

Topic: Endoscopic Foregut Surgery (including Endobariatrics)

Abstract ID: 15

## Endoscopic Management of Gastric Band Erosion: A Systematic Review and Meta-Analysis

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Gastric band erosion may be seen in up to 3% of cases with patients remaining asymptomatic or presenting with abdominal pain or signs of gastrointestinal obstruction. Endoscopic intervention has become increasingly utilized due to its minimally invasive nature. The primary aim of this study was to perform a systematic review and meta-analysis to examine the role of endoscopic removal of eroded gastric bands.

Measured outcomes included technical success, clinical success, procedure duration, adverse events, and conversion to surgery. This was a cumulative meta-analysis performed by calculating pooled proportions with rates estimated using random effects models. Heterogeneity was assessed with  $I^2$  statistics and publication bias by funnel plot asymmetry. Meta-regression analyses were performed comparing outcomes by endoscopic removal tool.

A total of 10 studies (n=282 patients) were included in this meta-analysis. One prospective and 9 retrospective studies were included. Mean age of patients was  $40.68 \pm 7.25$  years. A majority of patients (79%) were female gender. Mean pre-operative body mass index (BMI) for included patients was  $42.76 \pm 1.06$  kg/m<sup>2</sup> while average BMI at time of band erosion was  $33.06 \pm 3.81$  kg/m<sup>2</sup>. The average duration of gastric band placement was  $38.49 \pm 19.88$  months. Endoscopic removal was attempted in 240/282 (85.11%) of cases. Pooled technical and clinical success of the endoscopic therapy was 86.08% (CI: 79.42-90.83) and 85.34% (CI: 88.70-90.62), respectively. Mean procedure time for endoscopic removal was  $46.47 \pm 11.52$  minutes with an intra-operative adverse event rate of 4.15% (CI: 1.98-8.51). Post-procedure associated adverse events occurred in 7.24% (CI: 4.46-11.55) of patients. Conversion to laparotomy/laparoscopy occurred in 10.54% (CI: 6.12-17.54%) of cases. Additionally, meta-regression did not demonstrate any significant differences between specific gastric band tools utilized during endoscopic removal.

Endoscopic intervention appears to be a highly effective and safe modality for the treatment of gastric band erosion.

Topic: Endoscopic Foregut Surgery (including Endobariatrics)

Abstract ID: 16

**Clinical Success of Endoscopic Therapies for Management of Gastrojejunal Strictures Following Roux-En-Y Gastric Bypass Surgery: A Systematic Review and Meta-Analysis**

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Gastrojejunal anastomotic strictures occurs in up to 20% of patients following Roux-en-Y gastric bypass (RYGB). Through-the-scope balloon dilation (TTS-BD) is highly effective, but multiple dilation sessions are required for symptomatic improvement. Recently, lumen apposing metal stents (LAMS) have been utilized for these strictures with high clinical success rates. The primary objective was to assess the long-term clinical success of TTS-BD and LAMS in the management of anastomotic strictures following RYGB.

Individualized searches of multiple databases were performed for studies evaluating TTS-BD and LAMS among patients with RYGB and gastrojejunostomy stricture. The primary outcome was sustained clinical success, defined as resolution of symptoms after endoscopic therapy without the need for surgical intervention.

Twenty-three studies (n=1195) evaluated TTS-BD while 5 studies (n=147) evaluated LAMS. Fifty-two percent patients required one TSS-BD session, 23.8% required 2 sessions, and remaining 23.5% required  $\geq 3$  dilations. The pooled clinical success rate for TTS-BD (Figure-1a) was 96.4% (95% CI:94.5-98.3,  $I^2=72.0\%$ ). Surgery was performed in 1.9% patients due to failed response. Perforation following TTS-BD was seen in 1.5% cases. Among the patients that underwent LAMS, mean stent dwelling time was 84+56.6 days. Most patients required one stent placement (71.7%). The pooled clinical success rate for LAMS (Figure-1b) was 79.9% (95% CI:58.5-100,  $I^2: 95.6\%$ ). A total of 6.8% patients required surgery; however, LAMS were utilized for anastomotic strictures refractory to TTS-BD in 80% of included studies. The rate of LAMS migration was 12.3%. Three studies directly compared TTS-BD versus LAMS and did not find a significant difference in clinical success between the two strategies (OR 3.23 (95% CI:0.8-11.9,  $I^2: 37.4\%$ ) –Figure-2.

Endoscopic techniques are highly effective in the management of gastrojejunal anastomotic strictures among patients with RYGB. The clinical success with TTS-BD and LAMS are similar; however, LAMS may potentially reduce the number of endoscopic sessions to achieve symptom improvement.

Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 17

## **Proton Pump Inhibitor Use Does Not Affect Manometric Parameters in Patients with Gastro-Esophageal Reflux Confirmed on Quantitative Testing**

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High Resolution Esophageal Manometry (HRM) provides qualitative and quantitative assessment of peristalsis and sphincter function. Gastroesophageal reflux disease (GERD) may adversely affect peristaltic function, though proton pump inhibitor (PPI) use may mitigate changes. Accurate assessment of contractility is important in the selection of anti-reflux surgery approach. The aim of this study was to evaluate whether performing GERD evaluations off PPI alters HRM contractility findings and thus surgical approach.

All patients undergoing HRM and impedance-pH testing (MII-pH) for suspected GERD between 2020 and 2022 were reviewed. Patients with prior foregut endoscopic or surgical interventions or achalasia were excluded. Those with an abnormal MII-pH were included, defined as at least 80 reflux events, a distal acid exposure time (AET) of  $\geq 2\%$ , or a DeMeester score  $>14.72$  on twice daily (BID) PPI, and at least 80 reflux events or AET  $\geq 6\%$  off PPI.

Of 520 MII-pH cases, 102 patients were included. There were no significant differences in gender, BMI, age, or HRM hiatal hernia size between groups. Patients off PPI had significantly higher upright and postprandial AET and normalized acid reflux episodes, while increased total normalized reflux activity, DeMeester score, and total distal AET did not reach statistical significance. Manometric parameters were not significantly different between groups. Of note, mean DCI tended to be higher in patients off PPI.

PPI use did not affect core manometric parameters in patients with excess reflux on MII-pH determined by AET, DeMeester score, or number of reflux events. Of interest, patients diagnosed with refractory GERD had a significantly greater reflux burden despite high dose PPI. Such findings underscore the validity of recent changes in the recommended GERD diagnostic algorithm, as peristalsis appears unaffected by the absence of PPI. It appears HRM results off PPI may therefore be reasonable to use when selecting an approach to anti-reflux surgery.

Topic: Education/training  
Abstract ID: 18

**The Efficacy and Yield of Routine Duodenal Biopsy Sampling and Histopathological Analysis Versus Endoscopic Gestalt for the Diagnostic Evaluation of Celiac Disease in Patients with Normal Endoscopic Findings: An Experience at a Tertiary Care Center**

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Celiac disease (CD) is a gluten-sensitive enteropathy characterized by small intestinal damage with loss of villi, leading to the classic symptoms of malabsorption, diarrhea, and failure to thrive. Though the prevalence of CD may be as high as 1%, it is frequently not diagnosed due to minimal or nonspecific presenting symptoms. A duodenal biopsy via esophagogastroduodenoscopy (EGD) is the gold standard for CD diagnosis. However, considering the inconvenience and cost associated with biopsies that often yield negative results, there is a growing call for endoscopic findings as being diagnostic without the need for biopsy. In this study, we hypothesize that it is low yield to biopsy the duodenum to diagnose CD when endoscopic findings appear unremarkable.

A retrospective chart review of our institution's medical records was conducted from January 1, 2019 to December 31, 2022. Patients undergoing EGD with biopsy for the diagnostic evaluation of CD were identified. Endoscopic and histopathologic findings were analyzed. Chi-square tests were used to evaluate statistical significance.

A total of 337 patients (n=337, 32% male) undergoing EGD with biopsy for the diagnostic evaluation of CD were identified. There was a statistical significance between gender and endoscopic findings with 17% of male patients and 5% of female patients having an abnormal EGD ( $p < 0.001$ ). 11% of patients with normal EGDs yielded positive histopathologic CD findings. 24% of patients with abnormal EGDs yielded positive histopathologic CD findings. There was statistical significance between gross endoscopic findings and histopathological findings to both confirm and/or rule-out CD ( $p < 0.05$ ).

Patients evaluated for CD via EGD that have unremarkable endoscopic findings are more likely to also have negative histopathology for CD. We aim to push endoscopic findings as being diagnostic themselves to rule out CD in the hopes to avoid unnecessary and costly routine duodenal biopsies in the evaluation of CD.

Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 19

## Empiric Esophageal Dilation for the Treatment of Dysphagia

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Non-oropharyngeal dysphagia (NOD) occurs without obvious etiology. Empiric dilation is often performed in practice. We aimed to investigate whether empiric bougie dilation leads to the subjective improvement of dysphagia.

A single hospital EMR was queried over a ten-month period for patients undergoing EGD with dilation. Demographics, dilation method, tissue disruption, stricture, Barrett's esophagus, PPI use before and after procedure and post dilation work up were recorded. Response to dilation was recorded as yes/no. Exclusion criteria included history of foregut surgery, opioid or marijuana use, stricture, Barrett's esophagus, and eosinophilic esophagitis. Data was analyzed as continuous and categorical variables.

419 cases were evaluated. The mean age was 56 years ( $\pm 13.7$ ). 76% were Caucasian. Normal esophagus reported in 82%, Barrett's esophagus in 4.5%, esophagitis in 11%, and GERD prior to procedure in 31.7%. PPI use reported in 70% patients at time of EGD. Improvement in dysphagia was reported in 71.6%. The mean age of those improved was 56 years ( $\pm 13.9$ ). Improvement was reported in 77.6% of those on PPI and 76.7% not on PPI. Improvement was reported in 78.9% of patients with GERD and 76.4 without GERD. Those with a visually normal esophagus reported improvement in 76.9% of cases while those with a visually abnormal esophagus improved in 78.9%. Patients with esophagitis improved in 79.5% of cases and those without esophagitis improved in 77.1%. When post-dilatory mucosal tear was present, 82.3% of patients reported improvement. In cases without mucosal disruption, 75.8% reported improvement.

We found a 77% improvement in symptoms in all-patient reports, which did not vary significantly with concurrent PPI therapy, presence of esophagitis, history of GERD, or superficial mucosal tear after dilation. While our study is limited by subjectivity in documentation and symptomatic reporting, we found empiric esophageal dilation a beneficial practice.

Topic: Esophagus neoplasia (Barrett's, Cancer)

Abstract ID: 20

## **Surgical and Long-Term Outcomes Following Esophagectomy Using Stomach and Colon Conduits**

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Studies comparing long-term outcomes between stomach and colon conduits for esophagectomy are limited. The surgical and long-term survival outcomes of patients undergoing esophagectomy with immediate reconstruction using stomach or colon conduits were evaluated.

A retrospective review was performed of all patients at our institution undergoing immediate reconstruction following esophagectomy from 2005-2016. Patient characteristics, surgical outcomes, and long-term survival were assessed. Differences were assessed using univariate statistics and Kaplan-Meier survival analysis.

A total of 144 patients (129 stomach, 15 colon) underwent esophagectomy with immediate reconstruction during the study period and were followed up to 16 years (848.1 patient-years). Preoperative characteristics, including age, gender, indication, and operative approach, were similar between groups. Patients in both groups more often had esophageal malignancy rather than benign etiologies (88.4%, 114/129 in stomach vs. 80.0%, 12/15 in colon;  $p=0.35$ ) as their operative indication. Rates of operative mortality, intraoperative complications, blood transfusions, postoperative complications, and postoperative interventions were also similar between groups (all  $p>0.05$ ; Table 1). Operative times were significantly longer for colon reconstructions ( $511 \pm 116$  minutes) compared to stomach ( $279 \pm 81$  minutes;  $p<0.001$ ). There was a trend of longer survival with stomach (7.10 years in stomach vs. 2.13 years in colon), but this did not reach significance ( $p=0.098$ ; Figure 1). When stratified by conduit and indication, survival varied significantly ( $p<0.001$ ; Figure 2).

Both colon and stomach reconstructions had similar surgical outcomes despite longer operative times in patients receiving a colon interposition. Long-term survival appears worse for colon interpositions, but comparison may be limited by very small numbers in this group. These findings support the use of colon interposition when a gastric pull-up is precluded in patients undergoing esophagectomy.

Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 32

## **Distensibility Index after Toupet Fundoplication is Associated with Long-Term Durability of Repair**

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The endoluminal functional lumen imaging probe (EndoFLIP) provides objective data during foregut surgery. It is unknown whether the values obtained during surgery are associated with long-term clinical outcomes.

We performed a retrospective cohort analysis of patients who underwent Toupet fundoplication with or without hiatal hernia repair from 2017-2022 at a single institution. The distensibility index (DI) was recorded with 30 cc in the catheter after fundoplication. We created three groups (Group 1 with DI <1.5, Group 2 with DI 1.5-2.0, and Group 3 with DI > 2.0). We analyzed the rates of dysphagia and reflux one year after surgery among the groups.

A total of 393 patients (median age, 67 years) were predominantly female (69%, n=273) and mostly white (85%, n=336). At 5 weeks, there was a significant improvement in GERD, dysphagia, and bloating without significant differences among the groups. However, at 1 year, dysphagia was significantly higher in Group 1 (8.7%, n=13/150) than in Group 3 (2.7%, n=4/146, p=0.04, Figure 1A). Patients in group 2 had no reflux recurrence (0%, n=0/99), which was significantly better than that in group 3 (8.9%, n=13/146, p=0.001, Figure 1B).

