

Minimally Invasive and Novel Therapeutics (M.I.N.T.) in Foregut Disease  
September 29th -October 1st 2022

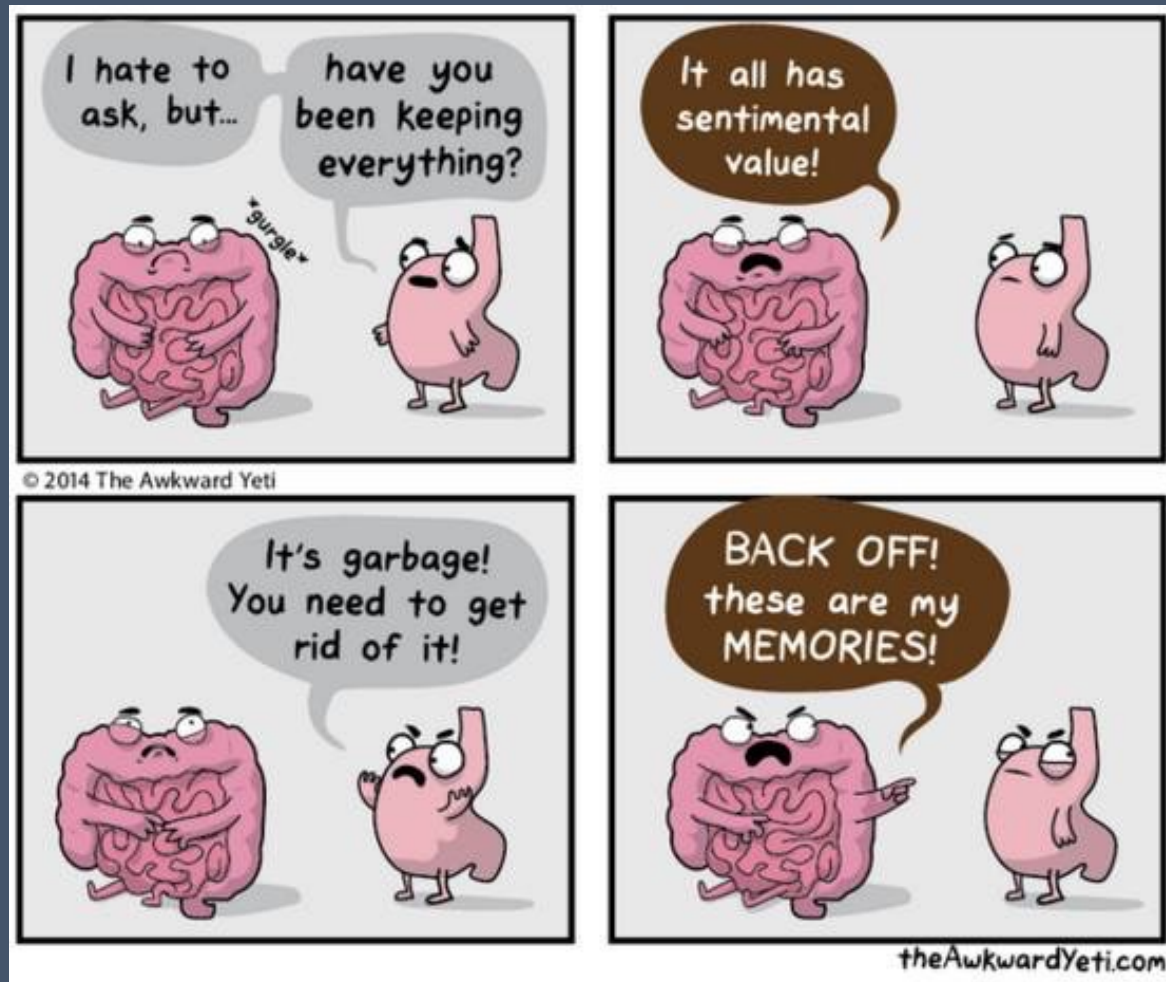
# Post-Op Complications After POP and POEM

Priyanca Waghmarae, PA-C

Massachusetts General Hospital



# Gastroparesis



Disorder in which the stomach cannot empty food in the average way.

Characterized by waxing/waning symptoms of gastric or intestinal obstruction in the absence of a mechanical lesion.

