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PERORAL ENDOSCOPIC MYOTOMY WITH FUNDOPLICATION (POEM-F) FOR ACHALASIA: A SYSTEMATIC REVIEW AND META-ANALYSIS EVALUATING FEASIBILITY AND SAFETY

Society: ASGE**Track:** Esophageal Diseases**Author(s) and Affiliation(s):**

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Background and Study Aim: Peroral endoscopic myotomy (POEM) is now the preferred treatment approach for achalasia and certain other spastic esophageal motility disorders. However, gastroesophageal reflux (GER) and its long-term sequelae remain a concern following peroral endoscopic myotomy (POEM). POEM with Fundoplication (POEM-F) is a simultaneous fundoplication via pure natural orifice transluminal endoscopic surgery (NOTES). In this study, we evaluate the feasibility and efficacy of POEM-F in mitigating post-POEM GER.

Methods: We performed a comprehensive electronic database search from January 2008 through June 2024 for studies evaluating outcomes of POEM-F performed for managing post-POEM GER. Pooled proportions were calculated using random-effects models. Heterogeneity was assessed using I^2 and Q statistics. The outcomes evaluated were technical success of POEM, technical success of endoscopic fundoplication using the NOTES procedure, clinical success based on parameters assessing for evidence of post-POEM GER, overall clinical success, total procedure time, fundoplication time, and adverse events.

Results: We included seven studies comprising 127 patients with 41.73% females. The mean patient age was years 44.51 years (SD = 7.40). Most patients had Type-II achalasia (78%), followed by Type-I (16.53%). The mean pre-procedural Eckhardt score was 7.38 (SD = 1.19). All the studies used an anterior approach for POEM. Pooled technical success for POEM was 96.90% (95% CI = 91.40 - 98.90). Pooled technical success of fundoplication was 92.30% (95% CI = 85.20 - 96.10). Clinical success in treating achalasia was 96.40% (95% CI = 90.70 - 98.60). The rate of wrap integrity on follow-up was 84.00% (95% CI = 66.00 - 93.40). The composite clinical success of POEM-F in mitigating post-POEM GER was 86.20 (95% CI = 73.80 - 93.20). The mean total procedure and fundoplication time were 117.72 minutes (SD= 22.67) and 56.20 minutes (SD=12.32), respectively. The overall pooled major adverse events rate was 3.60% (95% CI = 1.40 - 9.40).

Limitations: There are a few limitations to this study. All the available studies to date are retrospective single-arm data from high-volume expert centers, which could introduce selection bias. Further, the number of subjects in each available study was relatively small. These factors can influence the generalizability of our findings. The objective measurement of clinically significant GER was not standardized across the studies, which can introduce heterogeneity.

Conclusions: POEM-F is a feasible procedure with an acceptable adverse events rate in expert hands. It appears to offer clinical benefit in mitigating post-POEM GER. However, further standardization for evaluating clinically significant post-POEM GER and the long-term benefit of POEM-F is warranted.

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