Patients with a distensibility index of 1.5-2.0 had significantly less reflux recurrence compared to group 3, without a significant difference in dysphagia. EndoFLIP provides objective data during surgery that may predict long-term outcomes regarding the durability of repair.

Topic: Esophagus benign - gerd, achalasia, motility

Abstract ID: 33

## HIGH-RESOLUTION MANOMETRY CHANGES AFTER TOUPET FUNDOPLICATION

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Laparoscopic Toupet fundoplication is a well-established surgical procedure intended to treat gastro-esophageal reflux disease (GERD) and hiatal hernia by creating a partial gastric wrap around the lower esophageal sphincter (LES). High resolution manometry (HRM) is gaining popularity in the evaluation of patients with suspected GERD and after anti-reflux surgery to assess esophago-gastric junction (EGJ) competency. The aim of this study is to investigate the changes in HRM parameters in a cohort of patients who underwent Toupet fundoplication.

Patients who underwent Toupet fundoplication and postoperative HRM between 2018 and 2022 were included in the study. Pre-operative HRM data were also collected. Symptoms evaluation was performed pre- and post-operatively by means of GERD Health-Related Quality of Life (GERD-HRQL), GERD-Q and reflux symptom index (RSI) questionnaires. The key HRM parameters evaluated included LES length, hiatal hernia size and EGJ-contraction integral (EGJ-CI). Demographic, clinical and manometric data were analyzed using Wilcoxon signed rank test and McNemar's test.

Sixty-five patients (58.5% women, median BMI 25.9 kg/m<sup>2</sup>, median age 60 years) met the criteria and were included in the study. Postoperative HRM and symptoms' evaluation was performed with a mean follow-up time of 27.8 months from surgery. HRM data analysis showed a reduction of hiatal hernia size (1.0 vs. 0.0 cm, p=0.002), an increase of the intrabdominal LES length (0.0 vs. 1.1 cm, p=0.044) and an improvement in the EGJ-CI (40.8 vs. 50.9 mmHg\*cm, p=0.012). Reflux symptoms significantly improved postoperatively, as shown by GERD-HRQL (17 vs 6, p=0.010), GERDQ-A (7 vs. 3.5 p=0.028), GERDQ-B (3 vs. 0, p=0.027) and RSI (7.5 vs. 3.0, p=0.024).

The main HRM parameters responsible of EGJ competency are significantly improved after Toupet fundoplication, reflecting the restoration of an adequate anti-reflux barrier obtained with surgery. Moreover, Toupet fundoplication is effective in relieving GERD symptoms and optimizing quality of life.



Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 36

## **Pleurotomies During Minimally Invasive Anti-reflux and Hiatal Hernia Repair are Not Associated with Higher Rates of Complications**

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During minimally invasive hiatal dissection the pleura is in close proximity. Violation and manipulation is avoided by some due to concerns about complications, while others purposefully open it. The subsequent management may differ and associated post-operative complications are not well reported. We aim to evaluate and describe the association of pleurotomies with post-operative complications and their management.

We retrospectively reviewed 2268 cases of minimally invasive hiatal hernia repair (HHR) from 2003-20 for intra-operative pleurotomies and associated 30-day post-operative morbidity and mortality. Pleurotomies were identified through operative reports and anesthesia records. Complications were graded using the Clavien-Dindo (CD). Cases were propensity matched using age, BMI, esophagitis, ASA score, hernia size, urgency, re-dos, and the need for Collis in a 1:2 ratio.

Pleurotomies were opened widely and managed intraoperatively with changes in insufflation and/or anesthesia support. Additional imaging or interventions were not used unless indicated.

In total, 368 (16.2%) pleurotomies (PG) were identified and matched with 736 in the non-pleurotomy group (NPG). (Table 1)

Total complications were similar, with 73 (19.8%) in the PG vs 156 (21.2%) in the NPG ( $p=0.66$ ). CD1 and CD2 were the same. Of pleurotomy complications, there were 11 (3.0%) pleural effusions requiring thoracentesis in the PG compared to 9 (1.2%) in the NPG ( $p=0.05$ ). Pneumothoraces requiring intervention were 2 (0.5%) in the PG. There was one 3b complication in the PG in an asymptomatic patient with small pneumothorax who had a chest tube placed, complicated by a hemothorax requiring VATS control of bleeding. (Table 2)

Pleurotomies are a relatively common occurrence during hiatal dissection. Most often, these do not require invasive management, nor do they increase the rate of significant complications, including pulmonary related complications.

Topic: Esophagus neoplasia (Barrett's, Cancer)

Abstract ID: 39

## Pre-therapy Laparoscopic Jejunostomy Provides Safe, Reliable Nutrition for Trimodality GEJ Cancer Care

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Patients with locally advanced GEJ cancer may present with severe obstruction and irreversible malnutrition requiring intervention such as TPN, endoscopic stenting, or enteral access. Laparoscopic jejunostomy (LJ) is a reliable method of supplementing nutrition but is not widely used for fear of complications. At our institution we place LJ tubes preoperatively in such patients and aimed to evaluate their risk and effectiveness.

A retrospective review of patients undergoing neoadjuvant Chemo-radiation and laparoscopic transhiatal esophagectomy (LTHE) from 2013-2022 was performed. Nutritional markers, weight, and height were recorded at the time initial encounter and pre-LTHE. LJ associated complications were recorded from placement time to removal. Thirty-day complications after LTHE were recorded using Clavien-Dindo classification.

Of 165 patients who underwent THE, twenty patients (12.1%) had LJ placement prior to neoadjuvant therapy due to obstructive symptoms and a median [IQR] weight loss of 13.6 kg [9.07, 16.74] despite dietary modification. The average age (range) was 65.2 years (42-82) and 16 (80%) were male. LJs were placed a median [IQR] of 103.5 [93.3, 116.8] days prior to THE. Median [IQR] weight gain from LJ placement to THE was 2.09 kg [0.1, 5.03],  $p=.01$ . There were no major complications and 3 (15%) minor complications: 2 with leaking around the LJ requiring local wound care and one broken cap requiring a clinic repair. There were no unplanned feeding interruptions greater than 48 hours or disruptions in neoadjuvant treatment. There was one (5%) 30-day complication after THE, a reoperation for loculated pleural effusion, there were no mortality. The median [IQR] hospital stay was 7 days [6.5, 9].

Jejunostomy feeding tube prior to neoadjuvant treatment consistently reverses weight loss with minor, manageable complications. Reliable nutrition is associated with excellent results from LTHE.

Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 40

## The Influence of Psycho-Emotional Health on Type of Laparoscopic Anti-Reflux Surgery and Quality of Life in GERD Patients

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Poor psycho-emotional health has long been linked to compromised surgical outcomes, especially in anti-reflux literature. We recently reported that decreased psycho-emotional health did not negatively impact the improvement in GERD-specific patient-reported outcome measures (PROMs) following laparoscopic anti-reflux surgery (LARS). Psycho-emotional health is measured by utilizing the Northwestern University Esophageal Hypervigilance and Anxiety Scale (EHAS). In this study, we sought to assess whether the type of LARS performed - partial fundoplication, complete fundoplication, or magnetic sphincter augmentation (MSA) - affects the degree of improvement in GERD symptoms through these same measures.

We performed a retrospective cohort study of 108 adult patients with objective evidence of GERD who underwent either MSA (n = 14), complete fundoplication (n = 34), or partial fundoplication (n = 60). All patients completed the Gastroesophageal Reflux Disease-Health Related Quality of Life (GERD-HRQL), Laryngopharyngeal Reflux Symptom Index (LPR-RSI), and EHAS surveys during the perioperative period. We then compared the degree of improvement of each of these scores against the type of LARS performed.

There was a statistically significant improvement in the GERD-HRQL, LPR-RSI, and EHAS for all types of LARS performed (Graph 1,  $p < 0.001$ ). On linear regression analysis, for patients with a higher baseline EHAS score, partial fundoplication was independently associated with greater improvements in GERD-HRQL ( $p = 0.01$ ) and LPR-RSI ( $p = 0.018$ ). The association was not observed for MSA and complete fundoplication.

Consistent with our previous findings, this study suggests that patients with greater anxiety about GERD benefit more from LARS. Additionally, this study demonstrates that patients with objective evidence of GERD and a higher baseline EHAS score may benefit more from a partial fundoplication with a greater degree of improvement in their symptom severity scores.

Topic: Esophagus neoplasia (Barrett's, Cancer)

Abstract ID: 41

## Prevalence and Demographics of Non-Goblet Cell Intestinal Metaplasia of the Esophagus

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The incidence of Esophageal Adenocarcinoma (EAC) has increased in recent years, with the premalignant condition Barrett's Esophagus the greatest risk factor for EAC [1,2]. Barrett's Esophagus (BE) is the presence of metaplastic esophageal columnar epithelium with goblet cells on pathology [3]. There have been few studies reporting Non-Goblet Cell Intestinal Metaplasia (NGCIM) that progresses to BE, dysplasia, and EAC. However, these do not describe this progression in detail. In one study, only 30 subjects were found to have NGCIM [2]. We've identified a large number of NGCIM noted on esophagoduodenoscopy (EGD) discordant from negative Seattle Protocol forcep biopsies. This study is to evaluate and describe the demographics of patients with NGCIM at a single center institution.

Data from EGD and WATS biopsy over 2 years from a single institution and provider were reviewed.

Of the 70 patients who underwent EGD with WATS biopsy, 19 (27.1%) demonstrated NGCIM with <20% CDx-2 positivity (an early biomarker of transformation to BE). 8.6% demonstrated <20% MUC2 positivity (a late biomarker of progression to BE), and 21.7% demonstrated p53 positivity. Of those with NGCIM, the average age was 48.9 years old (range 18-80 years old), with 39.1% male and 60.8% female. 91.3% identified as Caucasian. 73.9% of patients were taking a PPI prior to evaluation. The average distance to the GEJ was 37.9 cm, with 100% noted to have an irregular z-line. 47.8% were noted to have a COMO Prague Classification, and 73.9% had an associated hiatal hernia. Of those that underwent Bravo pH evaluation, the average DeMeester score was 31.

This retrospective evaluation demonstrates a relatively high rate of NGCIM in middle-aged Caucasian individuals pursuing work up for GERD. This study highlights the importance of continued study of this finding to identify a potentially early step in the progression to BE, and ultimately EAC.

Topic: Esophagus benign - gerd, achalasia, motility

Abstract ID: 42

## Short Term Outcomes for Patients Undergoing Roux-en-Y Gastric Bypass as Salvage Therapy for End-Stage Reflux disease with Preservation of Fundoplication

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The mainstay surgical treatment for patients with refractory gastroesophageal reflux disease (GERD) is a laparoscopic hiatal hernia repair with fundoplication. In patients that have failed multiple fundoplications, Roux-en-Y gastric bypass (RNYGB) has been used for salvage therapy. It is common for prior fundoplications to be taken down during this salvage operation which adds both complexity and possible morbidity to the operation. Literature is sparse on safety and efficacy of a RNYGB without taking down the prior fundoplication. This study aimed to assess the short-term outcomes after RNYGB with preservation of prior fundoplication in salvage therapy for end-stage GERD.

We performed a retrospective cohort study of 9 adult patients who underwent minimally invasive salvage RNYGB with preservation of the fundoplication between September 2021 and January 2023. Outcome measures included length of stay (LOS), postoperative complications, 30-day mortality, and patient reported outcomes measures (PROMs) such as the Gastroesophageal Reflux Disease-Health Related Quality of Life (GERD-HRQL) and Laryngopharyngeal Reflux Symptom Index (LPR-RSI) which were completed in the perioperative period.

In this study, the majority of patients were male (55.5%) and had 2 prior fundoplications (44%). The median age was 64 and median preoperative BMI 27.2. The average LOS was 4 +/- 1.1 days and 30-day mortality was zero. There were no anastomotic leaks, no gastric ischemia, no conversion to open procedure, and no need for reoperation. A smaller subset of patients (n=4) provided PROMs, which showed significant reductions in symptom scores - GERD-HRQL 84.8% reduction and LPR-RSI 55.5% reduction.

According to our experience, preservation of a previous fundoplication during a salvage RNYGB for refractory GERD appears to be safe. No major complications or mortalities were reported among the participants. However, further studies are needed to collect more data, which can be used in a meta-analysis.

Topic: Education/training  
Abstract ID: 43

## INDICATIONS FOR ENDOSCOPY AND LIKELIHOOD OF CELIAC DISEASE ON BIOPSY, A COUNTY HOSPITAL EXPERIENCE

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Duodenal biopsies are routinely obtained during EGD to rule out GI diseases that might not be obvious grossly. Celiac disease (CD) is an immune-mediated enteropathy that is precipitated by gluten exposure. Do specific indications for EGD have a greater likelihood of resulting in positive biopsies for CD when EGD appears grossly normal?

We retrospectively reviewed county hospital patients who underwent EGD with duodenal biopsies, from 2018 to 2021 and documented age, sex, EGD indication/gross findings/pathology reports, lab work, BMI. Our duodenal biopsy findings were categorized as normal, increased intraepithelial lymphocytes, peptic duodenitis, foveolar metaplasia or other.

