

Minimally Invasive and Novel Therapeutics (M.I.N.T.) in Foregut Disease
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Esophageal stents: Indications & complications

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Consultation Service



Agenda

- Indications
- Type of stents
- Placement
- Post procedure care
- Complications

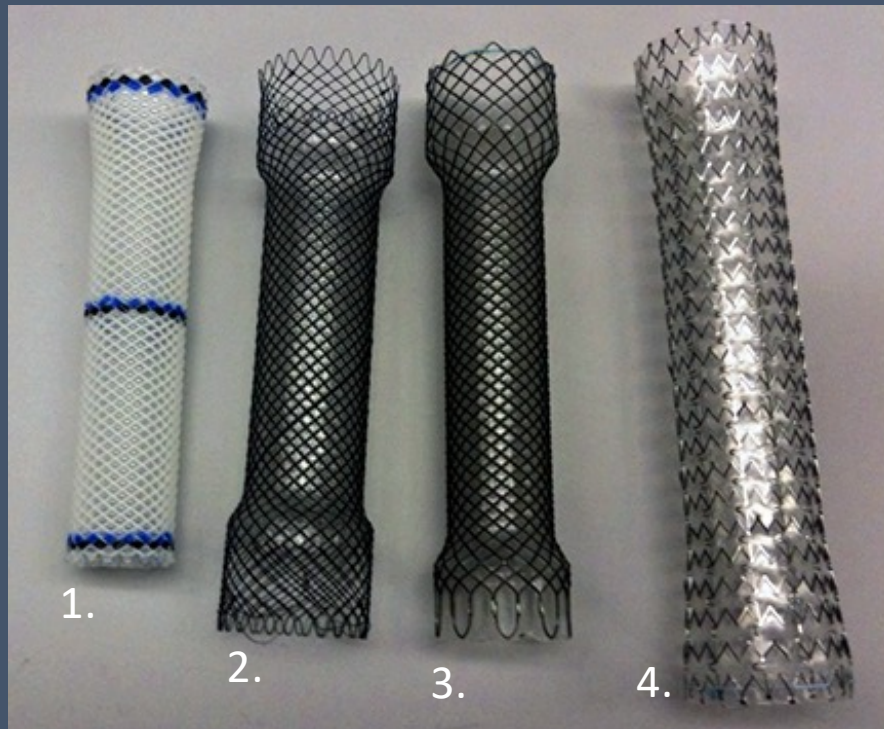


Indications for esophageal stents

- Palliation of **malignant esophageal obstruction**
- **Non-malignant esophageal conditions** such as:
 - Refractory strictures
 - Anastomotic, radiation, and inflammatory conditions
 - Anastomotic leaks after esophageal resection
 - Iatrogenic perforations



Type of stents



#1 Self-expandable plastic stent – no longer used

#2 Partially covered self-expandable metal stent

#3 & 4 Fully covered self-expandable metal stents

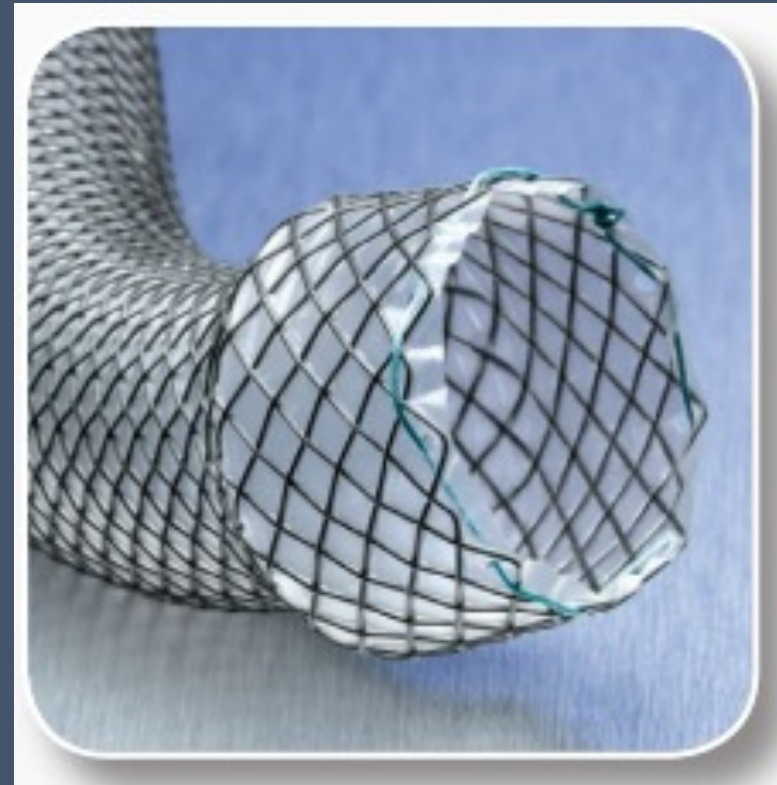
Comparing the types of stents

- **Partially covered**
 - Have small portion of exposed bare metal at proximal and distal ends
 - Allows for embedding into esophageal wall = prevents migration
 - **Note:** Can be challenging to remove given the embedding



