



Establishment of a Per Oral Endoscopic Myotomy Program at a Rural Tertiary Care Center

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INTRODUCTION

The purpose of this study was to determine the application and effectiveness of a POEM program in the rural healthcare setting. Achalasia has a substantial impact on the quality of life of those afflicted by it. With an incidence of 1.6 per 100,000 new diagnoses made per year₁, it is becoming a more recognized disease entity that is primarily treated by surgical methods. Traditionally, a Heller myotomy with fundoplication has been the surgical standard of care for treating achalasia₂. In 2008 in Japan, the first per oral endoscopic myotomy (POEM) was performed₃. Since 2017, our institution, which is located in a rural tertiary care center, has performed approximately 60 POEMs.

MATERIALS & METHODS

An IRB approved, single institution retrospective review of patient outcomes after POEM was performed, along with a prospective analysis of post-operative surveys. An institutional cost analysis was performed to show the fiscal benefit of establishing a POEM program at our institution in 2017. Demographic and qualitative variables were measured and included pre-op and post-op PPI use, a Likert scale of 0-5 for progressively worsening symptoms of heartburn, dysphagia, and regurgitation (maximum score of 70 indicating worst symptoms). Overall satisfaction with present condition was also queried. In addition, we included a Dysphagia Severity Scale with a score of 0-7 with 7 being no symptoms of dysphagia.

RESULTS

- Our survey results show that 66% of patients who underwent POEM are currently using PPI's. Mean Likert scale scores are 0.85, 1.15, and 1.33 for heartburn, dysphagia, and regurgitation, respectively. 72.5% percent of patients were satisfied with their present condition. 78% of patients reported a score of 6 or 7 on the Dysphagia Severity Scale.
- The number of myotomy operations increased from 7.5 per year to 36 per year after initiation of the POEM program.
- The laparoscopic myotomy intraoperative supply costs were \$2,477. The POEM intraoperative supply costs were \$1,650. The capital expense of the equipment required to perform POEM was \$110,232. Average contribution margin per case was \$6,024. The procedure paid off capital outlay upon completion of the 19th case.

Demographics	N=41
Average Age (years)	58
Average Weight (kg)	76
Average BMI	27
Gender	
Male	17 (41.5%)
Female	24 (58.5%)
Race	
White	25 (61%)
Black	15 (36.6%)
Native American	1 (2.4%)

Table 1: Demographics



Figure 1: Submucosal tunnel

Outcome	
Average Length of Stay (days)	2.5
Average Dysphagia Severity Scale Score	6.4
Average Total Likert Scale of Symptom Improvement Score	12.6
Patients Satisfied with Present Condition	29 (72.5%)
Pre-Op PPI Use	24 (58.5%)
Post-Op PPI Use	27 (65.9)
Minor Complications	3 (7.3%)
Patients Reporting Resolution of Symptoms	32 (78%)

Table 2: Post-operative outcomes

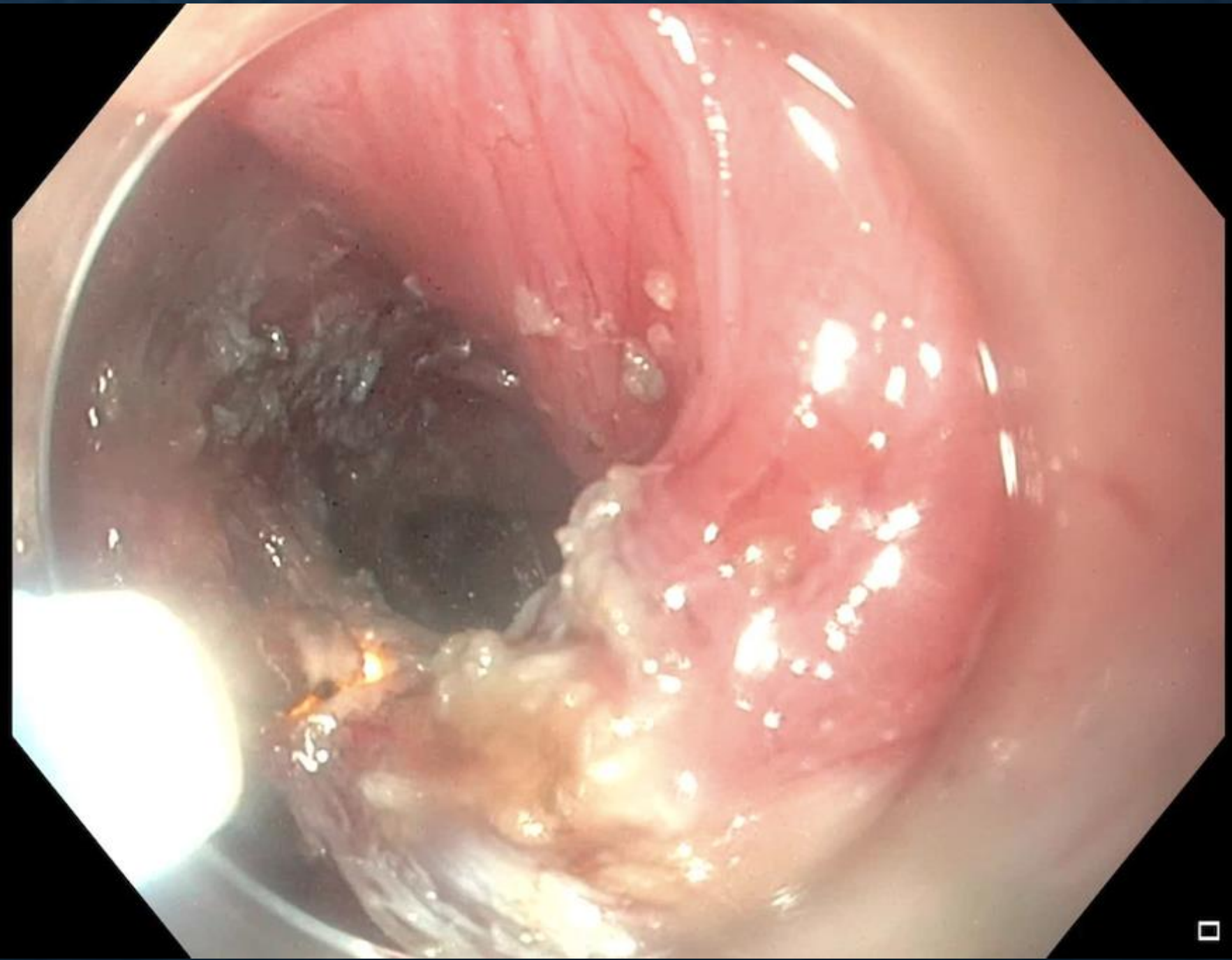


Figure 2: Full thickness myotomy

DISCUSSION

The results of this study show that patients have excellent symptom control after POEM. When compared to the institution's laparoscopic myotomy volume, the POEM procedure far surpasses in terms of operative volume and monetary benefit. Examination of this data shows that a rural hospital can successfully employ a state of the art intervention when there is a population in need and an infrastructure in place.

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