# Common Symptoms of Gastroparesis

Postprandial  
Fullness

Early Satiety

Nausea and  
Vomiting

Abdominal  
Bloating

Poor  
Appetite

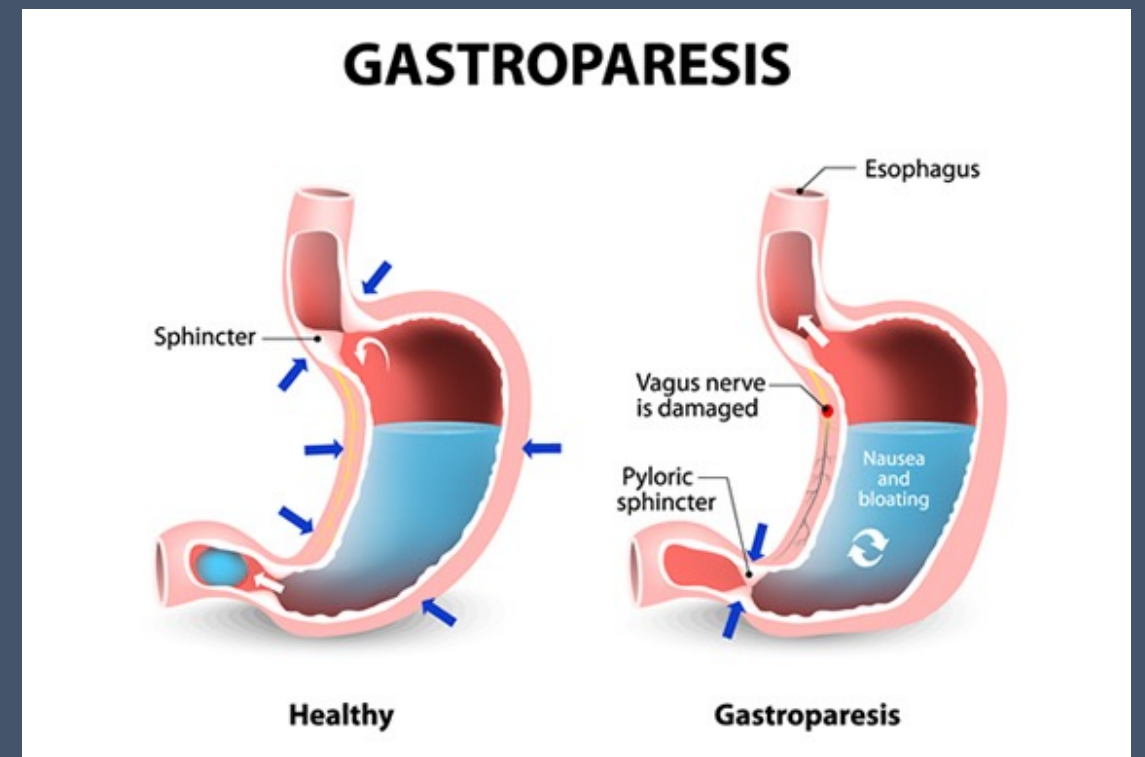
Weight Loss

Abdominal  
Pain



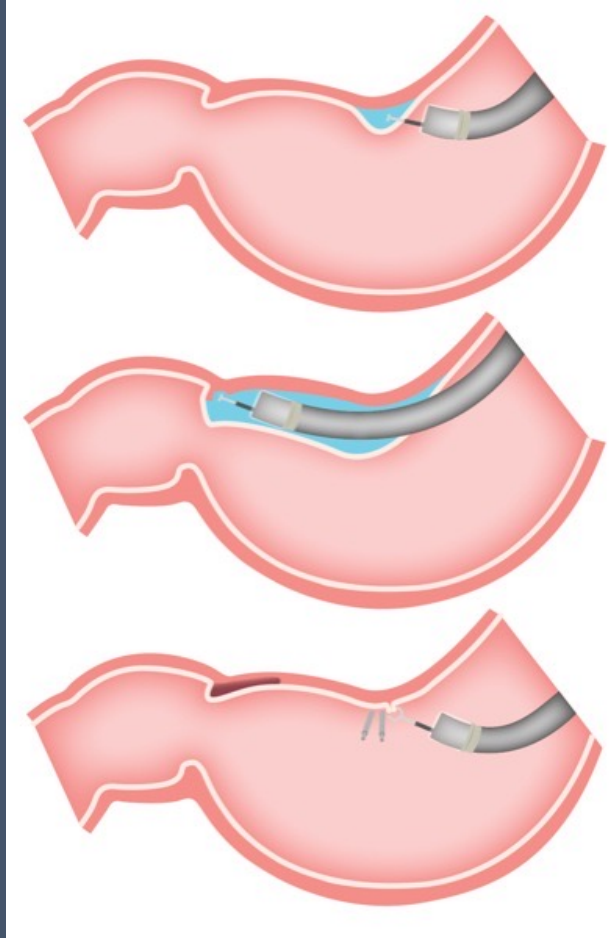
# Per Oral Pyloromyotomy (POP)

