INTRAOPERATIVE USE OF ENDOFLIP DURING PER-ORAL ENDOSCOPIC MYOTOMY REDUCES INCIDENCE OF INADVERTENT PNEUMOPERITONEUM

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INTRODUCTION:

Per-oral endoscopic myotomy (POEM) has become an accepted minimally invasive alternative to Heller myotomy for the treatment of achalasia. One of the known adverse events associated with POEM is the inadvertent creation of pneumoperitoneum, often requiring decompression. It has been postulated that this occurs when the submucosal tunnel is extended below the esophageal hiatus and onto the gastric wall. We hypothesized that the use of Endoscopic Functional Luminal Imaging Probe (EndoFLIP) more accurately identifies the gastroesophageal junction, and thus should lower the incidence of inadvertent pneumoperitoneum.

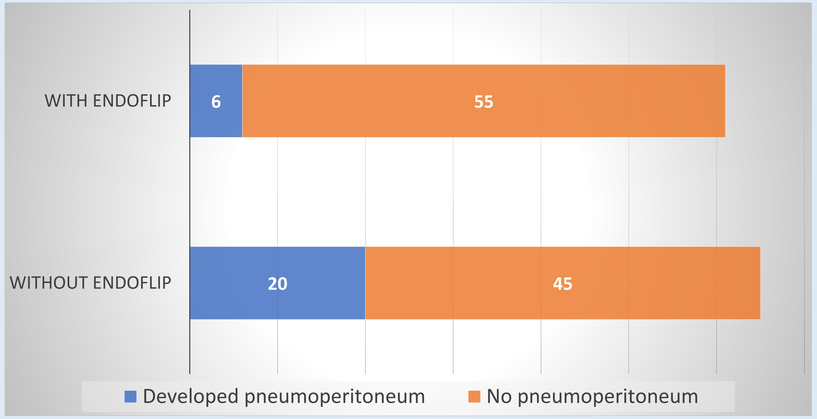


Figure 1. Rates of pneumoperitoneum with and without EndoFLIP

METHODS:

This is a retrospective review of consecutive POEM cases performed at Baystate Medical Center, a tertiary referral academic medical center. Our data was kept in an IRB-approved REDCap database. EndoFLIP was utilized starting with the 66th case and has been used on all cases since. Pearson's Chi-Square test was used to test for statistical significance.

RESULTS:

126 POEM cases were identified from June 10, 2011 – July 19, 2021. Of the 65 cases without EndoFLIP, inadvertent pneumoperitoneum occurred in 20 (30.8%) patients. Since the introduction of EndoFLIP, inadvertent pneumoperitoneum occurred in 6 (9.8%) patients (p=0.004). Interestingly, we did not have a single case of inadvertent pneumoperitoneum in the most recent 42 cases.

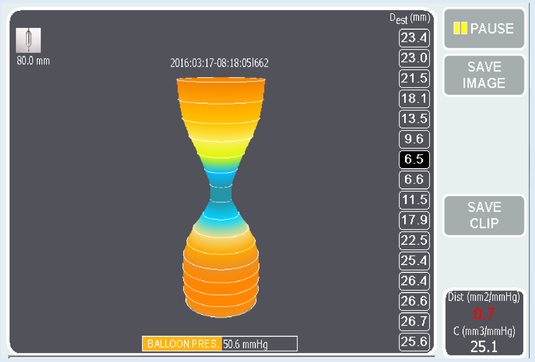


Figure 2. Typical pre-operative appearance of EndoFLIP in an achalasia patient

CONCLUSIONS:

Although the learning curve of POEM could contribute to the lessening incidence of inadvertent pneumoperitoneum, the use of EndoFLIP allows for more accurate identification of the anatomic location of the gastroesophageal junction. This enables the surgeons to tailor the myotomy to the most directed area. Prior to EndoFLIP, many surgeons relied on anatomic measurements using the endoscope; this can be notoriously unreliable if the scope bows in the submucosal tunnel. Having a better understanding of the post-myotomy EndoFLIP data can allow for cessation of the myotomy before entering the peritoneal cavity, which may decrease the incidence of this adverse event. In light of this data, it seems prudent to include the routine use of EndoFLIP during the performance of POEM.