Commentary on Medical Therapy for Ineffective Esophageal Motility: A Systematic Review—Surgical Considerations

Foregut
2024, Vol. 4(1) 28–29

DOI: 10.1177/26345161231198623
journals.sagepub.com/home/gut
Sage

In their article, "Medical Therapy for Ineffective Esophageal Motility: A Systematic Review," Reddy et al present a comprehensive analysis of the existing literature on those few pharmacologic treatments, particularly serotonin receptor agonists, that may lead to improvement in either symptoms, motility parameters, or both for ineffective esophageal motility (IEM) patients.[1] This is of especial interest to surgeons who perform antireflux surgery and paraesophageal hiatus hernia repair, since IEM is often observed in patients undergoing such procedures[2,3] and can potentially impact the symptomatic outcome. Thus, as the authors indicate, modification of motility parameters prior to antireflux surgery could lead to less postoperative dysphagia in this group of patients. Of further note, however, antireflux surgery alone may lead to improvement in IEM for at least some patients when studied after surgery.

There is still significant disagreement among surgeons regarding the importance of IEM when identified by high resolution manometry (HRM) in the workup for antireflux surgery, with many studies having demonstrated little to no impact of preoperative IEM on postoperative dysphagia outcomes.[4] In part, the evolution of the Chicago Classification with its increasingly strict criteria in terms of the percentage of observed ineffective swallows (70% or more, or at least 50% failed swallows in Chicago Classification v4.0[5]) has attempted to address this by limiting the diagnosis to those most likely to experience symptoms such as dysphagia. However, since this is a relatively recent advent, most of the current literature utilizes more liberal definitions of IEM. An active debate has existed for many years and continues today over whether an antireflux surgery should be "tailored" in patients with, typically, more severe ineffective esophageal motility—most commonly in the choice of a total (Nissen) versus a partial fundoplication (Toupet or Dor, for example). The use of multiple rapid swallows (MRS) as a provocative test performed during HRM may help further guide procedure selection as IEM patients with a lack of peristaltic reserve in response to MRS on preoperative HRM have been shown to have a higher incidence of postoperative dysphagia after Nissen fundoplication.[6,7] In light of the combined results of several randomized controlled trials demonstrating similar 5-year reflux outcomes between Nissen and Toupet fundoplications, with those undergoing Toupet generally reporting less postoperative dysphagia and gas bloat symptoms,[8,9] one can make the argument that tailoring of a fundoplication based on the finding of IEM is obviated by performing the partial fundoplication exclusively.

Another consideration in procedure selection is the question of whether IEM, particularly as currently defined, is still considered a relative contraindication to magnetic sphincter augmentation given concerns about the ability of the esophagus to distend the device without peristaltic propulsion.[10,11] Findings of more recent studies have indicated that in general, the device can be used safely in patients with IEM, though new-onset dysphagia rates are higher than those seen in patients without IEM.[12] Another group found that IEM is poorly predictive of dysphagia after placement of a magnetic sphincter augmentation device, even when applying the more stringent criteria of Chicago Classification v4.0.[13]

In keeping with the question of therapy for IEM posed by Reddy et al, many authors have observed statistically significant improvements in the percentage of intact peristaltic sequences and in distal esophageal amplitudes in IEM patients after fundoplication,[14-16] likely the result of definitive control of abnormal distal esophageal acid exposure and its effects on esophageal physiology. Each of these studies has demonstrated normalization of peristalsis in a percentage of IEM patients following antireflux surgery. However some groups have reported improvement in motility in a subset of patients after fundoplication while others had a decline in peristalsis, with some actually developing new IEM that had not been observed prior to surgery.[17,18] In a more recent study by Riva et al in which 14 patients with preoperative IEM underwent magnetic sphincter augmentation, 5 patients (36%) were found to have normal motility postoperatively, while the remainder continued to have IEM. Of those with normal motility preoperatively, 14% were newly found to have IEM after surgery.[19]

More than any other motility disorder, IEM continues to create as many questions as answers. The work indicated above has demonstrated that there is indeed the potential for improvement in effective esophageal peristalsis with both medical and surgical therapy, whether directed toward

the motility abnormality or not. Nonetheless, the response to all of these measures is inconsistent, and at a fundamental level, even defining the clinical significance of this motility disorder remains an ever-evolving quest. Needless to say, there is ample space for future research endeavors in the realm of ineffective esophageal motility.