- Minimally invasive endoscopic procedure that assesses and treats the pylorus.
- Used to treat appropriately selected patients with gastroparesis who do not respond to medical therapy.
- Effective procedure for patients who experience nausea and vomiting as their main symptoms.



Source: <https://www.gastroconsa.com/patient-education/gastroparesis>

# The POP Procedure

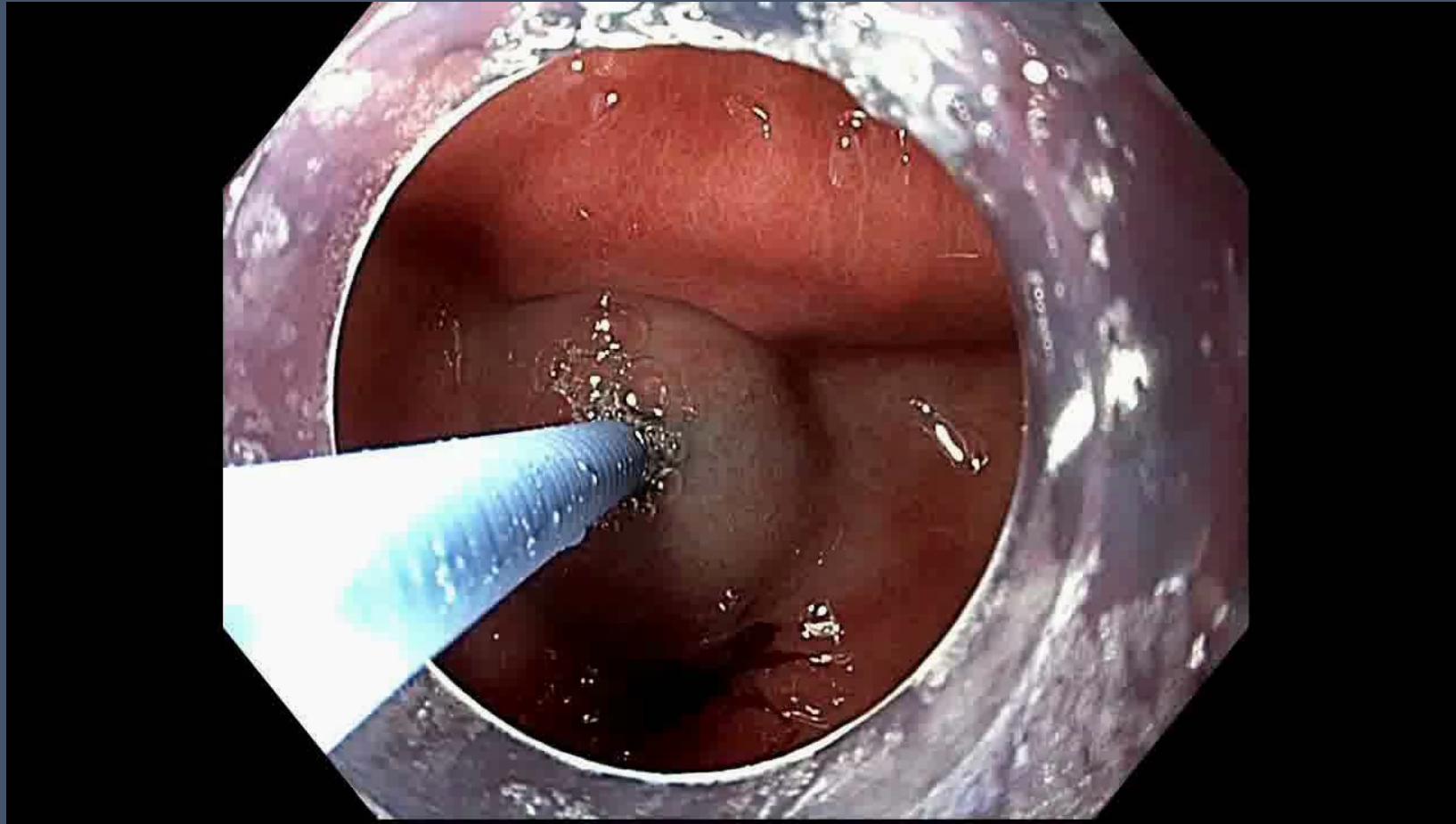


An endoscope is advanced into the stomach to assess the pyloric sphincter. With specially designed endoscopic tools, a myotomy is made at the pyloric sphincter.

During the procedure, the muscle fibers that block passage of food is divided.

Source: Frangou, C. (2018, September 17). *New Endoscopic Approach Provides Benefit for Gastroparesis*. gastroendonews.com.  
<https://www.gastroendonews.com/Article/PrintArticle?articleID=52709>.

