUS-GE versus ES

Methods

- Patients who underwent EUS-GE or ES between 2015 and 2022 were included
- Primary outcomes:
  - Technical success- successful deployment of the stent
  - Clinical success- relief of symptoms and tolerance of oral intake
- Secondary outcomes:
  - Timing of unplanned reintervention based on etiology
  - Rate of serious adverse events

Table 1: Summary of Patient Characteristics and Clinical Outcomes

Procedures N= 107 Patients N= 103	Enteral Stenting N= 63	EUS-GE N= 44	P-value
Age			0.19
Mean (SD)	69.5 (13.2)	65.9 (14.8)	
Range	38, 95	34, 91	
Sex, n (%)			0.64
Male	33 (52.4%)	21 (47.7%)	
Female	30 (47.6%)	23 (52.3%)	
Etiology, n (%)			0.0003
Benign	7 (11.1%)	18 (40.9%)	
Malignant	56 (88.9%)	26 (59.1%)	
Technical success, n (%)			N/A
Yes	63 (100%)	44 (100%)	
Clinical success, n (%)			0.24
Yes	57 (90.5%)	42 (97.7%)	
Missing/unknown	0	1	
Serious adverse event, n (%)			0.4
Yes	2 (3.2%)	3 (6.8%)	
Unplanned reintervention, n (%)			0.11
Yes	13 (20.6%)	4 (9.1%)	

Table 2: Fine-Gray Subdistribution Hazard Model Results for Reintervention with Effects of Procedure Type and Etiology

Need for Reintervention	Unadjusted			Adjusted		
	HR	95% CI	P-Value	HR	95% CI	P-Value
EUS-GE vs Enteral Stenting	0.408	0.135, 1.234	0.1124	**0.264**	**0.086, 0.813**	**0.0203**
Malignant vs Benign	0.554	0.211, 1.460	0.2323	0.322	0.116, 0.896	0.0300

Results

- A total of 107 procedures among 103 patients met inclusion criteria (Table 1)
  - 63 (58.9%) underwent ES
  - 44 (41.2%) underwent EUS-GE
- Higher percentage of malignant etiologies in ES group vs. EUS-GE (88.9% vs 59.1%, p= 0.0003)
- Clinical success achieved by 90.5% of EUS-GE patients compared to 97.7% of ES patients, similar in both groups (p=0.24)
- No significant difference between serious adverse events in EUS-GE and ES patients (3.2% vs 6.8%, p=0.4)
- Thirteen ES patients required unplanned reintervention compared to four EUS-GE patients (20.6% vs 9.1%) though cumulative index functions were not significantly different (p=0.11)
- Median time for reintervention in EUS-GE patients was 154 (50, 425) days and 94 (43, 112) days for ES patients
- **EUS-GE associated with a significantly reduced need for unplanned reintervention in an adjusted model for etiology (benign or malignant) (HR: 0.264; 95% CI: 0.087, 0.813; p=0.02) (Table 2)**

Conclusion

- Technical success, clinical success, and rate of adverse events did not significantly differ among EUS-GE and ES patients
- The rate of unplanned reintervention was significantly lower in the EUS-GE group when adjusted for etiology of GOO
- EUS-GE can be considered as a first line therapy for these patients