POEM: Way to go!

The peroral endoscopic myotomy (POEM) procedure has generated immense interest in the admittedly rarified group of surgeons and gastroenterologists who are interested in profound esophageal motility disorders like achalasia. This is in part an expression of a pent-up demand to know “what became of all that natural orifice transluminal endoscopic surgery (NOTES) stuff we heard so much about?” and in part a genuine excitement about a truly innovative and logical approach to this disease. POEM allows us to hone in on precisely the tissue affected by the disease: the circular and sling fibers of the lower esophageal sphincter (LES). This is in contrast to established therapies that either blindly rip the sphincter to shreds (balloon dilation) or surgically plow through the abdominal cavity (admittedly with the laparoscope these days) to dismantle the entire hiatal structure and completely and permanently demolish the LES—to the point at which GERD is pretty much ensured and a fundoplication of some sort is made mandatory. On paper, POEM would seem to be the perfect compromise treatment: the minimally invasive nature of the endoscopic approach, leaving the hiatal anatomy intact and with the thoroughness and permanence of a surgical ablation.

Theory of course is one thing and clinical appropriateness and applicability another. Paschricha et al1 introduced us to the concept of POEM in their original study in 2007 on 4 pigs with short follow-up, and Inoue subsequently publicized the first human experience, first presenting an institutional review board–approved experience of 4 patients at DDW in 2008 and subsequently publishing 17 patients in Endoscopy in 2010.2 This was not in fact the first human experience. At a conference on NOTES surgery in 2007 at the Institute Recherche contre Cancer Appriel Digestif (IRCAD) in Strasbourg, France, I gave a talk on current developments in NOTES and discussed our and others’ work on “POEM” approaches to achalasia, based on Paschrika’s research. I mentioned that I suspected that in “5 to 5 years, this would see the clinical light of day,” when a course participant, a gastroenterologist from a rural hospital in Peru, timidly raised his hand and said he had seen Paschrika’s poster at DDW in 2007, returned home, and performed a POEM procedure on his partner’s father who had achalasia! (He survived.) There undoubtedly were others in the world who even preceded this. The point here is that the true contribution to a medical advance is not who was first to do it but rather who was the first to study it? In 2013, the introduction of a novel intervention must be totally vetted, measured, compared, and measured again before being presented as the “new criterion standard.”

The interventional endoscopy group of the Academic Medical Center in Amsterdam have always been leaders in the introduction of new endoscopic procedures. Although they were involved in the early European report of Von Renteln,3 this report of their own experience is most significant because it is an effort to study the scientific veracity and efficacy of the POEM procedure.4

This series of 10 patients contributes to other recent studies that look at physiologic outcomes or compare the actual clinical results with established therapies. The group deserves kudos for the thoroughness of their investigations in this series. Manometry, endoscopy, timed barium swallows, and even endoscopic functional luminal impedance planimetry (Endoflip) were studied. Actually, the only metric missing is 24-hour pH monitoring—but more about that later.

The results are indeed promising: 100% of these patients had dysphagia improvement to at least an Eckhardt score of 1. There were no reported complications, and the hospital stay was 3 days.

Manometry and timed barium swallows confirmed these symptomatic results with depressurization of the esophagus and re-establishment of esophageal clearance in all cases. These results are clearly in line with previous objective reports on the outcomes of POEM and are clearly comparable with those seen after successful surgical treatment. One item that stands out in contradistinction to results after a surgical myotomy is that more than 30% of these successful treatments had LES resting pressures > 10 mm Hg, a number that has signified
poor results in both balloon and surgical treatments. Our group noted the same phenomenon as well. In 18 patients with postoperative manometry at 6 months, the mean resting pressure was 18 mm Hg with 35% of patients having pressures over 10 mm Hg—none with any dysphagia symptoms. Rather than indicating a deficiency in the POEM approach, I believe this indicates the appropriateness of treating only the circular and sling fibers of the LES. However, only long-term follow-up will confirm this.

I also commend the authors on reporting outcomes based on the relatively new tool of EndoFlap. This novel technology to measure the topography of the esophagus would seem to be tailor made for the evaluation of achalasia treatments such as the POEM. The results they have documented help us understand better exactly how surgical interventions like POEM work to relieve dysphagia. It has been our experience as well that the EndoFlap may be the best tool to use during POEM to guide the extent of myotomy and, perhaps someday, allow us to tailor the myotomy extent to minimize postoperative gastroesophageal reflux (GER).

The question most often raised against the use of POEM is the problem of iatrogenic GER, which to date seems to be relatively high. Regardless of its true importance, considering the effectiveness of medical therapy for GERD, it is a challenging question that will need to be answered. Dr Verlaan et al describe esophagitis in 60% of their patients, a number that would seem discouraging to many. I believe one can question whether signs of distal esophageal irritation 3 months after an extensive endoscopic treatment like POEM really defines the presence of GER. In fact, the sole disappointing element of this excellent and comprehensive report is that the follow-up did not include 24-hour pH studies after surgery. This is baffling because the patient trauma of an unsedated EndoFlap is many times that of an ambulatory pH study. Certainly one of the most intriguing questions asked about POEM is whether preservation of the phrenoesophageal attachments and the longitudinal esophageal muscle protects against reflux after a POEM myotomy. Perhaps more importantly, as the efficacy of POEM in the relief of dysphagia has been well shown in multiple studies, there are technical modifications to the procedure that can be performed to minimize the risk of GER while maintaining the excellent rate of dysphagia relief? To study this, postoperative pH testing will be mandatory because the symptomatic evaluation of GER (and the endoscopic evidence) have very low correlations with actual reflux. In response to our initially high incidence of GER (46% on pH testing), we have modified the length of our POEM myotomy based on manometry and EndoFlap measurements and most recently have around 24% incidence of abnormal pH tests.

In summary, we commend the group in Amsterdam on their comprehensive evaluation of their patients. At this stage in its introduction, everyone performing this procedure should be studying their patients to the utmost of their abilities: to better understand the procedure, ways to make it better, and the disease itself.

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Abbreviations: EndoFlap, endoscopic functional luminal impedance planimetry; GER, gastroesophageal reflux; LES, lower esophageal sphincter; NOTES, natural orifice transluminal endoscopic surgery; POEM, peroral endoscopic myotomy.

REFERENCES