# The POP Procedure



# Achalasia

An idiopathic motility disorder characterized by loss of peristalsis in the distal two-thirds of the esophagus with impaired relaxation of the LES.



Source: Gaillard, F., & Niknejad, M. T. (n.d.), et al. *Achalasia: Radiology reference article*. Radiopaedia Blog RSS. <https://radiopaedia.org/articles/achalasia>.

# Symptoms of Achalasia

Dysphagia to Solid Foods  
and Liquids

Substernal Discomfort  
after PO intake

Regurgitation/Heartburn

Coughing up Oral  
Intake/Aspiration

Weight Loss

Nocturnal Symptoms





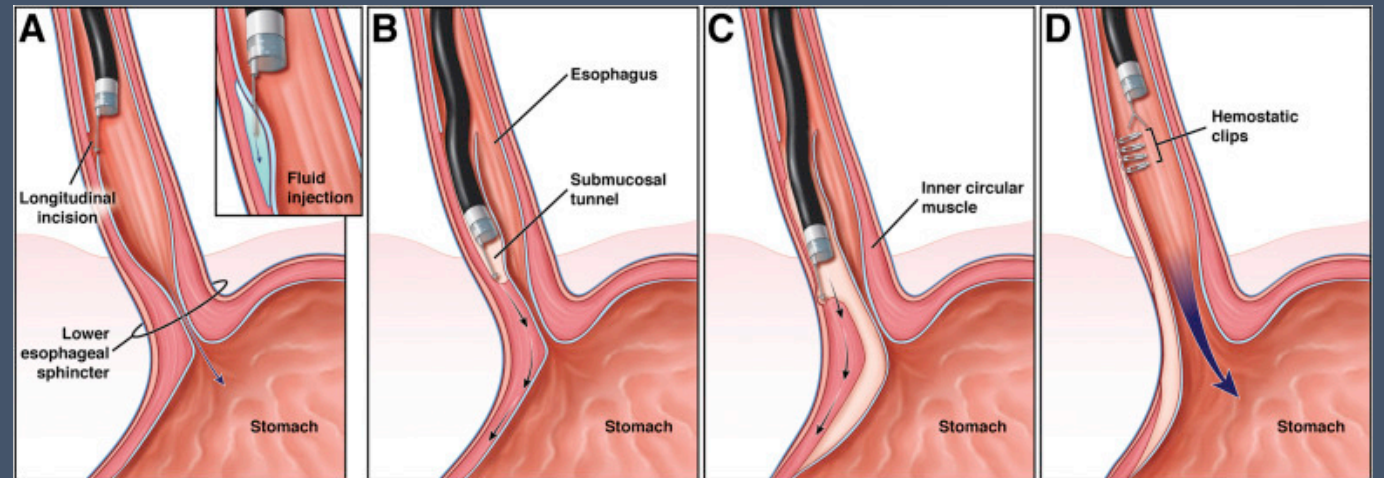
# Per Oral Endoscopic Myotomy (POEM)

- Minimally invasive endoscopic procedure that assesses and treats the lower esophageal sphincter.
- Used to treat patients with achalasia
  - Type I
  - Type II (most likely to response to treatment)
  - Type III
- Effective procedure for patients who experience dysphagia, substernal pain, choking/aspiration events, heartburn or regurgitation.



