

# Delayed Pneumoperitoneum After Peroral Endoscopic Myotomy

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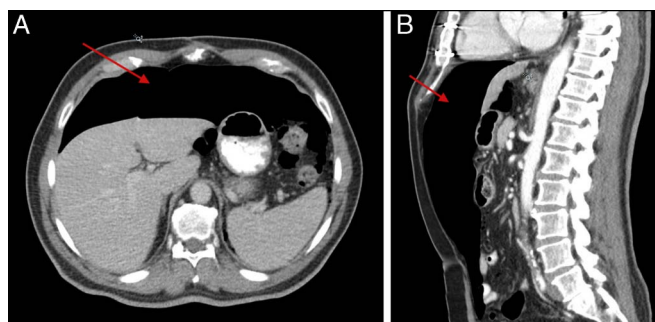
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## CASE REPORT

A 70-year-old man with a medical history significant for long-standing dysphagia secondary to Type II achalasia presented to our institution for peroral endoscopic myotomy (POEM). The operative course was uncomplicated with a performance of an 8 cm esophago-gastric myotomy. The mucosotomy site was closed with endoscopic clips with no mucosal defect noted on final endoscopic inspection.

A routine postoperative gastrograffin esophagram was negative for esophageal perforation or leak. A small focus of expected pneumoperitoneum and pneumomediastinum was also appreciated. The patient tolerated a clear liquid diet and was discharged on postoperative day 1 without significant abdominal pain, although mild abdominal bloating was endorsed. On day 12 post-POEM, the patient reported resolution of dysphagia but complained of significantly worsening abdominal bloating. Physical examination demonstrated a tympanic and distended abdomen. No pyrexia was noted. Laboratory evaluation was within normal limits without evidence of an elevated leukocyte count. A computed tomography scan with oral and intravenous contrast was obtained on day 13. The computed tomography demonstrated no evidence of esophageal perforation or leak; however, severe pneumoperitoneum without pneumomediastinum was noted (Figure 1). The patient was monitored clinically with slow improvement of symptoms and reported complete resolution of bloating by day 35. No adverse sequelae was reported at the 12-month follow-up.

Although POEM's excellent efficacy and safety profile has promoted widespread adoption of the procedure for treating achalasia, delayed severe adverse events including gastrointestinal bleeding, perforation, and mediastinitis have been reported.<sup>1</sup> A small amount of pneumoperitoneum/mediastinum post-POEM is expected and reportedly secondary to an incompetent lower esophageal sphincter and the insufflation required during the procedure. However, a significantly delayed onset or worsening of pneumoperitoneum/mediastinum, to our knowledge, has not been reported. The etiology for pneumoperitoneum in our patient is unknown. Inadvertent endoscopic use of room air (instead of CO<sub>2</sub>) insufflation is possible; however, progressive worsening long after the procedure would be unusual. A one-way valve phenomenon in which air enters the peritoneum through a microperforation is another consideration. Contradicting this hypothesis is the lack of concurrent signs and symptoms such as pain, fever, or elevated inflammatory markers.



**Figure 1.** Significant pneumoperitoneum 12 days post-peroral endoscopic myotomy identified on a computed tomography scan.

As efforts to perform POEM on an outpatient basis with same-day discharge are being considered worldwide, practitioners of POEM need to be cognizant of all potential delayed complications, including tension pneumoperitoneum, to prompt corrective action.<sup>2,3</sup> Expectant management of incidental prolonged pneumoperitoneum may be advised when no constitutional signs and symptoms are identified.

## DISCLOSURES

**Author contributions:** All authors contributed equally to this article. SK Lo is the article guarantor.

**Financial disclosure:** None to report.

**Informed consent** was obtained for this case report.

Received October 5, 2020; Accepted February 16, 2021

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