339 patients (M = 110, F = 229) were included who underwent EGD with duodenal biopsy. Of these, 296 (87.3%) had “normal” duodenal gross EGD findings, 9 (2.7%) showed inflammation (erythema, bleeding), and 34 (10%) had other (mass, polyp). 260 (76.7%) had normal duodenal pathology. Positive biopsy findings for CD, categorized as increased “intraepithelial lymphocytes”, was seen in 36 (10.6%) patients. Patients with IDA as an indication for EGD had a significantly greater percentage of positive biopsy results than those who were referred for another reason (30.2% vs 7.8%,  $p < .001$ ). IDA referrals were 5 times more likely to have positive biopsies vs. other referrals (OR = 5.14, 95% CI = 2.36 – 11.19). Other indications for EGD included anemia, bariatric surgery, pain, post sleeve gastrectomy, vomiting/diarrhea, dysphagia, or other. No demographic or clinical characteristics were significantly associated with biopsy results.

We conclude that patients referred for EGD with IDA are more likely to have positive duodenal biopsies concerning for CD. Although biopsies are a part of the work up for CD, studies have shown that IDA patients are likely to have worse disease with slower recovery times. Awaiting duodenal biopsies should not delay therapeutic recommendations if CD is suspected in IDA patients.

Topic: International  
Abstract ID: 47

## **Cryotherapy Versus Radiofrequency Ablation in the Treatment of Dysplastic Barrett's Esophagus With or Without Early Esophageal Neoplasia: A Systematic Review and Meta-Analysis**

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Radiofrequency ablation (RFA) is considered first-line therapy for treatment of dysplastic Barrett's esophagus (BE). Cryotherapy has emerged as an alternative technique with promising results. The aim of this study is to compare the efficacy of these two techniques by the rate of complete eradication of intestinal metaplasia (CE-IM) and dysplasia (CE-D) in patients with low-grade dysplasia (LGD), high-grade dysplasia (HGD), or intramucosal adenocarcinoma (IMC). Adverse events and recurrence are also reported.

An electronic search was conducted in MEDLINE, Embase, LILACS and Google Scholar until December 2022. Studies comparing cryotherapy versus RFA in the treatment of adult patients with dysplastic BE with or without BMI were included. A systematic review and meta-analysis was conducted following the Preferred Report Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Risk of bias was assessed using the ROBINS-I tool and, for quality of evidence, the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) criteria. Review Manager version 5.4 software was applied for statistical analyses. The primary outcomes were CE-IM and CE-D. Secondary outcomes were adverse events and recurrence.

Three retrospective cohort studies were included with a total of 627 patients. Of these, 399 patients underwent RFA and 228 were treated with cryotherapy. There was a predominance of males, overweight/obesity, with a mean age of over 60 years and a mean maximal BE length greater than 3 cm in both groups of all studies. There was no difference in CE-IM (RD, -0.03; 95% CI [-0.25, 0.19];  $p=0.78$ ;  $I^2 = 86\%$ ) as well as in CE-D (RD, -0.03; 95% CI [-0.15, 0.09];  $p=0.64$ ;  $I^2 = 70\%$ ) between the groups. The absolute number of adverse events was low and no difference in the recurrence rate has been evidenced.

Cryotherapy and RFA are equally effective for treating dysplastic BE with or without Early Esophageal Neoplasia.

Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 50

## Esophageal Functional Testing in Lung Transplant Recipients with Esophagogastric Junction Outflow Disorders

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Significant changes in manometric diagnoses after lung transplantation (LT) have been reported. We sought to describe post-LT changes in recipients with esophagogastric junction outflow obstruction on pre-LT manometry.

After IRB approval, we conducted a retrospective study of LT recipients with a preoperative median integrated relaxation pressure (IRP)  $\geq 15$  mmHg who underwent LT between January 2019 and August 2022. Routine pre- and post-LT esophageal function tests (EFTs) were analyzed, including 24-hour pH monitoring, high-resolution manometry, barium esophagram, and upper GI endoscopy. Fisher's exact test and paired t-test were used for analyses.

During the study period, 352 LTs were performed; 44 (12.5%) patients had a pre-LT IRP  $\geq 15$  mmHg, and 37 (84%) completed post-LT EFTs and formed the study cohort. Most patients (24/37 [63%]) were men, the median age was  $65.2 \pm 9.1$  years, and the median BMI was  $26.5 \pm 4.9$  kg/m<sup>2</sup>. The pre-LT manometric diagnosis was EGJOO in 35 (94.6%) patients and type I/III achalasia in 2 (5.4%). After LT, the median IRP significantly declined ( $18.7 \pm 3.8$  vs.  $12.3 \pm 5.6$ ,  $p < .001$ ); 24 (64.9%) patients had an IRP  $\leq 15$  mmHg; peristaltic vigor significantly increased (mean DCI,  $2310.4 \pm 2357.6$  vs.  $3667.9 \pm 3256.1$  mmHg·s·cm,  $p < .001$ ); the proportion of normal contractions significantly increased (71% vs. 85%,  $p < .001$ ); self-reported heartburn severity was significantly lower ( $1 \pm 1.1$  vs.  $0.5 \pm 0.7$ ,  $p = .009$ ); and the number of proximal episodes and acid exposure time trended lower. The patient with type I achalasia went from an aperistalsis pattern to 100% weak contractions and a normal IRP (conclusive ineffective esophageal motility). In the patient with type III achalasia, the DCI increased, and the number of premature swallows decreased from 100% to 20%, changing his manometric diagnosis to EGJOO with spastic features.

In LT candidates with esophagogastric outflow impairment, IRP will likely normalize and peristaltic vigor, esophageal acid exposure, heartburn, and chest pain severity will likely improve after LT.



Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 51

## Frequency and Severity of Abdominal Bloating in Patients Referred to a Specialized Foregut Surgery Clinic

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Abdominal bloating (AB) is a common undesirable sequela that affects the quality of life (QoL) of patients after antireflux surgery (ARS). We sought to understand the prevalence and severity of AB in a cohort of patients presenting to a specialized foregut surgery clinic.

We conducted a retrospective descriptive study including consecutive new patients referred to a specialized foregut surgery clinic for gastroesophageal reflux disease (GERD) or hiatal hernia (HH) who voluntarily answered three validated instruments used in clinical practice for GERD-related QoL and AB assessment (GERD-HRQL, IBS-SSS, and Birmingham questionnaire [BQ]). Data on demographics, comorbidities, surgical history, and radiological and endoscopic findings were extracted and analyzed.

A total of 37 patients fully completed the questionnaires; 10 were excluded for presenting conditions other than GERD or HH (e.g., obstructive dysphagia, neoplasia) and 7 were excluded for a prior history of ARS. Most patients were female (12/20 [60%]), the mean age was  $55.4 \pm 13.9$  years, the mean BMI was  $29.4 \pm 6.6$  kg/m<sup>2</sup>, and 15 of 18 (83.3%) had HH (mean size,  $1.6 \pm 2.6$  cm). We identified patient-reported AB in 18 of 20 patients (90%) and dissatisfaction in 15 of 20 (75%). Among the cohort, the mean total GERD-HRQL, IBS-SSS, and BQ scores were  $28.4 \pm 21.8$  [range: 0-75],  $176 \pm 120.9$  [range: 0-500], and  $80.2 \pm 54.2$  [range: 0-300], respectively. AB severity was significantly higher in women than in men (mean BQ score:  $97.8 \pm 57.4$  vs.  $53.8 \pm 38.2$ ,  $p = .037$ ), and pain was the most relevant component followed by constipation according to the BQ.

Pre-existing AB was reported by almost all patients presenting with GERD or HH; thus, AB may not necessarily result from ARS. Adequate patient counseling taking AB into account seems to be critical before surgery. Our next step is to compare AB severity and characteristics before and after ARS using the validated instruments in a larger sample.

Topic: Esophagus neoplasia (Barrett's, Cancer)

Abstract ID: 53

**LONG-TERM OUTCOMES OF NITROUS OXIDE CRYOBALLOON ABLATION AFTER ATTEMPTED CURATIVE ENDOSCOPIC RESECTION OF BARRETT'S ESOPHAGUS-ASSOCIATED EARLY ADENOCARCINOMA**

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Cryoballoon ablation (CBA) is an effective therapy for Barrett's esophagus (BE). For patients with BE-associated intramucosal adenocarcinoma (ImCA), there are limited data regarding its efficacy for complete eradication after endoscopic mucosal resection (EMR).

Data from the BE database for patients with ImCA who were treated with CBA as primary or rescue therapy after EMR at a single academic center between July 2014 to September 2022. We excluded patients with advanced esophageal cancer treated with chemoradiation and local recurrence. CBA was performed using a cryogen dose of 10-12 seconds. The primary outcome was complete eradication of cancer (CE-CA) at 1, 3, and 5 years. Secondary outcomes included recurrence rate, adverse events, and disease-specific survival.

41 patients with ImCA treated with CBA. 16 patients had CBA after radio frequency ablation, argon plasma coagulation or CO<sub>2</sub> cryotherapy. Median pre-CBA Prague C and M were 3.2 cm (IQR 0-5) and 5.0 cm (IQR 1-6), respectively. 37 (90%) patients achieved CE-CA and 30 (73%) achieved CE-IM by 1 year (Fig 1). CE-CA rate was 100% at 5 years. 9 (100%) patients with margin-negative EMR achieved CE-CA by 1 year. 23 (88%) of patients with EMR with lateral or deep margins achieved CE-CA by 1 year after a median of 3 (IQR 2) CBA sessions. Recurrence rate was 9.8% (3 nondysplastic BE, 1 BE HGD). There were no cases of recurrent ImCA. 2 patients developed buried BE HGD after CBA, both treated with EMR. There were no serious adverse events associated with CBA. 2 patients underwent surgery; one opted for surgery after initial CBA, the other had surgery after EMR failed due to non-lifting. BECA-related mortality was zero; 2 (5%) patients died of unrelated causes. Median disease-free survival was 3.5 years (IQR 2.5).

In patients with ImCA treated with EMR, CBA was safe and effective for cancer and eradication up to 5 years from initial treatment.

Topic: Endoscopic Foregut Surgery (including Endobariatrics)  
Abstract ID: 54

**Objective Hiatal Hernia Recurrence after Cruroplasty with or without Mesh Reinforcement: Systematic Literature Review and Meta-Analysis**

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Improved outcomes with the use of non-absorbable mesh (NAM) reported in inguinal hernia repairs led to rapid adoption for hiatal hernia (HH) repairs; however, disastrous complications were reported and the trend shifted to using absorbable mesh (AM). We aimed to analyze the literature assessing objective HH recurrence after primary laparoscopic cruroplasty with and without use of different mesh types.

A systematic literature review of articles published between January 1993 and September 2022 was performed using the MEDLINE, EMBASE, and Taylor & Francis databases to identify relevant studies comparing groups undergoing cruroplasty with suture repair (SR) alone, AM, NAM, or partially absorbable mesh (PAM). Studies documenting an objective follow-up  $\geq 6$  months were included. The primary outcome was the HH recurrence rate confirmed by barium esophagram or upper GI endoscopy.

A total of 34 studies met the inclusion criteria, including 6 randomized clinical trials, 25 retrospective studies, and 3 prospective cohort studies. A total of 2170 subjects underwent laparoscopic HH repair and completed an objective follow-up  $\geq 6$  months after surgery; the objective recurrence rate was 20.8% (99/477) at a mean follow-up of  $25.8 \pm 16.4$  months for the SR group, 20.6% (244/1187) at  $28.1 \pm 13.8$  months for the AM group, 13.7% (65/475) at  $30.8 \pm 15.3$  months for the NAM group, and 0% (0/31) at  $32.5 \pm 13.5$  months for the PAM group. The meta-analysis only showed significant differences in favor of NAM use (RD -0.09, CI [-0.15, -0.02],  $I^2$  74%,  $p = 0.01$ ).

Data support the use of NAM to decrease objective HH recurrence in the mid-term; however, the current trend in practice using AM does not seem to reduce the recurrence compared to SR. The information regarding PAM is still limited; further studies with larger sample sizes and longer objective follow-up durations are required.

Topic: International  
Abstract ID: 55

**FLEXIBLE ENDOSCOPIC APPROACH VERSUS NON-FLEXIBLE ENDOSCOPY FOR THE MANAGEMENT OF ZENKER'S DIVERTICULUM: A SYSTEMATIC REVIEW AND META-ANALYSIS.**

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Zenker's Diverticulum (ZD) treatment options range from endoscopic rigid or flexible procedures to open surgical interventions. There are limited studies available comparing these techniques. Frequently, the choice of treatment depends on the specialist's personal preference or experience, as well as the institution's resources and capacity. Therefore, this study aims to define the best approach for ZD treatment based on the highest efficacy and the lowest severe adverse events (SAE).

A comprehensive research was done using electronic medical databases (MEDLINE, Embase, ClinicalTrials.gov, LILACS, Cochrane Database) and Google Scholar. A systematic review and meta-analysis were performed according to PRISMA guidelines. Only comparative studies were included, either analyzing flexible endoscopy (FE) versus rigid endoscopy (RE) or surgical approach. Clinical and technical success, SAE, length of stay (LOS), and duration of the procedure were evaluated. The risk of bias was analyzed using the ROBINS-I tool, and the quality of evidence was assessed by the Grading of Recommendations Assessment, Development, and Evaluation criteria (GRADE). Analysis of data was performed using Review Manager 5.4.1.