# The POEM Procedure

- An endoscope is advanced into the esophagus to assess the lower esophageal sphincter (LES)
- Four Parts to the Procedure
  1. Mucosal Incision of the Esophagus
  2. Tunneling through the Submucosa
  3. Myotomy is made at the LES
  4. Closure of the Mucosal Incision



Source: Khashab, M. A., Sethi, A., Rosch, T., & Repici, A. (2019). How to perform a high-quality peroral endoscopic myotomy? *Gastroenterology*, 157(5), 1184–1189. <https://doi.org/10.1053/j.gastro.2019.09.001>

# ALARM Symptoms Post Procedure

Fevers

Chest Pain

Hematemesis  
or Melena

Abdominal  
Distension



# Case #1

A 30 year old male with a history of seizures as a child (resolved after neurosurgery), GERD and achalasia presented to the outpatient GI clinic for follow up 1 week s/p POEM.

## Post Procedure:

- Admitted overnight for monitoring
- Immediately noted to have chest discomfort with deep breathing
  - Denied SOB and chest pain

# Case #1

## Post POEM Work Up:

- ❖ Barium Swallow 24hrs post POEM revealed recent POEM without leak or stricture with four endoscopic clips projecting in the distal esophagus.

Prior to discharge, trialed on a clear liquid diet which patient tolerated.

On discharge, advanced to a full liquid diet and started on a PO PPI BID.

# Case #1

## During Outpatient Follow Up Visit:

- Noted improvement with dysphagia while on full liquid diet.
- Increasing frequency of chest “soreness” located at the GEJ that radiated into the back, shoulders, and jaw.
- Minimal weight loss noted (around 164lbs)
- Occasional low grade fevers (around 99F)

# Case #1

## Post Visit Work Up:

- Labs with CBC and BMP (Revealed a mild leukocytosis)
- CXR revealing a *small cavity in the right lower lobe with fluid.*
- KUB was normal with no signs of free air underneath the diaphragm

What Happened Post POEM?

# Complications for POP and POEM

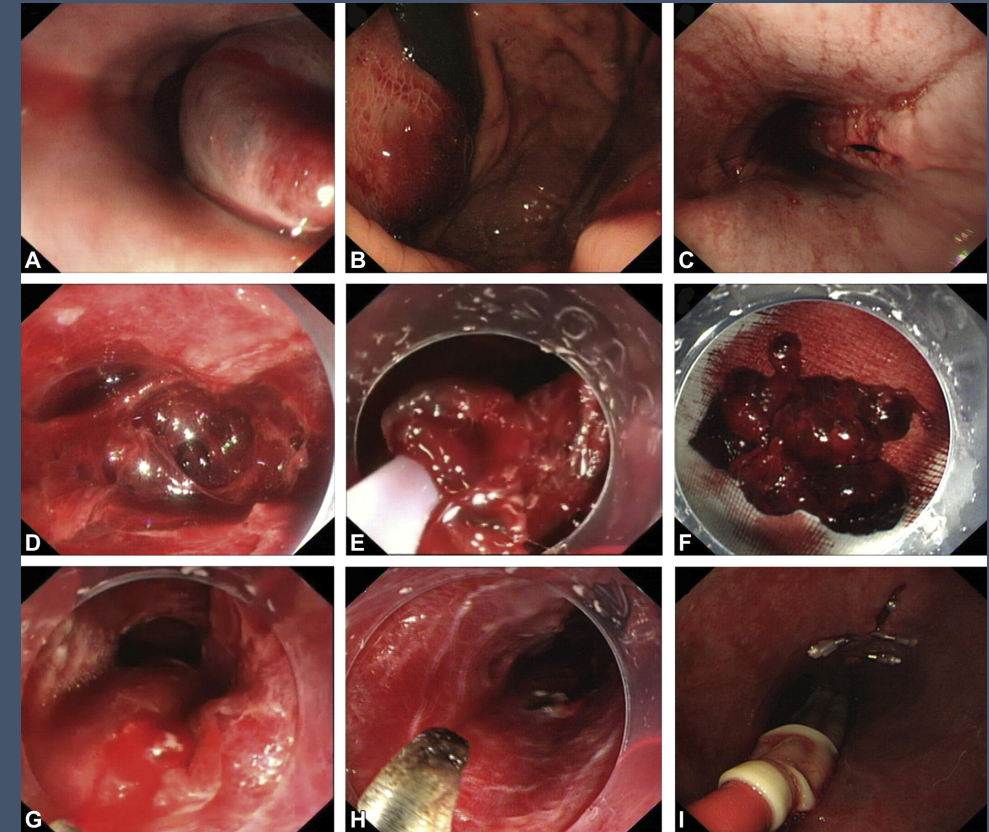
- Abscess/Infection
- Aspiration Pneumonia
  - Hemorrhage
- Leak or Perforation
- Pneumothorax/Pneumoperitoneum