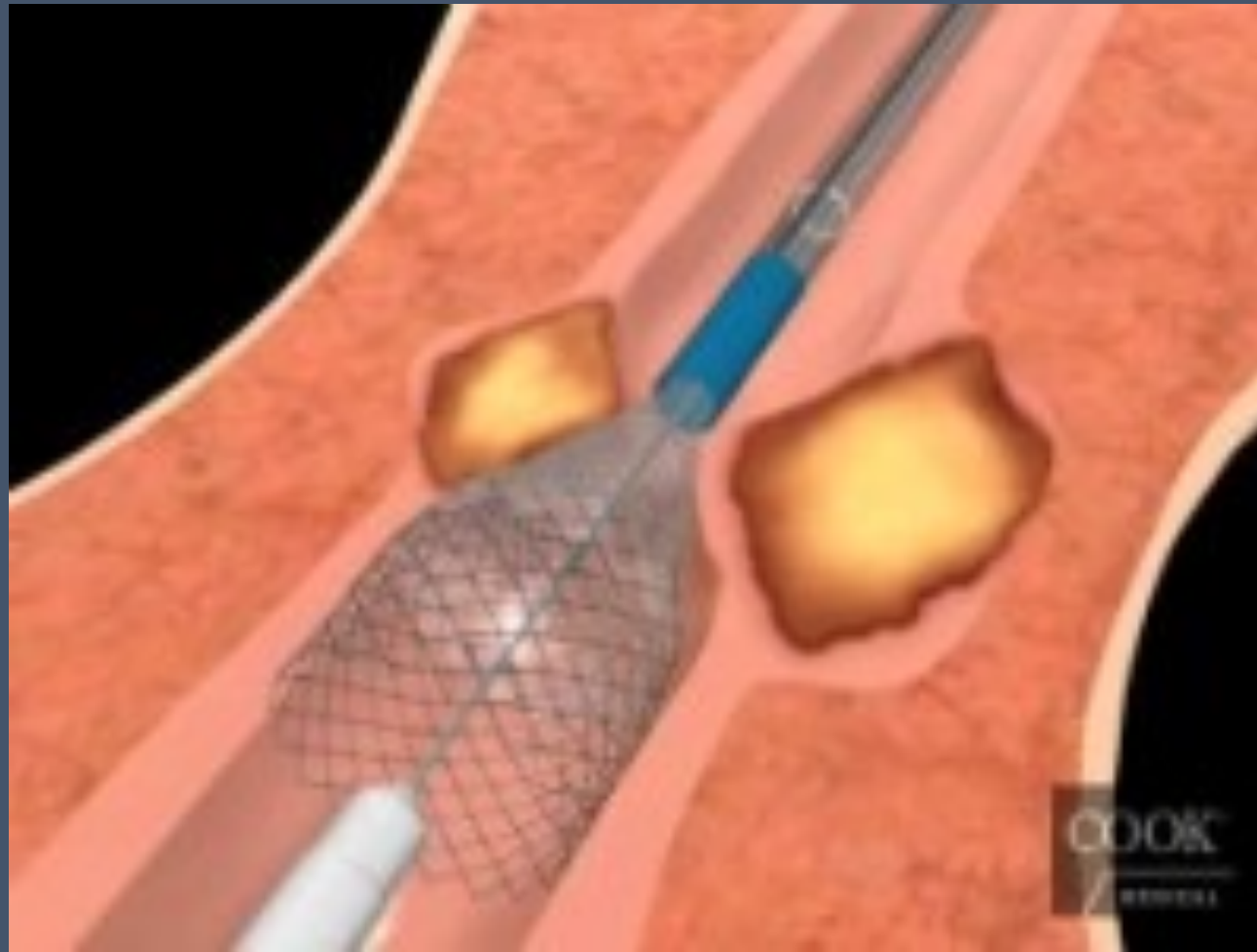
Comparing the types of stents

- **Fully covered**
 - Do not have any exposed bare metal
 - Increase risk of stent migration compared to partially covered stent
 - Can be removed



Endoscopic procedure/placement

Video of esophageal stent placement



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Post procedure recommendations

Stent ABCs:

- **A: Acid-** Must take a proton pump inhibitor medication once a day, 30 minutes before eating
- **B: Bed-** Must raise head end of the bed by 30 degrees at sleep time
- **C: Chop/chew-** Chop food down to 3/10th of an inch and chew well, and absolutely consume a low fiber/low residue (stent) diet. Must not take any diet other than stent diet



Post procedure recommendations

- Recommend a **stent diet** indefinitely
 - Often start with fluids and then build up gradually to a soft diet.
 - Reason: It can take one to two days for the stent to fully expand.