Eight retrospective cohort studies met the inclusion criteria. A total of 1281 patients were identified, 492 underwent FE procedures, 453 were submitted to RE and 336 underwent open surgery. Meta-analysis showed no difference in clinical success or severe adverse events comparing FE versus RE or surgery. The current analysis shows that there is no significant difference on perforation rate between FE or RE, risk difference (RD) 0.07, 95% confidence interval, CI [-0.04, 0.19]. There was lower length of stay (LOS) with FE compared to RE or surgery, mean difference (MD) -1.98, 95% CI [-3.56, -0.40].

Flexible endoscopic approaches are as effective as rigid endoscopy or surgery for treatment of ZD. However, FE offers an advantage of lower LOS versus the other techniques.

Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 58

## Does the AFS endoscopic classification of esophago-gastric junction integrity predict esophago-gastric junction disruption and acid reflux?

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Gastroesophageal reflux disease (GERD) is usually associated with anatomical disruption of the esophagogastric junction (EGJ). The endoscopic Hill classification is commonly used to assess EGJ integrity, however, its clinical significance is limited by lack of standardization and unclear distinction between grades. Recently, the American Foregut Society (AFS) developed a classification system focused on hiatal hernia (L), opening of the hiatus (D), and the flap valve (F). While pH-monitoring remains the gold standard for diagnosing GERD, high-resolution manometry (HRM) can assess EGJ anatomy and competency by means of the EGJ type, the EGJ-contractile integral (EGJ-CI), and the straight leg raise maneuver (SLR). Aim of this study is to validate the AFS classification in patients with suspected GERD and to assess its accuracy in predicting EGJ disruption and pathologic reflux.

We prospectively enrolled patients with suspected GERD who underwent upper-GI endoscopy and HRM from November 2022 to March 2023. A subset of patients underwent also pH-study. Demographic and clinical data were analyzed. The efficacy of the AFS classification in predicting GERD (acid exposure time, AET > 6%) was assessed. Each component of the classification was compared with the corresponding HRM variable.

Among 44 patients (50% men, median BMI 23.6 kg/m<sup>2</sup>, median age 48 years), AFS Grade I was found in 3 patients, Grade II in 12, Grade III in 16 and Grade IV in 13. With regard to the specific components, the L effectively predicted the EGJ type (p=0.011), the D the EGJ-CI (0.026), while the absence of the flap valve the positive SLR (p=0.020). An AET > 6% was found in 11/28 patients (39%), and in 0% of patients with AFS Grade I, 16.7% Grade II, 30.8% Grade III and 85.7% Grade IV (p=0.026).

The single components of the AFS classification are associated with manometric markers of EGJ disruption. Moreover, the new grading system can predict GERD.

Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 59

## Removal of the LINX device: a 15-year single-center experience

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The magnetic sphincter augmentation (MSA) procedure is a safe and effective long-term treatment for gastroesophageal reflux disease. Although the reported removal rate of the Linx device is low, it could be underestimated and remains a source of controversy.

This is a retrospective study on a prospectively collected database of patients who underwent MSA implantation from March 2007 to September 2021 in a single tertiary-care referral center. The trend of MSA explant over the years and the possible predictive factors for MSA removal were investigated. The reasons for MSA removal, the technique of explant, and the clinical outcomes of the revisional operation were reviewed.

Out of 355 consecutive patients, 44 (12.4%) underwent MSA removal, with a median time to explant of 39.5 [IQR=53.7] months. The 12- and 13-bead devices were the ones most frequently explanted (61.4%). Main symptoms leading to removal were dysphagia (43.2%), heartburn (25%), and epigastric pain (13.6%). Endoluminal erosion occurred in 9 patients (2.5%). All reoperations were performed laparoscopically; only one patient required endoscopic removal of a few eroded beads at 36 weeks of gestation, followed by laparoscopy after childbirth. There was no perioperative morbidity. Median length of stay was 2.8±1.4 days. After 2014, the incidence of explant decreased from 23% to 5% ( $p<0.0001$ ), and the erosion rate was 0%. At univariate analysis, factors protecting from the explant were repeat sizing plus visual cues [HR 0.47 (95%CI=0.23-0.97); $p=0.04$ ], addition of 2-3 bead units [HR 0.30 (95%CI=0.12-0.72); $p=0.005$ ], and formal mediastinal dissection [HR 0.89 (95%CI=0.32-2.48)  $p=0.003$ ]. Multivariate analysis confirmed the protective role of added bead units [HR 0.06 (95%CI=0.001-0.220); $p<0.000$ ] and the negative prognostic role of hiatal hernia at the time of diagnosis [HR 18.11 (95%CI=8.80-37.26);  $p<0.000$ ].

Sizing strategy and complete hiatal dissection improved the outcomes of the MSA procedure and reduced removal rates over the years.

Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 60

## Four-Way Comparative Outcomes of Magnetic Sphincter Augmentation and Fundoplication in Revisional Surgery

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Comparative outcomes of laparoscopic revisional surgery since the introduction of Magnetic Sphincter Augmentation (MSA) have not been clearly delineated, whether MSA was the previous and/or the revisional surgery. We compared safety and clinical outcomes of four categories: fundoplication revised to fundoplication (F-F); fundoplication revised to MSA (F-M), MSA revised to fundoplication (M-F) and MSA revised to MSA (M-M). Other categories were excluded.

Analysis of prospective data from 10 U.S. sites participating in the Registry of Outcomes of Anti-Reflux Surgery (ROARS). Patients had undergone at least one prior procedure on the esophagogastric junction with subsequent failure and need for revisional surgery.

Between 2/1/2005 and 1/19/23 645 patients underwent 722 revisional surgeries at 10 sites; 70% from outside hospitals. Numbers and Indications for revision by type are provided in Figure 1.

Revision indications are in Table 1. The 30-day reported complication rate following revision of a fundoplication (F-F or F-M) was 39/636 (6.1%); for an MSA (M-F or M-M) 3/86 (3.4%). Of the 722 reoperations, 77 (9.4%) required a subsequent operation during mean follow-up of 2.7 years, did not vary between types and were considered Failures, Figure 1.

284 patients were followed with patient-reported quality of life assessments at a mean of 852 days. As some patients were operated on for recurrent hernia without GERD symptoms, analysis was limited to patients with a baseline GERD-HRQL score  $\geq 15$ . Median GERD-HRQL improved from a median of 28 at baseline to 6.5 at Most Recent Visit (MRV) without significant difference between categories, Table 2

Results for the four categories of revisional surgery were assessed by complications, rate of post-revision surgery and by improvement in HRQL. Whether fundoplication or MSA was the preceding or revisional procedure results did not differ significantly in regard to safety, need for reoperation, or improvement in quality of life.

Topic: Esophagus neoplasia (Barrett's, Cancer)

Abstract ID: 61

## **A Tissue Systems Pathology Test Enables Risk-Aligned Management of Patients with Non-Dysplastic Barrett's Esophagus: Case Reports from a Gastrointestinal Surgery Center**

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Guidelines recommend endoscopic surveillance of Barrett's esophagus (BE) with biopsies to detect and treat malignant progression early. However, current practices have limited ability to detect patients who are at high risk for progression. A tissue systems pathology test (TissueCypher, TSP-9) is clinically available and has been validated to predict progression to high-grade dysplasia (HGD)/esophageal adenocarcinoma (EAC) within 5 years for BE patients. We aimed to evaluate the impact of the TSP-9 test in guiding risk-aligned care for BE patients in a minimally invasive gastrointestinal surgery center.

TSP-9 results for 3 BE patients with clinicopathologic data were evaluated. The TSP-9 test was ordered to provide individualized risk assessment to assist with shared decision-making by physicians and the patients regarding management of BE.

A 69-year-old male with Prague classification C3M4, no hiatal hernia, and non-dysplastic BE (NDBE) received a TSP-9 result of high-risk with 14% (95% confidence interval (C.I.) 13-15%) probability of progression to HGD/EAC. The patient had undergone neoadjuvant and radiation therapies for EAC but declined surgery 5 years earlier and was in surveillance (Figure 1A). The TSP-9 high-risk result guided upstaging of care to radiofrequency ablation (RFA), which was covered by Medicare. An 81-year-old male with C4M6 NDBE and 6 cm hiatal hernia received a TSP-9 result of intermediate-risk with 7% (95% C.I. 5-9%) probability of progression to HGD/EAC, which guided upstaging to RFA and anti-reflux surgery (Figure 1B). A 71-year-old male with COM2 NDBE and small hiatal hernia received an intermediate risk TSP-9 result with 6% (95% C.I. 4-7%) probability of progression, which guided care to RFA and anti-reflux surgery (Figure 1C).

The TSP-9 test results demonstrated significant clinical utility in NDBE patients by guiding risk-aligned upstaging of care to ablation and/or anti-reflux surgery, which have both been associated with improved health outcomes in BE patients.



Topic: Esophagus benign - gerd, achalasia, motility

Abstract ID: 63

## **The Use of Coated Poly-4-hydroxybutyrate (Phasix™ ST) Mesh in Hiatal Hernia Repair: Our Institutional Experience and Review of the Literature**

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### United States

Poly-4-hydroxybutyrate (Phasix™ ST) is a bioabsorbable mesh with a non-adhesive coating on one side that is being used to reinforce the hiatus during hiatal hernia repair; however, there is limited data regarding its use. The aim of this study was to investigate outcomes after hiatal hernia repair using this mesh at our institution and through a systematic review and meta-analysis.

An institutional review board approved retrospective review was conducted for all patients undergoing hiatal hernia repair from April 2018 to December 2022. A systematic review with meta-analysis was conducted to evaluate outcomes using Phasix™ ST to obtain the pooled incidence rate of hernia recurrence.

In our institutional cohort, there were 230 patients (59 males; 171 females) with a mean follow up time of 20 months. No erosions were detected and hernia recurrence was diagnosed in 18 patients (7.8%). In our systematic review, 4 studies with 221 patients (76 males; 145 females) were identified. The median follow-up ranged from 12-27 months. Recurrence rate in these studies was reported from 0% to 8.8%, with a total of 12 recurrences identified. Like our institutional cohort, no mesh related complications were reported. After our recurrences were combined with those from the systematic review, a total of 30 recurrences were included in the meta-analysis. Our meta-analysis revealed a low recurrence rate following hiatal hernia repair with Phasix™ ST mesh (incidence rate per 100 person-years, 3.49; 95% confidence interval, 1.92, 5.06).

Our study shows the safety and efficacy of using Phasix™ ST mesh in hiatal hernia repairs with no complications and a 7.8% recurrence rate at a mean follow up of 20 months. Furthermore, a systematic review and meta-analysis reinforced this finding with similar recurrence rates and follow up with no mesh related complications reported.

Topic: Esophagus benign - gerd, achalasia, motility

Abstract ID: 64

## Predictive Factors for Magnetic Sphincter Augmentation Device Explantation

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Magnetic sphincter augmentation (MSA) explantation occurs in 1% to 6% of patients. Since this is a relatively uncommon event, studies characterizing preoperative predictors for explantation are limited. The aim of this study was to evaluate patients who underwent MSA explantation to determine which factors are predictive of explantation.

An institutional review board approved prospectively maintained registry was retrospectively reviewed for patients undergoing anti-reflux surgery between February 2015 and September 2022. All patients who underwent MSA related procedures were included. Patients were divided into two groups, called explant group and non-explant group, and differences were analyzed and compared.

A total of 206 patients (24 explant; 182 non-explant) met criteria for the study. In the explant group, reasons for explantation were dysphagia (n=14), persistent reflux (n=4), migration or hiatal hernia recurrence leading to recurrent reflux symptoms (n=3), dysphagia and reflux (n=2), and erosion (n=1). Baseline preoperative characteristics were similar between the groups. Preoperative Gastroesophageal Reflux Disease Health-Related Quality of Life (GERD-HRQL) scores (48 vs 37, p=0.071) were higher in the explant group and trended towards association. The mean postoperative DeMeester score (44.8 vs 7.4, p=0.021) and incidence of postoperative EGD with dilation (63.6% vs 15.4%, p<0.001) was significantly higher in patients who required device explantation when compared to those who did not. As preoperative GERD-HRQL scores increases, the probability of device explantation increases. Notably, the probability of device explantation sharply increased with a score of  $\geq 50$ .

Preoperative GERD-HRQL scores are a potential predictor for MSA device explantation. Higher postoperative DeMeester scores and EGD with dilations were risk factors associated with explantation.

Topic: Stomach  
Abstract ID: 65

## **Pyloroplasty and Gastric Electrical Stimulator Implantation: Enhanced Recovery for Gastroparesis with Robot-Assisted Versus Laparotomy Approach**

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Gastroparesis (GP) associated symptoms correlate with tremendous cost to the healthcare system, affecting 10 million individuals in USA. Recovery can be achieved in 50-60% with gastric electrical stimulation (GES). To accommodate, GES's minimal impact on gastric emptying, simultaneous pyloroplasty (PP) raises overall recovery to 70% in diabetic and idiopathic etiologies. The purpose of this study was to demonstrate how simultaneous GES+PP on a robot-assisted platform accelerates recovery compared with laparotomy-based techniques.

Postoperative recovery of robotic-assisted GES+PP was compared with the laparotomy approach between 2012 and 2022. Outcomes included duration of surgery, intra-/postoperative complications, and duration of hospitalization. Data analysis included frequency (%), and mean  $\pm$  SEM (compared using an independent t-test).