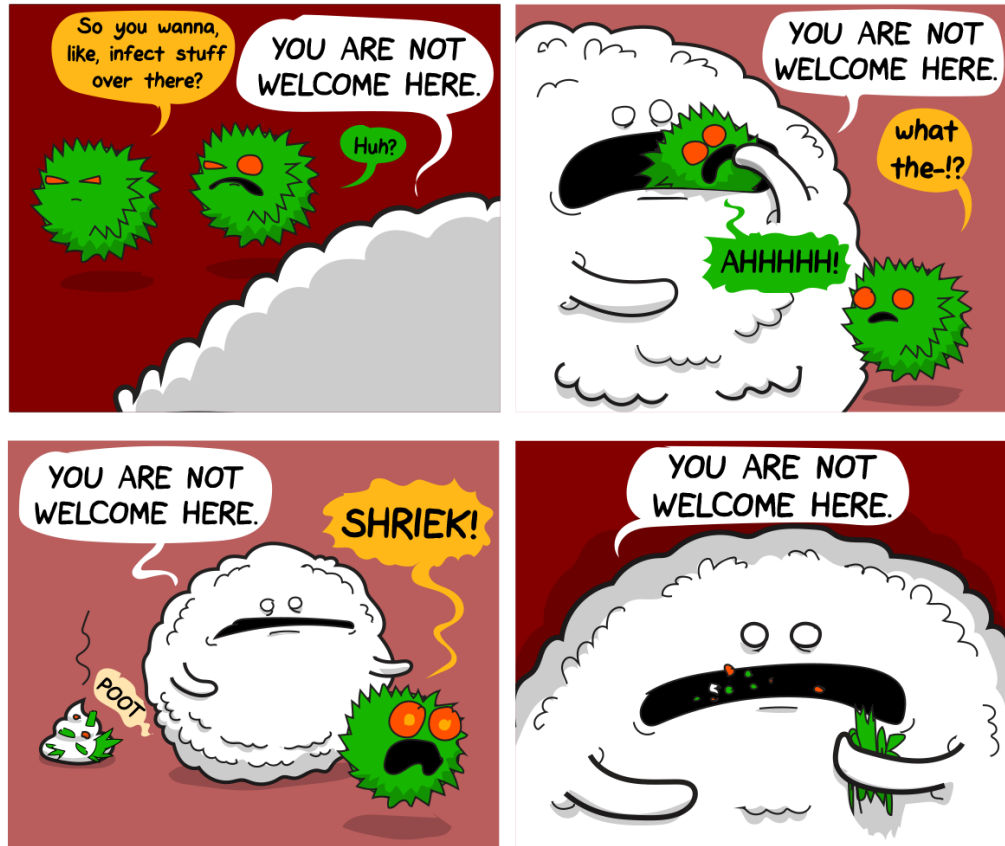
# Hemorrhage

- Presents As:
  - Hematemesis
  - Melena
  - Progressive Retrosternal Pain (Suggestive of a Delayed Bleed)
- Work Up:
  - CT of Chest or Abd/Pel
  - Emergent Endoscopy
- Treatment:
  - Clearing of clots with Endoscopy
  - Coagulation Treatment with Hemostatic Clips



