A Comparison Between Gastric Peroral Endoscopic Myotomy (GPOEM) and Pyloroplasty in Postoperative Symptom Improvement Among Gastroparesis Patients

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Introduction

- Gastroparesis is a chronic and debilitating gastrointestinal disorder characterized by impaired gastric emptying in the absence of mechanical obstruction.
- Causes include diabetic, post-surgical, and idiopathic.
- Patients may experience symptoms of nausea, vomiting, fullness, bloating, and early satiety.
- Medical management options are limited, and laparoscopic pyloroplasty has been a mainstay surgical treatment option.
- Per-oral endoscopic pyloromyotomy (POP) has become an attractive less invasive treatment option for refractory gastroparesis, though there have been few studies evaluating its efficacy and safety as compared to laparoscopic pyloroplasty.
- This study seeks to compare the clinical outcomes of laparoscopic pyloroplasty and POP for medically refractory gastroparesis.

Methods

- This is a retrospective review of 234 patients who underwent either laparoscopic pyloroplasty or POP from January 2019 to February 2022 by two fellowship trained foregut surgeons.
- Pre-operative and post-operative patient-reported symptom severity scores were obtained through a quality-of-life assessment, measured through a 5-point Likert scale.
- A composite score was also measured via the Gastroparesis Cardinal Symptom Index (GCSI), a validated questionnaire measuring the severity of gastroparesis.

Results

- Age, gender, and etiology of gastroparesis were comparable between the two groups.
- All symptom categories showed a decrease in symptom severity from pre-op to post-op in both the pyloroplasty and POP groups.
- No difference was encountered when comparing the outcomes in the two groups (Table 1, p=0.99).
- Two patients returned to the operating room for a postoperative leak in the laparoscopic pyloroplasty group.
- There was no major morbidity in the POP group.
- There was no mortality with either laparoscopic pyloroplasty or POP.
- Median length of stay was higher in laparoscopic pyloroplasty (2 days) versus same day discharge in POP.

	POP (N=145)	Pyloroplasty(N=89)	Total(N=234)	p-Value
Pre/Post Difference Nausea				0.99
Median (IQR)	-1 (-2-0)	-1 (-3-0)	-1 (-2-0)	
Range	-5-5	-5-3	-5-5	
Pre/Post Difference Vomiting				0.99
Median (IQR)	0 (-2-0)	0 (-2-0)	0 (-2-0)	
Range	-5-2	-5-3	-5-3	
Pre/Post Difference Fullness				0.99
Median (IQR)	-1 (-1-0)	-1 (-1-0)	-1 (-1-0)	
Range	-5-3	-5-2	-5-3	
Pre/Post Difference Early Satiety				0.99
Median (IQR)	0 (-2-0)	-1 (-3-0)	-1 (-2-0)	
Range	-5-3	-4-3	-5-3	
Pre/Post Difference Bloating				0.99
Median (IQR)	-1 (-2-0)	0 (-2-0)	-1 (-2-0)	
Range	-5-5	-5-3	-5-5	
Pre/Post Difference Distention				0.99
Median (IQR)	-1 (-1-0)	-1 (-3-0)	-1 (-2-0)	
Range	-5-4	-5-3	-5-4	
Pre/Post Difference Heartburn				0.99
Median (IQR)	-1 (-2-0)	-1 (-2-0)	-1 (-2-0)	
Range	-5-3	-5-5	-5-5	
Pre/Post Difference Regurgitation				0.99
Median (IQR)	-1 (-2-1)	-1 (-3-0)	-1 (-2-0)	
Range	-5-3	-5-3	-5-3	
Pre/Post Difference Composite Score				0.99
Median (IQR)	-1 (-2-0)	-1 (-2--0)	-1 (-2-0)	
Range	-3-1	-4-4	-4-4	
Age				0.99
Median (IQR)	46 (32-58)	47 (37-59)	46 (34-59)	
Range	19-87	20-84	19-87	
Gender				0.99
Female	109 (75.69%)	69 (77.53%)	178 (76.39%)	
Male	35 (24.31%)	20 (22.47%)	55 (23.61%)	
Etiology of Gastroparesis				0.49
Diabetic	39 (26.90%)	19 (21.35%)	58 (24.79%)	
Idiopathic	85 (58.62%)	65 (73.03%)	150 (64.10%)	
Surgical	21 (14.48%)	5 (5.62%)	26 (11.11%)	

Table 1: A comparison of the median and range of patient reported scores on the quality-of-life assessment from pre-op to post-op for patients who underwent laparoscopic pyloroplasty vs. POP.

Discussion

- Gastroparesis is a debilitating disease which can adversely affect a patient's quality of life.
- Laparoscopic pyloroplasty has long shown considerable benefit in symptomatic improvement, but with the evolution of therapeutic endoscopy, POP has become a newer surgical option for patients with refractory gastroparesis.
- POP involves creating a submucosal tunnel endoscopically and then dividing the muscular fibers of the pylorus, while keeping the serosa intact.
- Through its endoscopic nature, POP offers the benefit of having no external skin incisions and remaining completely minimally invasive.
- This study indicated that there were no significant differences in symptom severity improvement among patients who underwent laparoscopic pyloroplasty or POP, suggesting that the two procedures are comparable.
- There were also no significant morbidity or mortality between the two procedures, though POP had a shorter hospital length of stay as compared to laparoscopic pyloroplasty.

Conclusion

- Laparoscopic pyloroplasty POP are equivalent in the palliation of symptoms for medically refractory gastroparesis.
- POP may be preferable given its less invasive nature and shorter length of hospital stay.

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