Forty-five had robotic-assisted surgery (RS) versus laparotomy in 13 subjects: women included 27 (60%) and 11 (85%), mean ages were 46.9 and 42.8, and 36 (80%) and 9 (69%) were of diabetic etiology, respectively. Due to RS set-up times, the duration of surgery was significantly shorter in the laparotomy ( $180.4 \pm 15.7$  min) vs. the RS ( $275.1 \pm 8.4$  min) group ( $p < 0.001$ ). Estimated blood loss in the RS tended to be lower than the laparotomy group ( $57.4 \pm 10.0$  vs  $77.7 \pm 19.8$  mL; not significant). Average hospital stay was statistically shorter in the RS ( $4.5 \pm 0.3$  days) vs. the laparotomy group ( $11.8 \pm 4.2$  days) ( $p < 0.05$ ). The time to initiate diet in the RS ( $1.3 \pm 0.2$  days) was significantly shorter than the laparotomy ( $3.2 \pm 1.1$  days) ( $P < 0.05$ ). I.V. narcotics were stopped earlier in the RS ( $2.8 \pm 0.3$  days) vs. the laparotomy ( $6.6 \pm 1.3$  days) group ( $p < 0.001$ ). No immediate intra/postoperative complication was observed in this study.

Enhanced recovery of gastroparesis can be effectively achieved by simultaneous pyloroplasty and gastric electrical stimulation on the robotic platform. Gastroparetic patients refractory to medical therapy can be excellent candidates for robotic-assisted GES+PP.

Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 66

**Laparoscopic Hiatal Hernia Repair with RefluxStop:  
Outcomes at 12-Months Follow-Up in 30 Patients with Ineffective Esophageal  
Motility**

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Laparoscopic hiatal hernia repair with RefluxStop is an innovative technique to treat patients with gastroesophageal reflux disease (GERD). While feasibility and safety of this technique have already been demonstrated, consistent 12-months follow-up data is lacking, particularly in patients with concomitant ineffective esophageal motility.

A retrospective chart review was performed of the first 30 patients with GERD and hiatal hernia, diagnosed with ineffective esophageal motility, who underwent hiatal hernia surgery with RefluxStop. Primary outcome was the clinical improvement of GERD related symptoms at 3 and 12 months after surgery. Secondary outcomes were need for dilatations, occurrence of implant-related complications and recurrence of hiatal hernia.

Between June 2020 and March 2023 there were 30 patients, with ineffective esophageal motility at baseline, that underwent laparoscopic hiatal hernia repair with RefluxStop and reached the 12-months follow-up period. All patients had typical symptoms of GERD, like heartburn and regurgitation, and 19 patients (63.3%) had preoperative dysphagia. Median hiatal hernia size was 4 cm (IQR, 3.25 – 5). Mean GERD-HRQL score (0-75 points) was  $39.8 \pm 15.4$  before surgery,  $4.8 \pm 7.3$  at 3 months, and  $5.5 \pm 7.8$  at 12 months ( $p < 0.001$ ) (Figure 1). Three patients (10%) required postoperatively balloon dilatation due to persistent dysphagia, and all could be successfully treated. One patient (3.3%) had a recurrence of hiatal hernia 5 months after surgery, due to intensive vomiting due to food poisoning, who required an urgent surgical revision without removal of the implant.

Despite concurrent ineffective esophageal motility with GERD, laparoscopic hiatal hernia repair with RefluxStop showed excellent outcomes at 3 and 12 months postoperatively, with all patients showing complete resolution or significant improvement of reflux symptoms.

Topic: Esophagus neoplasia (Barrett's, Cancer)

Abstract ID: 67

## Effect of Magnetic Sphincter Augmentation on Regression of Intestinal Metaplasia

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This study aims to evaluate the histological outcomes of magnetic sphincter augmentation (MSA) in patients with Barrett's disease. MSA has been demonstrated to be an effective treatment for GERD, but most studies have focused on acid exposure or quality of life outcomes and have not isolated patients with Barrett's disease.

127 patients who underwent MSA were selected from a prospective anti-reflux surgery database based on pre- or post-op identification of intestinal metaplasia (IM) on biopsy. Of these 127, 30 patients had both a pre- and post-op biopsy, and 39 had a pre- and post-op SCJ classification. Patients with a negative pre-op and positive post-op biopsy were included to ensure accurate reporting of undesirable outcomes.

Among the patients who underwent pre- and post-operative biopsies (n=30), 12 (40%) achieved complete resolution of IM ( $p < .05$ ). Three patients showed progression to IM from a negative pre-op biopsy, and 15 had no change. Of the patients with resolution of IM, 10 (83.3%) had ultra-short segment Barrett's, 1 (8.3%) had short segment Barrett's, and 1 had an unknown SCJ classification. The mean time elapsed since surgery at biopsy was 3.4 years. Among the 39 patients who had a pre- and post-op SCJ classification, no significant change in SCJ class was observed.

MSA produced resolution of intestinal metaplasia in a significant number of patients with ultra-short segment Barrett's. These findings suggest that magnetic sphincter augmentation surgery is a promising treatment for reversal of intestinal metaplasia, particularly in patients with ultra-short segment Barrett's.

Topic: International  
Abstract ID: 70

**Transverse mucosal incision for POEM: reducing procedure time and clip usage.**

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Per oral endoscopic myotomy (POEM) has become the treatment of choice in many specialized centers for the management of achalasia. The objective of this study is to evaluate and compare the optimization of the procedure by performing a transverse mucosotomy versus a longitudinal mucosotomy

A retrospective cohort study was conducted on patients who underwent POEM at our institution. Patients were divided into two groups based on the type of mucosotomy performed: transverse (Group 1) and longitudinal (Group 2). The study evaluated the time taken to complete the mucosotomy and enter the submucosal tunnel, the time to close the tunnel, and the number of clips used in each group. Results were compared using SPSS and Student's t-test

A total of 32 patients were analyzed, with 16 patients in each group. Group 1 had a significantly shorter time to enter the submucosal tunnel (mean time 180s, SD: 153s, R (90 - 640)) compared to Group 2 (mean time 360s, SD: 147s, R (120 - 600);  $p < 0.001$  (95)). Group 1 also had a significantly shorter time to close the submucosal tunnel (mean time 216s, SD: 93s, R (90 - 395)) compared to Group 2 (mean time 543s, SD: 114s, R (345 - 695);  $p < 0.001$  (95)). Additionally, Group 1 used significantly fewer clips for closure (mean clips used 3 clips, SD 0.65 clips, R (2 - 4)) compared to Group 2 (mean clips used 6 clips, SD 1.36 clips, R (4 - 8);  $p < 0.001$  (95)).

Based on the results, transverse mucosotomy in POEM may be more efficient than longitudinal mucosotomy. Transverse mucosotomy significantly reduced time to enter the submucosal tunnel, time for tunnel closure, and clips needed for closure. The limitation of this study is that patients were not randomized to either group. All patients were treated after the learning curve of 100 cases.

Topic: International  
Abstract ID: 71

## Impact of Surgical Learning Curve on Multimodal Management of Esophageal Cancer

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The objective of this study is to evaluate the efficacy of multimodal management for esophageal cancer in a high-volume medical center in Latin America. In addition, we analyze the impact of the surgical learning curve by examining the outcomes during three time periods.

We conducted a retrospective study of esophageal cancer patients in three time periods: 2014-2017, 2018-2020, and 2021-2022. Endpoints: resection type, complications (Clavien system), procedure morbidity/mortality, histological type, LOS, and R0 resectability. Median follow-up: 38 months (r:6-138). Fisher's exact test was used to analyze differences in complication rates between periods.

A total of 113 (53 in period 1, 42 in period 2, and 15 in period 3) patients received multimodal therapy for esophageal cancer, with 80% of the patients being men. Of these patients, 74.5% had adenocarcinoma, 19% had squamous cell carcinoma, and 6.3% had other diagnoses. Esophagectomy was performed in 71 cases with intrathoracic anastomosis (IL), while 38 cases underwent cervical anastomosis (McKeown). Hybrid techniques were used in 4 cases. R0 was achieved in 98.1%. The median LOS was 11 days (r:5-60). Complications of grade III occurred in 22% of patients, while grade IV complications occurred in 11.8% of patients. The distribution of complications across different periods of time was as follows: Anastomotic Leakage: 20% in first period, 13% in second, and 6% in third ( $p=0.43$ ) for group 1vs3 Graft necrosis: 9%; 8%; and 0% respectively ( $p=0.53$ ) Pneumonia: 13%; 8%; and 6% respectively ( $p=0.52$ ) Mortality: 5%; 5% and 0% respectively ( $p=0.491$ )

Multidisciplinary treatment for esophageal cancer is feasible, but effective organization of perioperative care is crucial. The findings suggest a tendency to decrease in leakage and graft necrosis rates, it is not statistically significant. A larger sample in the third period could help confirm this trend. The study emphasizes the importance of a comprehensive and coordinated approach for better outcomes

Topic: Bariatrics as it relates to Foregut disease

**Abstract ID: 72**

**Contemporary Analysis of Primary Gastric Bypass Compared to Revisional Gastric Bypass after Sleeve Gastrectomy in Obese Patients with Gastroesophageal Reflux**

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Gastroesophageal reflux disease (GERD) is common in obese patients and may be exacerbated following sleeve gastrectomy. Conversion of sleeve to Roux-en-Y gastric bypass (revisional RYGB) is often required to mitigate new or worsening GERD symptoms. The purpose of this study is to evaluate the outcomes of bariatric patients with underlying GERD undergoing primary RYGB compared to revisional RYGB.

The 2020-2021 Metabolic and Bariatric Surgery Accreditation and Quality Improvement Program (MBSAQIP) Registry was used to evaluate patients with GERD undergoing primary RYGB or revisional RYGB due to new or worsening GERD. Resource utilization and 30-day outcomes were evaluated using univariable comparative analysis and multivariable logistic regression.

A total of 20,086 patients with GERD were included; 17,023 (85%) underwent primary RYGB and 3,063 (15%) underwent revisional RYGB. Patients undergoing primary RYGB were more often male (16% vs 9%,  $p < 0.001$ ) and Caucasian (76% vs 64%,  $p < 0.001$ ) with lower median BMI (38 vs 44,  $p < 0.001$ ). Primary RYGB patients had shorter operative times (122min  $\pm$  55 vs 127min  $\pm$  62,  $p < 0.001$ ) and fewer drains placed 15% vs 20%,  $p < 0.001$ , but similar length of stay (1.6days  $\pm$  1.5 vs 1.7days  $\pm$  2.3,  $p = 0.103$ ). Primary RYGB patients experienced fewer surgical site infections, reoperations, and emergency room visits (Figure 1). On multivariable analysis, primary RYGB was associated with decreased infection risk (OR 0.56, CI 0.42-0.76,  $p < 0.001$ ).

In this large database study, primary RYGB compared to sleeve converted to RYGB for GERD was associated with fewer postoperative complications. Further investigation of the long-term outcomes of obese patients with GERD undergoing bariatric surgery may help to determine which patients should undergo RYGB and avoid having to undergo revisional RYGB after sleeve gastrectomy.



Topic: Stomach  
Abstract ID: 73

## **Surgical Treatment of Median Arcuate Ligament Syndrome in a Series of Patients with Gastroparesis**

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Median Arcuate Ligament Syndrome (MALS) is characterized by epigastric abdominal pain from compression of the celiac artery and its neural ganglion. Surgical release of the median arcuate ligament has become the standard of care. Co-existing gastroparesis can complicate this diagnosis. We present a series of patients with gastroparesis and MALS who underwent surgical release of the median arcuate ligament.

Eight MALS patients were treated with surgical release from 2012 to 2023. Three underwent an open approach, one laparoscopic, and the remaining 4 underwent robotic-assisted approach. All were evaluated by a gastroenterologist for a preliminary diagnosis of gastroparesis at the time of diagnosis with MALS. Retrospective review gathered demographics, clinical presentation, additional procedures, and imaging findings. Four underwent pyloroplasty during initial surgery for ligament release or in a subsequent surgery. Postoperatively, surveys describe percentage of relief from symptoms on follow up (range 2- 72 months).

Seven patients were female. All eight presented with pain and nausea. Eighty-eight percent reported at least occasional emesis, and 2 of these patients were noted to be PO intolerant. After surgical intervention, all reported at least partial relief of symptoms and 50% of patients reported complete resolution. Factors correlating with significant improvement include female gender, pyloroplasty, and absence of diarrhea.

Studies have tried to identify which factors correlate with beneficial surgical outcomes from median arcuate ligament release. Some suggest that psychiatric diagnoses or emesis may be poor predictors for symptomatic relief. The combined diagnoses of MALS and gastroparesis may be difficult to identify in patients that present with both significant abdominal pain and frequent emesis. However, the diagnosis of gastroparesis should be considered in MALS patients that present with emesis and PO intolerance. This population has shown to benefit significantly from MAL release combined with pyloroplasty.

Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 75

**Assessing the Prevalence of Gastroesophageal Reflux Disease after lung transplantation in an Asian Metropolis: A Population-Based Cross-Sectional Analysis.**

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Lung transplantation is the ultimate treatment for end-stage pulmonary failure, but the 5-year survival rate ranges from only 59% to 71.5%. Bronchiolitis obliterans syndrome (BOS), a chronic rejection of the allograft, is a major cause of graft dysfunction. High prevalence of GERD after transplantation has been shown in Western literature and is postulated to be associated with BOS. However, there are no previous reports on the epidemiology of GERD in Asian post-transplantation populations. This study aims to conduct a cross-sectional analysis of the incidence of GERD after lung transplantation in Hong Kong.