Source: Li, Q.-L., Zhou, P.-H., Yao, L.-Q., Xu, M.-D., Chen, W.-F., Hu, J.-W., Cai, M.-Y., Zhang, Y.-Q., Zhong, Y.-S., Qin, W.-Z., & He, M.-J. (2013). Early diagnosis and management of delayed bleeding in the submucosal tunnel after peroral endoscopic myotomy for Achalasia (with video). *Gastrointestinal Endoscopy*, 78(2), 370–374. <https://doi.org/10.1016/j.gie.2013.04.172>

# Abscess/Infection & Aspiration Pneumonia

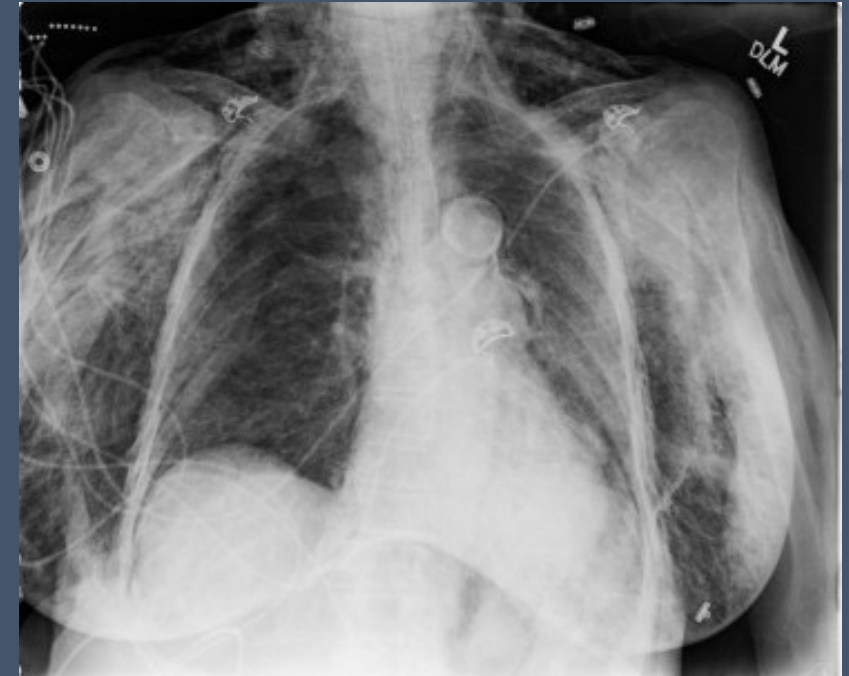


theAwkwardYeti.com

- Presents As:
  - Fevers
  - Cough
  - Shortness of Breath
  - Chest Pain or Abdominal Pain
  - Fatigue/Generalized Weakness
- Work Up:
  - CBC
  - Blood Cultures
  - CXR and/or CT Chest/Abd/Pel
- Treatment:
  - Antibiotics
  - Drainage

