

SHORT VERSUS STANDARD PERORAL ENDOSCOPIC MYOTOMY FOR ACHALASIA TREATMENT: DOES LENGTH REALLY MATTER? A SYSTEMATIC REVIEW AND META-ANALYSIS

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BACKGROUND

- Achalasia is a chronic esophageal motility disorder which is characterized by the failure of the lower esophageal sphincter to relax and the absence of peristalsis.
- Peroral endoscopic myotomy (POEM) is a highly effective, minimally invasive treatment for achalasia, but it is associated with high incidence of subsequent gastroesophageal reflux disease (GERD).
- We conducted a systematic review and meta-analysis comparing outcomes of performing POEM with short versus standard myotomy.

MATERIAL & METHODS

- We conducted a systematic search of multiple databases from inception till October 2024, to identify studies reporting the outcomes of achalasia patients undergoing short versus standard POEM.
- Outcomes were clinical success (defined as symptom relief based on Eckardt score ≤ 3), post-operative symptomatic GERD, endoscopic erosive esophagitis (EE) and adverse events (AEs) between short and standard myotomy.
- Meta-analysis was performed to compare standardized mean difference (SMD), relative risk (RR) along with 95% confidence interval between short and standard myotomy groups using random effects model. Heterogeneity was assessed using the I^2 statistics.
- A subgroup analysis of randomized controlled trials (RCTs) was performed.

RESULTS

- Eight studies with 794 patients (short myotomy: 379; 49.1% males, standard myotomy: 415; 54.8% males) were included in this meta-analysis.
- Out of the eight studies, five studies were randomized controlled trials, while the other three were retrospective studies.
- The mean age of the cohort ranged from 31.3 to 52.5 years.
- Achalasia subtypes were classified into type I (84 vs 91), type II (289 vs 314), and type III (2 vs 2) among short and standard myotomy groups, respectively.

RESULTS

- Mean length of esophageal myotomy was 2.75-5 cm in the short and 6.69-9.8 cm in the standard myotomy group, while gastric myotomy length was 1-3 cm and 1-3.2 cm, respectively.
- Overall pooled clinical success was comparable between short and standard myotomy groups, 93.6% vs 91.3%, RR 1.02 (95% CI: 0.99-1.06, I^2 12%), $p=0.2$ (Figure 1a)
- The pooled rates of symptomatic GERD were 13.3% in the short myotomy and 21.3% in the standard myotomy group, RR 0.78 (95% CI: 0.56-1.08, I^2 0%), $p=0.1$

Short myotomy in POEM achieves similar clinical success with fewer complications and less erosive esophagitis compared to standard myotomy.

RESULTS

Figure 1 Forest Plots a) Clinical success b) Endoscopic GERD

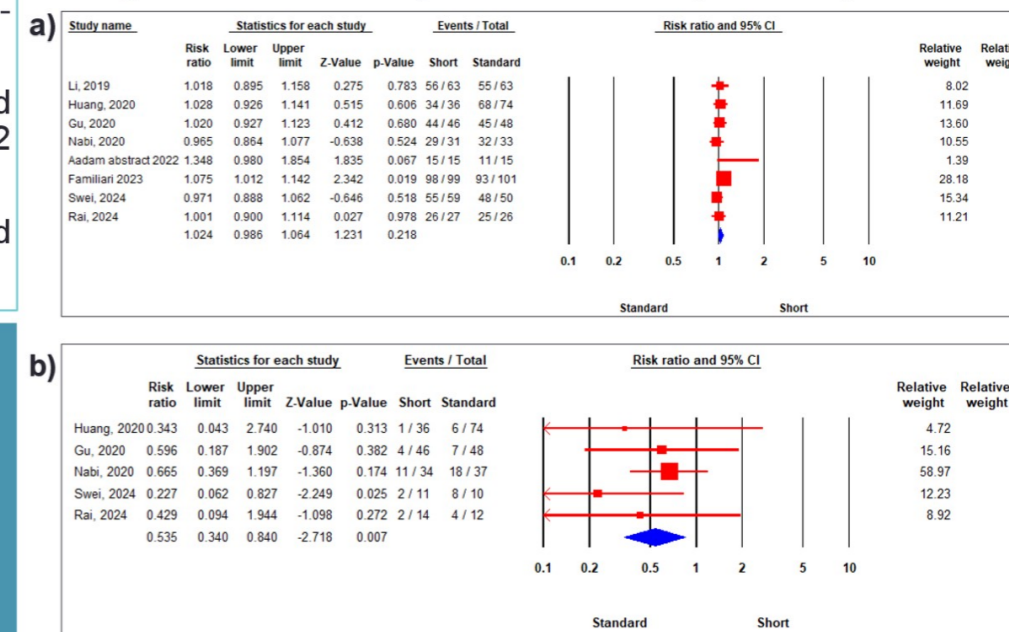
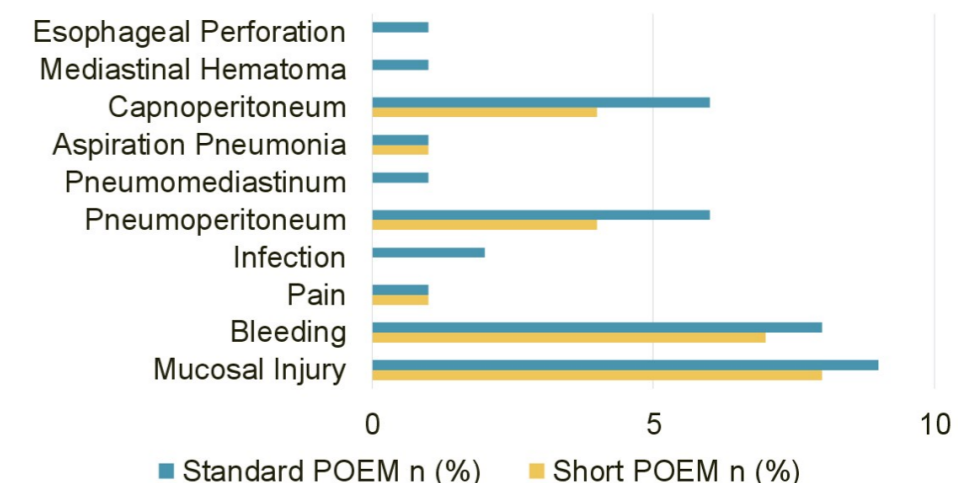


Figure 2 Adverse events in Short and Standard POEM



SUMMARY / CONCLUSION

- Performing POEM with a short esophageal myotomy yields comparable outcomes in terms of clinical success and symptomatic GERD, however it is associated with a lower incidence of EE and better safety profile.
- Comparative analysis of data from RCTs shows no significant difference between the short and standard myotomy groups.

- The incidence of erosive esophagitis was significantly higher in the standard myotomy group 31% vs 14%, RR 0.54 (95% CI: 0.34-0.84, I^2 0%), $p=0.007$. (Figure 1b)
- Adverse events were significantly lower in the short myotomy group 8.1% vs 12.5%, RR 0.59 (CI 0.38-0.91, I^2 0%), $p=0.01$. (Figure 2)
- Mean operative time was 43.1 minutes in the short myotomy and 60 minutes in the standard myotomy group.
- In subgroup analysis of RCTs, there was a trend towards lower incidence of EE in the short myotomy group. Otherwise, there was no significant difference in overall clinical success, symptomatic GERD or AEs.