Roger P. Tatum
University of Washington, Seattle, WA, USA

References

1. Reddy AT, Song EJ, Shimpi RA, Cantrell S, Leiman DA. Medical therapy for ineffective esophageal motility: a systematic review. *Foregut*. Published online April 27, 2023. doi:10.1177/2634516123116895
2. Sillcox R, Carrera R, Wright AS, Oelschlager BK, Yates RB, Tatum RP. Esophageal motility patterns in paraesophageal hernia patients compared to sliding hiatal hernia: Bigger is not better. *J Gastrointest Surg*. Published Online June 20, 2023. doi:10.1007/s11605-023-05754-1
3. Gyawali CP, Sifrim D, Carlson DA, et al. Ineffective esophageal motility: concepts, future directions, and conclusions from the Stanford 2018 symposium. *Neurogastroenterol Motil*. 2019;31(9):e13584. doi:10.1111/nmo.13584
4. Laliberte AS, Louie BE, Wilshire CL, Farivar AS, Bograd AJ, Aye RW. Ineffective esophageal motility is not a contraindication to total fundoplication. *Surg Endosc*. 2021;35(8):4811-4816. doi:10.1007/s00464-020-07883-z
5. Yadlapati R, Kahrilas PJ, Fox MR, et al. Esophageal motility disorders on high-resolution manometry: Chicago classification version 4.0((c). *Neurogastroenterol Motil*. 2021;33(1):e14058. doi:10.1111/nmo.14058
6. Stoikes N, Drapekin J, Kushnir V, Shaker A, Brunt LM, Gyawali CP. The value of multiple rapid swallows during preoperative esophageal manometry before laparoscopic antireflux surgery. *Surg Endosc*. 2012;26(12):3401-3407. doi:10.1007/s00464-012-2350-0
7. Shaker A, Stoikes N, Drapekin J, Kushnir V, Brunt LM, Gyawali CP. Multiple rapid swallow responses during esophageal high-resolution manometry reflect esophageal body peristaltic reserve. *Am J Gastroenterol*. 2013;108(11):1706-1712. doi:10.1038/ajg.2013.289
8. Li G, Jiang N, Chendaer N, Hao Y, Zhang W, Peng C. Laparoscopic Nissen versus Toupet fundoplication for short- and long-term treatment of gastroesophageal reflux disease: a meta-analysis and systematic review. *Surg Innov*. Published online March 30, 2023. doi:10.1177/15533506231165829
9. Broeders JA, Mauritz FA, Ahmed Ali U, et al. Systematic review and meta-analysis of laparoscopic Nissen (posterior total) versus Toupet (posterior partial) fundoplication for gastro-oesophageal reflux disease. *Br J Surg*. 2010;97(9):1318-1330. doi:10.1002/bjs.7174
10. Smith CD, DeVault KR, Buchanan M. Introduction of mechanical sphincter augmentation for gastroesophageal reflux disease into practice: early clinical outcomes and keys to successful adoption. *J Am Coll Surg*. 2014;218(4):776-781. doi:10.1016/j.jamcollsurg.2013.12.034
11. Asti E, Bonitta G, Lovece A, Lazzari V, Bonavina L. Longitudinal comparison of quality of life in patients undergoing laparoscopic Toupet fundoplication versus magnetic sphincter augmentation: observational cohort study with propensity score analysis. *Medicine*. 2016;95(30):e4366. doi:10.1097/MD.0000000000004366
12. Baison GN, Jackson AS, Wilshire CL, et al. The impact of ineffective esophageal motility on patients undergoing magnetic sphincter augmentation. *Ann Surg*. 2023;277(4):e793-e800. doi:10.1097/SLA.0000000000005369
13. Riccardi M, Eriksson SE, Tamesis S, Zheng P, Jobe BA, Ayazi S. Ineffective esophageal motility: the impact of change of criteria in Chicago classification version 4.0 on predicting outcome after magnetic sphincter augmentation. *Neurogastroenterol Motil*. 2023;35:e14624. doi:10.1111/nmo.14624
14. Ravi N, Al-Sarraf N, Moran T, et al. Acid normalization and improved esophageal motility after Nissen fundoplication: equivalent outcomes in patients with normal and ineffective esophageal motility. *Am J Surg*. 2005;190(3):445-450. doi:10.1016/j.amjsurg.2005.05.040
15. Munitiz V, Ortiz A, Martinez de Haro LF, Molina J, Parrilla P. Ineffective oesophageal motility does not affect the clinical outcome of open Nissen fundoplication. *Br J Surg*. 2004;91(8):1010-1014. doi:10.1002/bjs.4597
16. Simić AP, Skrobić OM, Gurski RR, Šljukić VM, Ivanović NR, Peško PM. Can different subsets of ineffective esophageal motility influence the outcome of Nissen fundoplication? *J Gastrointest Surg*. 2014;18(10):1723-1729. doi:10.1007/s11605-014-2607-0
17. Booth MI, Stratford J, Jones L, Dehn TC. Randomized clinical trial of laparoscopic total (Nissen) versus posterior partial (Toupet) fundoplication for gastro-oesophageal reflux disease based on preoperative oesophageal manometry. *Br J Surg*. 2008;95(1):57-63. doi:10.1002/bjs.6047
18. Mello MD, Shriver AR, Li Y, Patel A, Gyawali CP. Ineffective esophageal motility phenotypes following fundoplication in gastroesophageal reflux disease. *Neurogastroenterol Motil*. 2016;28(2):292-298. doi:10.1111/nmo.12728
19. Riva CG, Siboni S, Sozzi M, Lazzari V, Asti E, Bonavina L. High-resolution manometry findings after Linx procedure for gastro-esophageal reflux disease. *Neurogastroenterol Motil*. 2020;32(3):e13750. doi:10.1111/nmo.13750