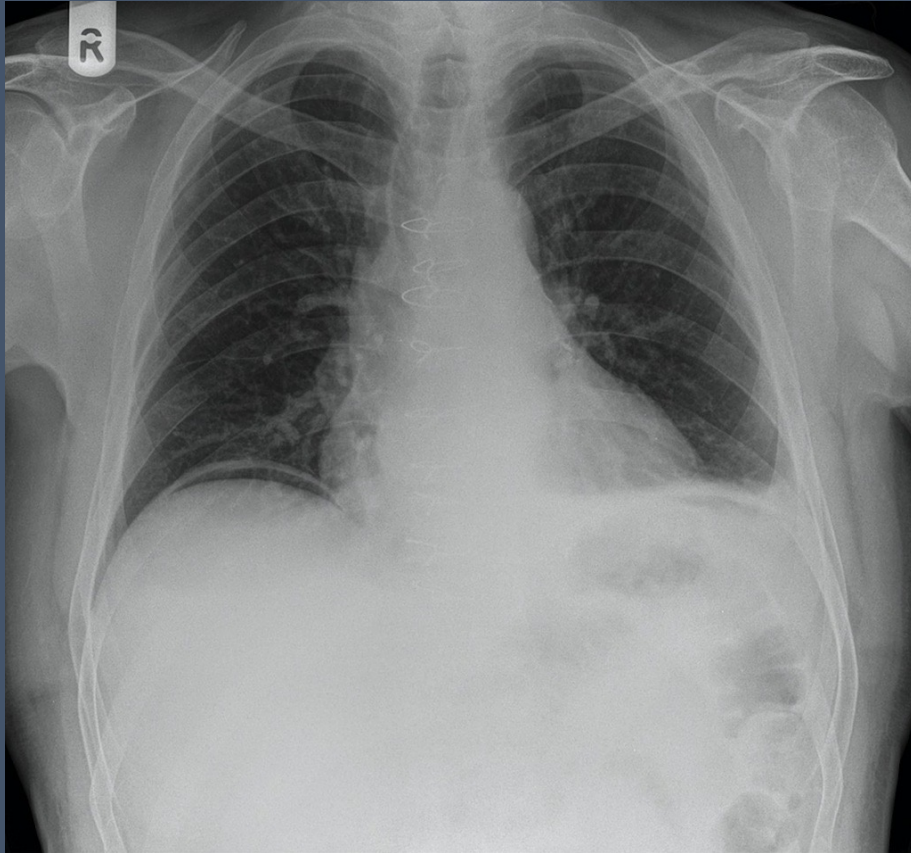
# Leak or Perforation

- Presents As:
  - Fevers
  - Abdominal Distension
  - Severe Chest Pain or Abdominal Pain
- Work Up:
  - Barium Swallow or UGI Series
  - Chest CT
- Treatment:
  - Conservative Management
  - Upper Endoscopy with Placement of Additional Clips
  - Placement of an Esophageal Stent
  - Surgery



Source: Yuan, J., Baichoo, E., & Wong Kee Song, L. M. (2013). Endoscopic therapies for acute esophageal perforations and leaks. *Techniques in Gastrointestinal Endoscopy*, 16(1), 53–61. <https://doi.org/10.1016/j.tgie.2013.12.001>

# Pneumothorax/Pneumoperitoneum



Source: Roberts, D. (2020). Pneumoperitoneum (chest radiograph). *Radiopaedia.org*. <https://doi.org/10.53347/rid-80585>

- Presents As:
  - Chest Pain or Abdominal Pain
  - Dyspnea or Shortness of Breath
  - Tachycardia
  - Hypotension
  - Mediastinal or Tracheal Shift
- Work Up:
  - CXR
- Treatment:
  - Conservative Management/Observation
  - Placement of a Chest Tube
  - Thoracoscopy or Open Thoracotomy

# Case #1

## What Happened Post POEM?

A small abscess formed in the right lower lobe after the procedure which caused the chest pain and low grade fevers for the patient.

Patient was advised to stay on a liquid diet (full) and started a course of antibiotics with recommendation for repeat imaging after completion of medication.

- ❖ **1 Month Post Procedure:** No fevers, resolution of chest “soreness”
  - Started to incorporate softer foods into diet with close monitoring.



# PEARLS

The POP (Peroral Pyloromyotomy) is a minimally invasive endoscopic procedure that assesses the pylorus and helps improve the symptoms of gastroparesis

The POEM (Peroral Endoscopic Myotomy) is a minimally invasive endoscopic procedure that treats achalasia by assessing the lower esophageal sphincter.

Post procedure follow up within 1-2 weeks of both procedures is pertinent to assess for any complications.

ALWAYS watch for the ALARM Complications: Hemorrhage, Abscess/Infection and Aspiration Pneumonia, Leak/Perforation, & Pneumothorax/Pneumoperitoneum

# References

1. Khashab, M. A., Sethi, A., Rosch, T., & Repici, A. (2019). How to perform a high-quality peroral endoscopic myotomy? *Gastroenterology*, *157*(5), 1184–1189. <https://doi.org/10.1053/j.gastro.2019.09.001>
2. Li, Q.-L., & Zhou, P.-H. (2015). Perspective on peroral endoscopic myotomy for Achalasia: Zhongshan experience. *Gut and Liver*, *9*(2), 152–158. <https://doi.org/10.5009/gnl14227>
3. Papadakis, M. A., & McPhee, S. J. (2014). *Current Medical Diagnosis & Treatment 2014*. (M. W. Rabow, Ed.) (53rd ed.). McGraw-Hill Education.