This is a cohort study that includes lung transplant patients between 2010-2023. All post-lung transplant patients in Hong Kong will be referred for GERD screening when deemed physically fit from the year 2018. Patients will be offered upper endoscopy, high-resolution manometry, and ambulatory pH study after informed consent. The primary outcome of the study is the prevalence of GERD in terms of symptoms, endoscopic complications, and abnormal pH study.

Out of 80 patients who underwent lung transplantation, 50 patients were referred for GERD screening. Among the 30 patients who completed the workup, the median time between transplantation and workup was 18.5 months. Regarding GERD exposure, 11 (36.7%) patients experienced typical symptoms, 12 (40%) patients had an abnormal pH study (acid exposure time >4 or DeMeester score over 14.72). Regarding esophageal motility, 4 (13.3%) patients had ineffective esophageal motility, and 5 (16.7%) patients had EGJ outflow obstruction. Regarding endoscopic analysis, 2 (6.8%) patients had esophagitis, and 9 (31%) patients had a hiatus hernia. Five patients underwent partial fundoplication, and all had normalized pH study six months after the operation.

The uptake of GERD screening for asymptomatic post-transplantation patients is poor. The incidence of objective GERD by pH monitoring is much lower in Asia than in the West.

Topic: Esophagus benign - gerd, achalasia, motility

**Abstract ID: 78**

**Defining an “Indeterminate” Range for the DeMeester pH Score Equivalent to the 4% to 6% Acid Exposure Time Range proposed by the Lyon Consensus**

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Biologic systems are rarely dichotomous. The Lyon Consensus proposed considering an Acid Exposure Time (AET) between 4% and 6% indeterminate. The DeMeester scoring (DeMS) lacks an indeterminate range, bifurcating at 14.72. We compared single-day AET and DeMS to determine a comparable indeterminate range for the DeMs. Number days abnormal not evaluated.

Our single-site database provided 3213 pH studies done off acid-suppressive medications reporting total, upright, and supine AET and DeMs

Linear regression comparing all values demonstrated a strong correlation (Pearson r of 0.930) between DeMs and %, (Figure 1).

Analysis for AET between 4% and 6% initially correlated with DeMeester was 9.4 to 27 (95% CI). However DeMs weighs supine AET more than upright AET and supine AET > 8% found two fairly distinct subsets. When supine AET ≤8%, indeterminate AET 4-6% correlated to a DeMs was 10.8 to 23.4 (95%CI.) (Figure 2) Flipped around, for a DeMeester ≥14.72, 2% (41/2052) of studies using total AET would be falsely normal (i.e. AET <4%) and 6.8% indeterminate. Using DeMeester < 14.72 as normal then, by AET, 2.3% would be indeterminate (4-6) and none would be abnormal (>6%).

Biologic systems are rarely dichotomous. The Lyons Consensus proposed an indeterminate range of AET (as well as # days abnormal) to account for the continuum of esophageal reflux. Based on that range, we propose the following regarding the DeMeester Score:

As no DeMeester scores below 14.72 were normal by AET (>6%), a DeMeester of < 14.72 should be considered normal in 97.7% and indeterminate in 2.3% The indeterminate range for the DeMeester score should be from 14.72 to 23.4 (95% confidence interval) Current use of total AET overlooks the discordant ‘normal’ values for supine and upright reflux. Therefore an indeterminate AET score may be superseded and the study considered abnormal with DeMeester score of >23.4

Topic: Esophagus benign - gerd, achalasia, motility

Abstract ID: 79

## Reconstructing the Omega Valve with Posterior Hill Stitch and Partial Anterior Fundoplication

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With the recent updates in the American Foregut Society White Paper on the evaluation of the gastroesophageal junction (EJG) in the treatment of gastroesophageal reflux, more attention is turning towards the functionality of the EGJ. We propose that reconstruction of the natural Omega shape GEJ combined with the Hill stitch to anchor the repair will provide appropriate antireflux control as well as maintain integrity over time.

Retrospective review of prospectively collected data between 12/2020 and 03/2023 was reviewed. All patients age > 18 years who underwent a partial anterior fundoplication sparing the short gastric vessels and posterior Hill stitch were included. Patients who were candidates for same day discharge were also included in the review. All patients underwent pre and intraoperative endoscopy to evaluate the shape of the reconstructed GEJ valve.

We identified 28 patients that met the inclusion criteria. The mean age was 55 years and 60% were women. Approximately 35% of patients had a type III paraesophageal hernia compared to 55% with type I hernia. Dysmotility was found in 28% of patients on functional esophagram or manometry. Twenty eight percent of patients met anesthesia protocol criteria and were discharged on the day of surgery. There were no 30 day readmissions and no 6 month recurrences. Post op GERD HRQL was significantly improved from 41 to 2.3 ( $p > 0.05$ ) and at 6 months 5.4 ( $p < 0.05$ ).

Patients who underwent a partial anterior fundoplication with posterior hill stitch had a good Omega appearance of the GE valve on completion endoscopy with good crural approximation and repair of hiatal hernia. Partial anterior fundoplication with a posterior hill stitch can be considered for primary repair with low post op dysphagia, low recurrence and control of GERD symptoms as an alternative to traditional antireflux procedures.

Topic: Endoscopic Foregut Surgery (including Endobariatrics)

Abstract ID: 82

**A RETROSPECTIVE CHART REVIEW OF 79 PATIENTS UNDERGOING THE REFLUXSTOP™ PROCEDURE TO MANAGE GASTROESOPHAGEAL REFLUX DISEASE: SAFETY AND EFFICACY**

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RefluxStop™ is a novel surgical device that manages gastroesophageal reflux disease (GERD) by restoring the normal structure of the antireflux barrier. This is accomplished by reinstating the acute angle of His and anchoring the gastroesophageal sphincter adequately in the intraabdominal cavity. This study reports the safety and efficacy of 79 patients in the postoperative period.

A retrospective chart review was performed on 79 patients that underwent the RefluxStop™ procedure at a single institution between July 2021 and November 2022. Measures were evaluated to assess the feasibility, safety, and clinical outcomes during the follow-up period.

79 patients (age  $49.8 \pm 14$  years), 46 of which were male, mean BMI was  $25.8 (\pm 4.5)$ . Associated conditions noted include esophagitis (45.6%), Barrett's esophagus (17.7%). Average axial length of hiatal hernia was 2.9 cm ( $\pm 1.5$ ). Baseline symptoms included general GERD symptoms (35.4%), heartburn (29.1%), regurgitation (11.4%), retrosternal burning (10.1%), abdominal pain or pressure (3.8%), nausea (2.5%). Baseline GERD health-related quality of life (GERD-HRQL) score was  $21.5 \pm 5.2$  and patients were receiving proton pump inhibitors (PPIs) for a mean of  $4.7 \pm 6.8$  years. After surgery ( $10.7 \pm 3.1$  months), all subjects experienced significant improvement in GERD-related symptoms including dysphagia. Only 2.5% of patients required use of PPIs and no subjects required postoperative esophageal dilatation, no reoperation. And there were no peri-operative severe complications. Postoperatively, the mean GERD-HRQL score was significantly reduced to  $1.6 \pm 3.2$  (92.6% improvement,  $p < 0.05$ ).

This study adds to a growing body of evidence that the RefluxStop™ procedure is safe and effective in management of GERD patients. Notably, a considerable improvement in PPI usage and health-related quality of life parameters were appreciated. Additional studies are required to further validate the role of this procedure in disease management.

Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 83

**Using EndoFLIP intraoperatively: Does percent change in distensibility affect postoperative outcomes in patients with partial funduplications?**

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Nissen fundoplication has historically been the anti-reflux surgery of choice to manage gastroesophageal reflux disease. However, there are known side effects, particularly bloating and dysphagia, that have led many surgeons to opt for partial fundoplication instead. The use of intraoperative Endoluminal functional lumen imaging probe (EndoFLIP) has allowed real-time tailoring of funduplications while successfully decreasing acid exposure and unwanted side effects. The aim of this study is to determine if using EndoFLIP to target intraoperative percent change in distensibility index (DI) rather than final distensibility impacts postoperative bloating and dysphagia.

This is a retrospective study including patients who underwent a robotic hiatal hernia repair with an anterior partial fundoplication (N=62). EndoFLIP was utilized intraoperatively at three timepoints: post-crural dissection, post-crural closure, and post-fundoplication. The Registry of Outcome from Anti-reflux Surgery (ROARS) questionnaire was administered pre- and postoperatively at 3, 6, and 12 months.

The sample was primarily female (66.1%) with a mean age of 63.6 years (SD=11.5) and BMI of 27.1 kg/m<sup>2</sup> (SD=4.7). The mean DI post-dissection was 5.54 (SD=3.3), post-closure was 2.61 (SD=1.3), and post-fundoplication was 2.09 (SD=0.9). The mean DI percent change of crural dissection minus closure (PCT1) was -44% and between crural dissection minus post-fundoplication (PCT2) was -52%. At 3, 6, and 12 months postoperatively, PCT2 was not statistically significant for dysphagia (P=0.720, P=0.0492, P=0.345, respectively) or abdominal bloating (P=0.575, P=0.950, P=0.512). Patients with a higher initial DI (DI>5) and a lower final DI (DI<2) compared to those without these measures, did not have increased dysphagia or abdominal bloating at 3 (P=0.780, P=0.688), 6 (P=0.320, P=0.874), or 12 months (P=0.654, P=0.523), respectively.

These results suggest that the final DI may be more important than the percentage change of DI. The optimal final DI for a patient may be unrelated to the initial DI.

Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 84

## AMERICAN FOREGUT CLASSIFICATION IS SUPERIOR TO HILL CLASSIFICATION IN EVALUATION OF THE GASTROESOPHAGEAL JUNCTION

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The new American Foregut Society (AFS) classification system was developed to provide a better assessment of the gastroesophageal junction than the Hill classification. However, predictive data are lacking. We aimed to determine whether AFS classification better predicts pathologic reflux than Hill classification and compare interobserver agreement.

We performed a multi-reader validation study on prospectively collected images/videos from patients who underwent esophagogastroduodenoscopy including a hernia provocation maneuver and pH testing for gastroesophageal reflux disease (GERD). Randomization of eligible patients was stratified by documented endoscopic Hill grade. Five blinded readers with varying levels of endoscopic expertise (none, advanced trainee, faculty expert) independently graded images using both AFS and Hill classification. Primary outcomes were inter-reader agreement (Fleiss K) and correlation (Spearman  $\rho$ ) to acid exposure time (AET) using Bravo<sup>TM</sup> pH testing. Secondary outcomes were comparison of AFS grading between expert and non-expert readers and change in grading when comparing video to still images.

Images from 18 eligible patients and 4 videos were selected (Table 1). Inter-rater agreement was moderate for AFS classification ( $K = 0.42$ ) and fair for Hill classification ( $K = 0.35$ ). Both classifications strongly correlated with AET (AFS  $\rho = 0.79$ ; Hill  $\rho = 0.75$ , Figure 1). The expert's AFS assessment correlated very strongly with AET ( $\rho = 0.87$ ), compared to a strong correlation for non-expert raters ( $\rho = 0.78$ ). Video assessment changed the Hill grade in 60% (12/20) of ratings, compared to 20% (4/20) of ratings for AFS grade (Figure 2).

The new AFS grading system classifies the gastroesophageal junction with moderate interobserver agreement and is superior to Hill classification even among non-expert raters. Both classification systems have a strong positive correlation with the AET, with expert scoring using the AFS grading system correlating more strongly with GERD severity. High quality video review may further improve grading. Prospective clinical validation is planned.

Topic: Stomach  
Abstract ID: 88

**Is there a Difference in Subjective and Objective Outcomes of Pyloroplasty for Gastroparesis Based on Pre-op Gastroparesis Cardinal Symptom Index Score and Nuclear Medicine Gastric Emptying Study?**

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Gastroparesis remains problematic for both patient and physician. Pyloroplasty has been successfully used to treat gastroparesis and improve both subjective reporting of symptoms and objective data. We sought to identify if pre-operative Gastroparesis Cardinal Symptom Index scores (GCSI) and Nuclear Medicine Gastric Emptying Times (GET) could be useful in predicting the degree to which patients may benefit from pyloroplasty.

GCSI and GET were obtained for a small number of patients (N=2) seen in the outpatient office over a 2 month time period. Pyloroplasty was performed by the same surgeon (TRS) for each patient. Repeat GCSI and GET were obtained for each patient 3 months post-operatively. Changes in the GCSI were evaluated in raw scores and as percentages. Arbitrary subcategories of the GCSI were also reviewed (Baseline, Meal related and Bloating). Changes in GET at T=90 minutes and T1/2 were examined.

Data is presented below. Table 1 shows GCSI and GET data. Figure 1 shows pre-op GET graph (patient 2). Figure 2. shows post-op GET graph (patient 2). Our patient with a lower GCSI score despite a worse GET T1/2 had a greater improvement in overall and subcategory (as a percentage) GCSI and a substantial change in both T=90 minutes and T1/2 on GET. Both patients showed improvement in subjective and objective measures after pyloroplasty. Pyloroplasty remains an effective modality to improve both subjective measures of symptoms and objective data for patients with gastroparesis. In this small study, it appears that pre-operative symptom severity does not necessarily correlate with objective measurement of gastric emptying. Patients with higher pre-op GCSI and shorter GET T 1/2 may not improve to the same degree as their counterparts. Physicians should be aware of this and patients should be counseled accordingly. More investigation is warranted to confirm these findings.



Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 89

**Per Oral Endoscopic Myotomy (POEM) procedure is a safe and effective option for children less than 10 years of age with Achalasia.**

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In managing pediatric patients with Achalasia, surgical treatment is considered the most effective strategy. There is a growing global experience with endoscopic approaches. Limited data exist for children under 10. This study presents the experience of using per-oral endoscopic myotomy (POEM) as an initial treatment for pediatric Achalasia in children under 10.

A retrospective analysis studied all esophageal Achalasia patients aged 10 or younger who received surgical treatment at a US Children's hospital between 2015 and 2023. Approved by the institutional review board (IRB), the data analyzed includes patient demographics, techniques, Eckardt scores, complications, outcomes, and follow-up.

Between 2018 and 2023, twenty-five children 10 years of age or under underwent POEM for Achalasia. The mean age was 6.3 years (+/- 2.2 years), ranging from 2-10 years (median 6 years old). The average weight was 19.9 (+/- 5.8 kg), with a median weight of 18.6 kg. Nine patients had prior pneumatic balloon dilation and/or Botox injection (36%). Three children (12%) had surgical myotomy before our treatment (1 laparoscopic Heller: 1 open Heller: 1 POEM). Average operative time was 96 minutes (+/- 32.9 minutes), median of 98 minutes. Intraoperative events occurred in 11 patients (44%): 3 pneumothoraxes, 4 pneumoperitoneum, and 4 with both. All events were treated with a needle or trocar aspiration. The average myotomy length was 6.1 cm (+/- 1 cm). The hospital stay was 1.8 days (+/- 0.9 days). Follow-up mean 20.6 months (+/- 16.1 months), median 20 months. No children required redo myotomy. Two patients required a single pneumatic dilation prior 1 year following POEM. Twenty-three patients (92%) have complete symptom resolution a year following POEM.

POEM technique is safe and effective as the primary treatment for pediatric Achalasia in children under 10. Long-term follow-up assessments will be done to monitor symptoms, growth, reflux, and development.

Topic: Esophagus benign - gerd, achalasia, motility

Abstract ID: 90

## **AUTOMATED CALCULATION OF MEAN NOCTURNAL BASAL IMPEDANCE PERFORMS SIMILAR TO MANUAL CALCULATION IN DIAGNOSIS OF REFLUX DISEASE SPECTRUM**

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In the diagnosis of pathological gastroesophageal reflux, acid exposure time (AET) has been recognized as the most objective and reproducible parameter. In the last decade, multiple new parameters of gastroesophageal reflux have been identified. Mean nocturnal basal impedance (MNBI) measures an increase in mucosal permeability as a marker of mucosal damage from gastroesophageal reflux. In this study, we compared the performance of automated versus manual calculation of MNBI in assessing reflux disease spectrum.

Consecutive adults undergoing impedance-pH monitoring off PPIs at our center between Oct. 2020 to Oct. 2022 were included. 100 patients with MII-pH tracings were obtained from our database. All the studies were analyzed using Reflux Reader v 6.1 Medtronic, USA.

Patients with achalasia or scleroderma were excluded. Pathological gastroesophageal reflux was defined as an acid exposure time (AET) >4% or DeMeester score of >14.7 or positive symptom association determined by symptom association probability of >95% or symptom index of >50%. Manual calculation of MNBI was performed at three 10-minute periods while supine (around 1 am, 2 am and 3 am) avoiding swallows, reflux episodes, artifacts or pH drops. Automated calculation was generated by the Reflux reader. Diagnostic performance was compared by calculating area under Receiver Operating Curve.

After excluding 2 patients with achalasia and one patient with scleroderma, a total of 100 patients were included in the study. Clinical characteristics are summarized in table 1. Area under the curve for automated calculation of MNBI was 0.746 and manual calculation was 0.756 for pathological gastroesophageal reflux, see figure 2.

Limitations: A small number of subjects, and lack of comparison to inter-observer agreement for the manual calculation of MNBI.

Automated calculation of MNBI performs as good as manual calculation. If validated, automated calculation of MNBI can be used in clinical practice with good confidence.

Topic: Esophagus benign - gerd, achalasia, motility

Abstract ID: 91

## DIAGNOSTIC ACCURACY OF SHORT BASAL IMPEDANCE IN REFLUX DISEASE SPECTRUM

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Mean nocturnal basal impedance (MNBI) measures an increase in mucosal permeability as a marker of mucosal damage from gastroesophageal reflux. It requires a transnasal catheter insertion for overnight monitoring which is inconvenient for many patients. More recently, one time measurement of mucosal impedance via balloon shows promise in the diagnosis of gastroesophageal reflux disease. We evaluated the diagnostic accuracy of short basal impedance in the reflux disease spectrum.

Consecutive adults undergoing impedance-pH monitoring off PPIs at our center between Oct. 2020 to Oct. 2022 were included. Studies were analyzed using Reflux Reader v 6.1 Medtronic, USA. Patients with achalasia or scleroderma were excluded. Pathological gastroesophageal reflux was defined as acid exposure time >4%, or DeMeester score of >14.7, or MNBI < 2.23, or reflux episodes > 80, or positive symptoms association determined by symptom association probability of >95%, or symptoms index of >50%. Short basal impedance was calculated from an average of three readings in the distal impedance measurement in a 10-minute window from the initial 30 minutes of catheter insertion from a 24-hour impedance-pH. Measurements were performed by one investigator blinded to other reflux parameters. Diagnostic performance was compared by calculating area under Receiver Operating Curve.

After excluding 2 patients with achalasia and 1 patient with scleroderma, a total of 100 patients were included in the study. Clinical characteristics are summarized in table 1. Area under the curve for short basal impedance was 0.746, see figure 1. The optimal cut off of short basal impedance was 1.96 kOhms. At this threshold, sensitivity was 64% and specificity was 81%.

Limitations: A small number of subjects, and lack of testing inter-observer agreement in the calculation of short basal impedance.

Short basal impedance shows good discrimination in pathological gastroesophageal reflux. If validated, short basal impedance has potential to replace 24-hour impedance pH-monitoring.

Topic: Esophagus benign - gerd, achalasia, motility

**Abstract ID: 92**

## **Understanding Esophageal intramural pseudodiverticulosis: A Systematic Review**

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Esophageal intramural pseudo diverticulosis is characterized by flask-like out-pouching lesions in the esophagus. These lesions are known as pseudodiverticulum as they represent the ducts of the submucosal glands of the esophagus. This is a rare disease with only 200 reports published globally. The aim of this systematic review was to identify the epidemiology, risk factors and complications associated with pseudo-diverticulosis. PubMed, European PMC, Cochrane, and Science Direct platforms were used to do a meticulous search with different MeSH terms. Out of 56 eligible articles, only 14 were included in this review per the inclusion criteria.

All patients in this review had endoscopically confirmed EIP and presented with dysphagia. A majority (69%) of the patients were above the age of 50 years and had a male predominance (75%). 81.2% of patients had pre-existing comorbidities such as hypertension, diabetes mellitus, alcohol and opioid dependence, and chronic GERD. In terms of complications, 56.25% of patients presented with strictures that were treated endoscopically but eventually led to recurrence. Smoking was found to be a significant risk factor in the occurrence of EIP.

Although EIP is a rare esophageal disorder, lifestyle factors such as hypertension, diabetes mellitus, smoking, and alcoholism seem to play a major role in the occurrence of the disease. Hence, it is important to be aware of EIP in patients with multiple lifestyle comorbidities and educate the patients regarding EIP and its complications.

Topic: Esophagus benign - gerd, achalasia, motility  
Abstract ID: 95

**Heller myotomy for symptomatic achalasia: traditional or robotic-assisted laparoscopy? A systematic review with meta-analysis.**

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Laparoscopic Heller myotomy (LH) represents the gold standard treatment for symptomatic achalasia, robotic-assisted myotomy (RH) has shown promising improvement in safety and effectiveness. We aim to meta-analyse data comparing surgical outcomes and complications of LH and RH.

A systematic search was conducted in April 2023 without restrictions, according to PRISMA guidelines, in PubMed, Web of Science, Scopus, and Cochrane Central Register. Meta-analysis was performed through the generalized linear mixed model.

14 observational studies, out of 264, were included; reporting on 15010 patients. No statistically relevant differences were found between LH and RH groups in age, gender or previous treatment (endoscopic 14% vs 12% or myotomy 3% vs 6%).

RH was associated with significantly fewer intraoperative esophageal perforations (OR=8.8891, p=0.0002, 95% CI: 2.8439, 27.7843), lower intervention rates (OR=4.8391, p<0.05, 95% CI: 1.6701, 14.0211), lower recurrence rate (OR=9.4721, p<0.0001, 95% CI: 4.5095, 19.8958), although follow-ups were consistently shorter. There was a statistically, but not clinically significant difference regarding RH longer operative times (MD=-9.5614 min, p<0.0001, 95% CI: -13.8724, -5.2504); shorter hospital stays (MD=0.1543 days, p<0.0001, 95% CI: 0.0789, 0.2297,) and reduced intraoperative blood loss (MD=10.4612 ml, p=0.0002, 95% CI: 4.9442; 15.9783).

Although not statistically significant, RH patients had fewer intraoperative bleeding episodes, lower conversion rates, lower mortality, comparable morbidity, lower postoperative GERD but higher incomplete symptom resolution rates.

This updated meta-analysis suggests that RH is significantly better than LH regarding perforations, recurrence rates, hospital stay, and blood loss with negligible lengthening of operative times. RH represents a safer option for symptomatic achalasia, with comparable effectiveness to LH and should be suggested to patients when feasible. RCTs on the topic are lacking and are needed to confirm the reported data. Cost-effectiveness evaluations should be taken into consideration when advising patients' choices.

Topic: Bariatrics as it relates to Foregut disease

Abstract ID: 96

## Early Mortality Predictors for Metabolic and Bariatric Surgery Patients Who Previously Underwent Myocardial Revascularization

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Metabolic and Bariatric Surgery (MBS) is a highly effective treatment for obesity. Nonetheless, it may entail an elevated risk of complications and mortality for patients presenting with Coronary Artery Disease (CAD). Patients who have undergone myocardial revascularization may face higher risks attributable to underlying cardiovascular pathology. This study aims to identify early predictors of mortality in myocardial revascularization patients who undergo MBS to improve outcomes and reduce mortality rates.

A retrospective analysis was performed using the MBSAQIP 2015-2018 participant usage file (PUF) database for patients who have undergone MBS. A Multinomial Regression test was used to determine independent predictors of 30-day mortality after MBS in patients with a history of myocardial revascularization.

Between 2015 and 2018, 8,356 of the 20,456 patients with a previous history of myocardial revascularization underwent coronary bypass surgery, and 12,100 underwent percutaneous coronary intervention. Several factors were significantly associated with increased mortality in patients undergoing MBS and prior myocardial revascularization. These include the use of mobility devices, renal failure, use of anticoagulants, smoking, COPD, history of pulmonary embolism, and an open surgical approach ( $P < 0.05$ ). However, nondiabetic patients ( $P = 0.032$ , OR = 0.587, CI 95 = 0.364–0.954) and patients undergoing robotic surgery ( $P = 0.010$ , OR = 0.167, CI 95 = 0.042–0.656) were significantly associated with reduced mortality.

In patients undergoing MBS, a previous history of myocardial revascularization can be an early predictor of mortality, particularly in patients presenting with several cardiovascular, peripheral, and metabolic comorbidities, as well as those who smoke or have undergone an open surgical approach. Identifying these comorbidities prior to surgery can be useful for taking preventive measures, defining surgical plans, and monitoring patients postoperatively. Considering these factors, healthcare professionals can enhance postoperative outcomes and diminish the likelihood of mortality.

Topic: Stomach  
Abstract ID: 97

## **Hyperthermic Intraperitoneal Chemotherapy as an Adjuvant Treatment for Gastric Cancer: A Systematic Review and Meta-Analysis of Efficacy, Survival, and Safety Outcomes**

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Gastric cancer remains a significant global health burden, and peritoneal carcinomatosis is a common metastatic route associated with poor prognosis. Hyperthermic intraperitoneal chemotherapy (HIPEC) has emerged as a potential adjuvant treatment for gastric cancer. This systematic review and meta-analysis aimed to evaluate the efficacy, survival, and safety of HIPEC in patients with gastric cancer after surgery compared to conventional treatment options.

A comprehensive literature search was conducted using OVID up to February 2021. Randomised controlled trials and observational studies were included comparing HIPEC with conventional treatment options in gastric cancer patients after surgery. The primary outcomes were overall survival rates at 1-year, 3-year, and 5-year follow-ups. Secondary outcomes included anastomosis leakage rate, leukopenia or myelosuppression rate, and overall recurrence rate. Pooled risk ratios (RRs) with 95% confidence intervals (CIs) were calculated using random-effects models.

A total of 22 studies, comprising 1,921 patients (848 in the HIPEC group and 1073 in the control group), were included in the analysis. The meta-analysis demonstrated significant improvements in overall survival rates at 3-year (RR: 1.30, 95% CI: 1.05-1.62,  $p=0.02$ ) and 5-year (RR: 1.40, 95% CI: 1.08-1.81,  $p<0.01$ ) follow-ups for the HIPEC group compared to the control group, while no significant difference was observed at the 1-year follow-up. HIPEC was associated with a significant reduction in overall recurrence rate (RR: 0.47, 95% CI: 0.33-0.68,  $p<0.01$ ), but no significant differences were detected in anastomosis leakage rate and leukopenia or myelosuppression rate.

