



Pooling of barium at mucosotomy site after peroral endoscopic myotomy on Barium Swallow Study

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Abstract: Peroral endoscopic myotomy (POEM) is a minimally invasive, incisionless alternative to Heller myotomy for treatment of Achalasia. It is still an evolving procedure done only at expert centers. We report an interesting post-procedure radiological finding that might be helpful in managing patients undergoing this procedure. A 24-year-old woman with advanced Achalasia underwent POEM performed in the standard method after which she was kept nil per oral on intravenous antibiotics. Barium swallow study done on the next day showed free passage of barium into stomach with no leak but there was pooling of a small amount of barium in the submucosal space at the upper end of the mucosotomy site without passage down the tunnel into the mediastinum. X-ray showed intact endoscopic clips at the mucosotomy site. Patient was afebrile and only had the expected post-procedure mild chest discomfort. She was continued nil per oral for an additional day and Barium swallow study was repeated which did not show any further pooling of barium at the mucosotomy site and the barium had passed freely into the stomach without a leak. Pooling of a small amount of barium at the mucosotomy site was likely due to the passage of barium into the submucosal space between the clips as they might not have created watertight closure of mucosotomy. This finding is usually of no clinical consequence if barium does not leak out through the tunnel into the mediastinum. Starting myotomy at least 2–3 cm distal to mucosotomy site such that the submucosal space closes off by mucosal flap above the myotomy site and meticulous, watertight closure of mucosotomy site may prevent such occurrence.

Keywords: Achalasia; peroral endoscopic myotomy (POEM); Barium Swallow Study

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Case presentation

Peroral endoscopic myotomy (POEM) represents minimally invasive, incisionless alternative to Heller myotomy for the treatment of Achalasia. POEM was initially performed in humans in Japan and now it is estimated that over 2,000 POEMs have been performed worldwide (1-3). Initial results are very encouraging with self-limited adverse events occurring in about 10% of cases (3). However, POEM is still an evolving procedure and is being done only at expert centers. We report an interesting post-procedure radiological finding that might be helpful in the management of patients undergoing POEM.

A 24-year-old woman with advanced Achalasia with dilated esophagus on barium esophagogram (*Figure 1*) underwent POEM procedure. POEM was performed in the standard method including vertical mucosotomy on the anterior wall in the mid-esophagus, creation of submucosal tunnel by submucosal dissection, selective myotomy of circular muscle on the anterior wall extending into the cardia and closure of mucosotomy using endoscopic clips. The mucosotomy was about 2 cm long and eight endoscopic clips (Wilson Cook, NC, USA) were used to close the mucosotomy site (*Figure 2*). Patient was kept nil per oral on intravenous antibiotics. A barium swallow study (BSS) was performed on the next day. BSS showed free

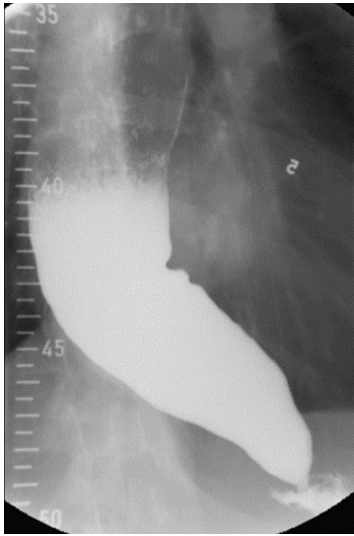


Figure 1 Barium esophogram showing dilated esophagus (Achalasia).

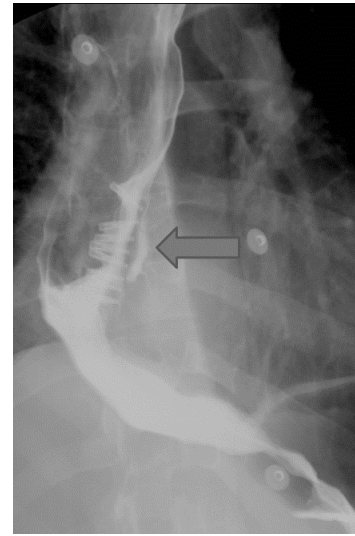


Figure 3 Barium Swallow Study on Day 1 after peroral endoscopic myotomy (POEM) showing pooling of barium at the mucosotomy site.

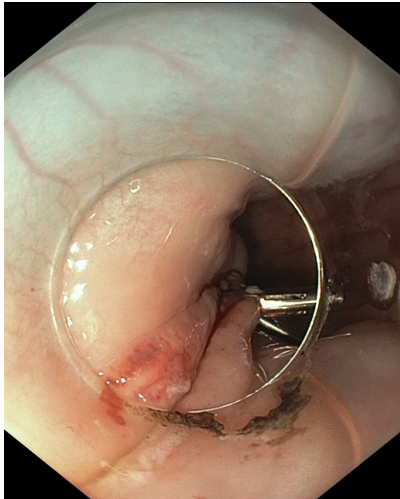


Figure 2 Endoscopic view of mucosotomy site.

passage of barium into stomach without a leak, however, there was pooling of a small amount of barium in the submucosal space at the upper end of the mucosotomy site without passage down the tunnel into the mediastinum (*Figure 3*). On X-ray, all the eight endoscopic clips were seen intact at the mucosotomy site. Patient was afebrile with normal white cell count except for mild chest discomfort as is expected post-procedure. Patient was continued nil per oral for an additional day and BSS was repeated. It did not show any further pooling of barium at the mucosotomy site



Figure 4 Barium Swallow Study on Day 2 after peroral endoscopic myotomy (POEM) showing clearing of barium from the mucosotomy site.

and the barium had passed freely into the stomach without a leak (*Figure 4*). Clear liquid diet was started and she was discharged home.

The closure of mucosotomy by clips created a mucosal fold at the proximal end and this lack of watertight closure of mucosotomy caused passage of barium into

the submucosal space between the clips and pooling of a small amount of barium at the mucosotomy site. However, this finding is usually of no clinical consequence, especially, if barium does not leak out through the tunnel into the mediastinum. Retrospectively, application of an additional clip at the proximal end for meticulous and watertight closure of mucosotomy site might prevent this. It is important to start myotomy at least 2–3 cm distal to mucosotomy site such that the submucosal space closes off by mucosal flap above the myotomy site and acts as a safety cushion.

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Footnote

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/jxym.2017.02.08>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in studies involving human participants were in

accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for publication of this manuscript and any accompanying images.

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