This systematic review and meta-analysis suggest that HIPEC may improve overall survival rates and reduce the recurrence rate in gastric cancer patients after surgery. However, further research is needed to address the current evidence's heterogeneity and methodological limitations and establish standardised HIPEC protocols to optimise treatment outcomes.

Topic: Esophagus benign - gerd, achalasia, motility

Abstract ID: 98

**Same-Day Home Recovery: A Multicenter Retrospective Analysis of the Short-Term Outcomes for Robotic-Assisted versus Conventional Laparoscopic Hiatal Hernia Repair**

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The minimally invasive approach to hiatal hernia repair has become standard of care and is increasingly performed as a same-day discharge surgery. Robotic-assisted surgery also has many advantages and has gained popularity over the years. This study aims to identify the trends for same-day home recovery between robotic-assisted and conventional laparoscopic hiatal hernia repairs in recent years and compare short-term clinical outcomes.

A retrospective analysis of elective, non-revisional robotic-assisted and conventional laparoscopic hiatal hernia repairs was performed between January 2020 and December 2022 within a large, multicenter healthcare system. Combined procedures were excluded. Demographic and intraoperative variables were compared between the cohorts, as well as short-term clinical outcomes to evaluate the safety of same-day home recovery.

Analysis included 633 patients (76 robotic-assisted, 557 conventional laparoscopic). Year to year, there was an increasing rate of same-day discharges for both the robotic-assisted and conventional laparoscopic repairs. Robotic-assisted operative time was longer (median: 143 min versus 105 min; mean: 155 min vs 122 min,  $p < 0.001$ ). There was no difference in 30-day outcomes, including 7-day or 30-day return to emergency department, readmission to hospital, or mortality. Overall, there was a trend towards higher rates of same-day discharge in the robotic-assisted cohort, although this was not statistically significant (75% versus 67%).

With similar short-term outcomes, both the robotic-assisted hiatal hernia repair and conventional laparoscopic hiatal hernia repair allow for safe same-day home recovery.



Topic: International  
Abstract ID: 99

## **Beyond the Nissen Horizon: Manometric Revelations with the Chicago IV Protocol in Esophageal Function**

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Nissen fundoplication is a widely performed surgical procedure for the treatment of gastroesophageal reflux disease (GERD). While its efficacy in alleviating GERD symptoms has been well-documented, postoperative esophageal manometric changes, such as elevated integrated relaxation pressure (IRP) or increased lower esophageal sphincter (LES) pressure, remain underexplored. Long-term postoperative patients may present altered manometric profiles, raising concerns about the possibility of other pathologies, Nissen complications, the emergence of achalasia, or esophagogastric junction outflow obstruction (EGJOO). A descriptive analysis of patients who underwent Nissen fundoplication, with postoperative assessments ranging from 20 to 188 months, was conducted. Esophageal manometry studies using the Chicago IV protocol were evaluated in these patients during the postoperative period.

This study included 9 participants (2 males, 7 females) with an average age of  $54.67 \pm 8.15$  years and mean BMI of  $25.66 \pm 2.30$ . The average LES pressure was  $24.27 \pm 10.69$  mmHg, and the LES length was  $3.43 \pm 0.89$  cm. Three had hiatal hernias, while six did not. The mean DCI was  $1029.03 \pm 523.27$  mmHg·cm·s, and the average IRP in supine and upright positions were  $15.89 \pm 8.42$  mmHg and  $13.36 \pm 9.69$  mmHg, respectively. Effective peristalsis was observed in 62.22% of participants, while 38.89% had ineffective peristalsis. Pressures at p1, p2, and p3 were  $53.89 \pm 34.25$  mmHg,  $54.28 \pm 25.5$  mmHg, and  $50.72 \pm 21.35$  mmHg, respectively. Gastric pressure and post-swallow gastric pressure were  $13.33 \pm 4.36$  mmHg and  $15.77 \pm 7.3$  mmHg, respectively. One participant had a positive rapid drink test, while 8 had a negative result.

In conclusion, it is essential to determine specific IRP values and patterns for identifying the LES or high-pressure zone in post-Nissen patients. A comprehensive understanding of these manometric patterns can help clinicians better manage outcomes and symptom presentation in patients who have undergone Nissen fundoplication.

Topic: Esophagus neoplasia (Barrett's, Cancer)

Abstract ID: 100

## Incidental Gastrointestinal Stromal Tumors in Thoracic and Bariatric Surgery

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Gastrointestinal stromal tumors (GISTs) are exceedingly rare with reported incidence of 10-15 cases per million patients. Bariatric and oncologic surgery patients have higher rates of incidental GISTs, however, there are few studies comparing rates in these patient populations due to the rarity of the diagnosis. The purpose of this study is to compare incidental GIST rates in patients undergoing esophagectomy for esophageal cancer (EC) to patients undergoing sleeve gastrectomy for weight loss.

Retrospective analysis of esophagectomy and sleeve gastrectomy cases at a single institution from January 2022 to March 2023 was performed. Rate of incidental GISTs was determined utilizing pathology reports. The two groups were compared based on incidental GIST rates as well as patient comorbidities and demographics.

A total of 113 patients were identified, of which 21% (24/113) underwent esophagectomy for EC and 79% (89/113) underwent sleeve gastrectomy for weight loss. Esophagectomy patients were 79% (19/24) male with mean age of 65 and mean BMI of 26.5 while sleeve gastrectomy patients were 9% (8/89) male with mean age of 42 and mean BMI of 47 ( $p < 0.01, 0.01, 0.01$ ).

Of esophagectomy patients, 21% (5/24) had an incidental GIST on surgical pathology compared to 0 sleeve gastrectomy patients ( $p < 0.01$ ). All incidental GISTs were singular with median size of 0.3cm (range 0.2cm-0.9cm). All patients with GISTs had EC and 60% (3) had a history of secondary malignancy.

Patients who underwent esophagectomy for EC had a significantly higher rate of incidental GISTs compared to sleeve gastrectomy patients and when compared to the <1% reported in the literature. It is possible that the inflammatory states predisposing individuals to EC may also increase risk of GIST, which could explain why the non-cancerous sleeve gastrectomy group had a lower rate. Further research is necessary to identify the link between esophageal cancer and GISTs.

Topic: Esophagus neoplasia (Barrett's, Cancer)

Abstract ID: 101

## Regression of Barrett's Esophagus After Concomitant Hiatal Hernia Repair and Transoral Incisionless Fundoplication (cTIF)

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Gastroesophageal reflux disease (GERD) is associated with Barrett's esophagus (BE), but it is not clearly known whether treatment of GERD will reverse the progression of BE. Prior studies suggested regression of BE post Nissen fundoplication. However, no studies report the role of cTIF, an effective GERD treatment, in patients with BE.

We retrospectively evaluated 154 consecutive patients who underwent cTIF at a single institution between April 2019 and October 2022. Of these, 20 patients (13 male/7 female) had histologic diagnosis of BE prior to cTIF with a median follow-up of 338 days (range 66-1163). The DeMeester score and acid exposure time (AET) were assessed. Regression was defined as a decrease in the length of BE (endoscopic) or the change to a less severe grade of BE (histological).

All cTIFs were technically successful with no complications reported. The median length of Barrett's prior to cTIF was 3 cm (range 1-12). Regression or resolution of BE was seen in 17 of 20 patients (7 with complete resolution, 7 with endoscopic regression, 3 with histological regression). 2 patients had no change, and 1 patient had an increase in BE segment by 1 cm. Prior to cTIF, radiofrequency ablation was performed in 3 patients: 2 with high-grade dysplasia and 1 without dysplasia. Patients with regression or resolution of BE had lower median DeMeester score and AET (6.85 and 1.8%) compared to patients without change (12.4 and 2.1%). The percentages of male and female patients with regression or resolution of BE were similar.

Our early experience suggests BE can regress or even resolve after cTIF in a significant percentage of patients, in both males and females. Future larger series may assess the efficacy of cTIF in patients with BE and the possibility of stopping PPI use in patients who exhibit normalization of pH after cTIF.

Topic: Bariatrics as it relates to Foregut disease

Abstract ID: 102

## **Laparoscopic Sleeve Gastrectomy vs. Roux-en-Y Gastric Bypass: Preoperative and follow up findings in dysmotility and GERD symptoms**

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Sleeve gastrectomy and Roux-en-Y gastric bypass are two popular surgical procedures used to treat obesity. Both procedures result in significant weight loss and can improve or resolve obesity-related health problems. However, these procedures can also increase the risk of reflux disease because the surgeries alter the normal anatomy of the stomach and esophagus.

This is a descriptive and retrospective study of a database of patients who had a bariatric surgery in a private institute in Lima, Peru. Candidate patients who underwent one of these bariatric surgeries where a total of 322.

Out of 222 patients with LSG, 12.6% had esophageal dysmotility before surgery and at the follow up the esophageal dysmotility was up to 36.1%(n=30). GERD symptoms before surgery was present in 28.7% (n=68) of the patients and at the follow up increased to 134 (72.3%) patients. Esophagogastric gradient was pathologic in 14 patients (6.3%) before surgery, in the follow up, 41 (49.4%) patients had inversion of the esophagostric gradient. Out of 99 patients who underwent Roux-en-Y gastric bypass, before surgery 38 patients (38.4%) had esophageal dysmotility, postoperative out of 13 patients, 3(23.1%) had esophageal dysmotility. Before surgery, 77 patients (76.2%) had GERD symptoms, after surgery only 7 patients (9.2%). Out of 98 patients, 24 (24.5%) had an inverted esophagogastric gradient before surgery. Post operative only 9 patients had follow up, and 5 of them had inverted esophagogastric gradient.

It is important to always study the patients, including predominantly high resolution manometry and 24-hour phmetry-impedance in order to have the necessary information to provide the best surgical indication. Taking into account that obesity surgeries have anatomical alteration and in this case the Sleeve Gastrectomy is the one that presents the highest cases of reflux symptoms after surgery as well as inversion of the gastric esophageal gradient.

Topic:

**Abstract ID: 104**

**Correlation of The American Foregut Society Endoscopic Classification of Esophagogastric Junction Integrity with Gastroesophageal Reflux Burden.**

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The American Foregut Society (AFS) recently proposed a new endoscopic classification of the esophagogastric junction (EGJ) integrity to address the drawbacks of the current Hill's flap valve (HFV) classification. However, the AFS classification remains to be validated. We aimed to compare the AFS with HFV classification and assess their correlation with gastroesophageal reflux (GER) burden.

We performed a retrospective review of wireless pH studies placed during esophagogastroduodenoscopy (EGD) performed by a single provider with expertise in foregut endoscopy from October 2020 to November 2022 at a tertiary care academic center. All pH studies were for 96-hour and off proton pump inhibitors (PPI) for at least 7 days before placement. Two physicians reviewed EGD images independently, and a consensus was reached regarding both the AFS classification and compared it with HFV classification assigned at the time of EGD. Spearman's correlation index was used to calculate the degree of association between the classification grade and acid exposure time, Demeester's score, the number of reflux events, and the number of long reflux events recorded during the pH study period.

Thirty-one subjects were included. Both the AFS and HFV classifications had statistically significant correlations with total acid exposure time, Demeester's score, number of reflux events, and number of long reflux events on 96-hour esophageal pH monitoring (Table 1.  $p < 0.05$  for all variables). There was a trend toward a stronger association of all variables with the AFS classification.

The AFS classification of EGJ integrity correlates better than HFV classification with GER burden on wireless pH monitoring. Larger studies assessing AFS classification correlation with GER burden and esophagitis are needed. Furthermore, assessing interobserver agreement of the AFS classification is necessary to facilitate standardization of this new classification among endoscopists.

**Supragastric belching relates to more upright acid reflux episodes, but not to reflux symptom severity or esophageal hypervigilance**

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Supragastric belching (SGB) as a behavioral disorder may contribute to symptom generation of gastroesophageal reflux disease (GERD) in conjunction with the esophageal hypervigilance and anxiety scale (EHAS). This study assessed the prevalence of SGB and their interaction with reflux patterns and EHAS in patients exhibiting typical reflux symptoms. Patients exhibiting typical reflux symptoms with negative endoscopy underwent 24-hour impedance-pH monitoring. Phenotyping, reflux burden, and SGB were evaluated, and over 13 SGBs in 24 hours were considered excessive. Validated GERD questionnaire (GERDQ) and EHAS scores were recorded.

Of the 160 patients (mean age, 45.2; 66.3% female), 34 had non-erosive reflux disease (NERD), 58 had reflux hypersensitivity (RH), and 68 had functional heartburn (FH). NERD patients had higher BMI and more reflux episodes than those with RH and FH. No significant differences in age, sex, GERDQ scores, EHAS, or excessive SGB prevalence were found among GERD phenotypes (Table 1). In the study population, 36 patients (22.5%) had excessive SGB. These patients exhibited more upright reflux acid episodes, with no significant differences in terms of age, sex, BMI, GERDQ scores, EHAS, number of upright weak and nonacid reflux episodes, or number of all types of supine reflux episodes compared to those without excessive SGB (Table 2).

Excessive SGB prevalence among patients with typical reflux symptoms and negative endoscopy was about 22.5% and was similar across phenotypes. Patients with excessive SGB showed more upright reflux acid episodes, but similar symptom severity and EHAS compared to those without excessive SGB.