Stage 1 _____ days

Fluids only – water, tea, coffee, fruit juices, milk, soft drinks or sports drinks.

Start with small sips and increase the volume as you feel confident.

Stage 2 _____ days

Smooth or pureed foods, including soup (without lumps), applesauce, yogurt, ice cream, pudding or gelatin.

Increase the texture of your food to a soft consistency as you feel your swallowing becomes easier and your confidence builds. You may try scrambled eggs, cottage cheese, steamed fish, mashed potatoes, mashed banana and pudding.

Stage 3 _____

Try to include a wide variety of foods and fluids in your diet so you achieve as close to a normal diet as possible and to ensure you meet your nutritional needs. If you feel that you cannot achieve this on a soft consistency diet, ask to speak to a registered dietitian.



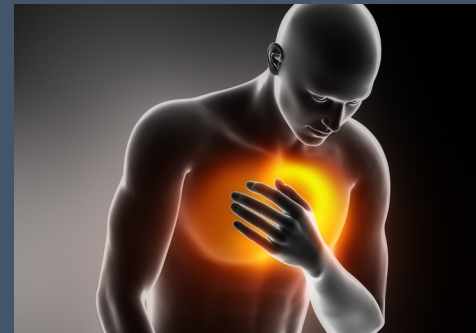
Example of stent diet handout

FOOD GROUP	YES FOODS	AVOID
Milk and Dairy Products	Milk – all kinds Yogurt, custard, ice cream Soft or melted cheese Cottage cheese, cream cheese	Fruit or nuts premixed in ice cream or yogurt
Meat and Meat Substitutes	Soft eggs, Tofu Casseroles Moist Fish Strained baby meats (for easy preparation) All other meats must be bite-size or ground – suggest adding a gravy or sauce.	Dry poultry Peanut butter All tough red and white meats
Fruits	All juices All canned fruits (tiny bite size portions) Fresh fruits peeled – bananas Stewed dried fruits. Fresh fruit recommend blending to a smoothie	Fresh fruits with skins - plums, peaches, oranges apricots, dried fruits
Vegetables	Well-cooked soft or pureed Should be “fork-tender” Strained baby vegetables	Raw vegetables Stringy vegetables (ex. celery). No salads
Bread and Starchy Foods	Cooked cereal Mashed potatoes, sweet potatoes, yams Baked potato without skin Soft, moist rice Noodles, macaroni, spaghetti Dry cereals softened in milk Pancakes softened with syrup/butter Waffles softened with syrup/butter Crackers or breads added to soups	Hard bread with thick crust Dry cereals without milk Potato chips Popcorn Crackers Croutons
Fats	Butter, margarine, mayonnaise Salad dressings Gravy Cream: sour, whipping, coffee	Bacon Nuts Deep fried, crispy food
Desserts	Sherbet, ice cream, Italian ice, frozen yogurts, Gelatin, puddings, mousse, custard All cake type desserts	Cookies Pie crust Any dry desserts Desserts containing nuts or skins
Other	Sauces – cheese, white, barbeque, creamed, tomato Syrup, honey, jam, jelly Ketchup, mustard, relish	

Complications

Early complications (within first 24 hours)

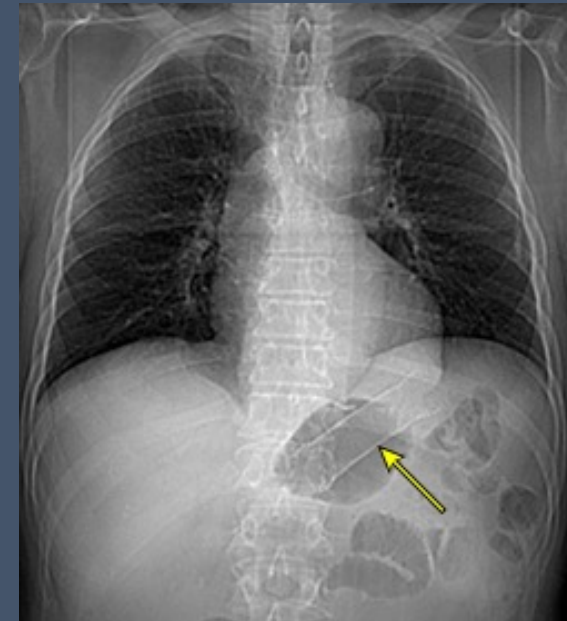
- **Chest pain**
- Bleeding
- GERD/ Aspiration
- Perforation
- Globus sensation
- Stent migration



Complications

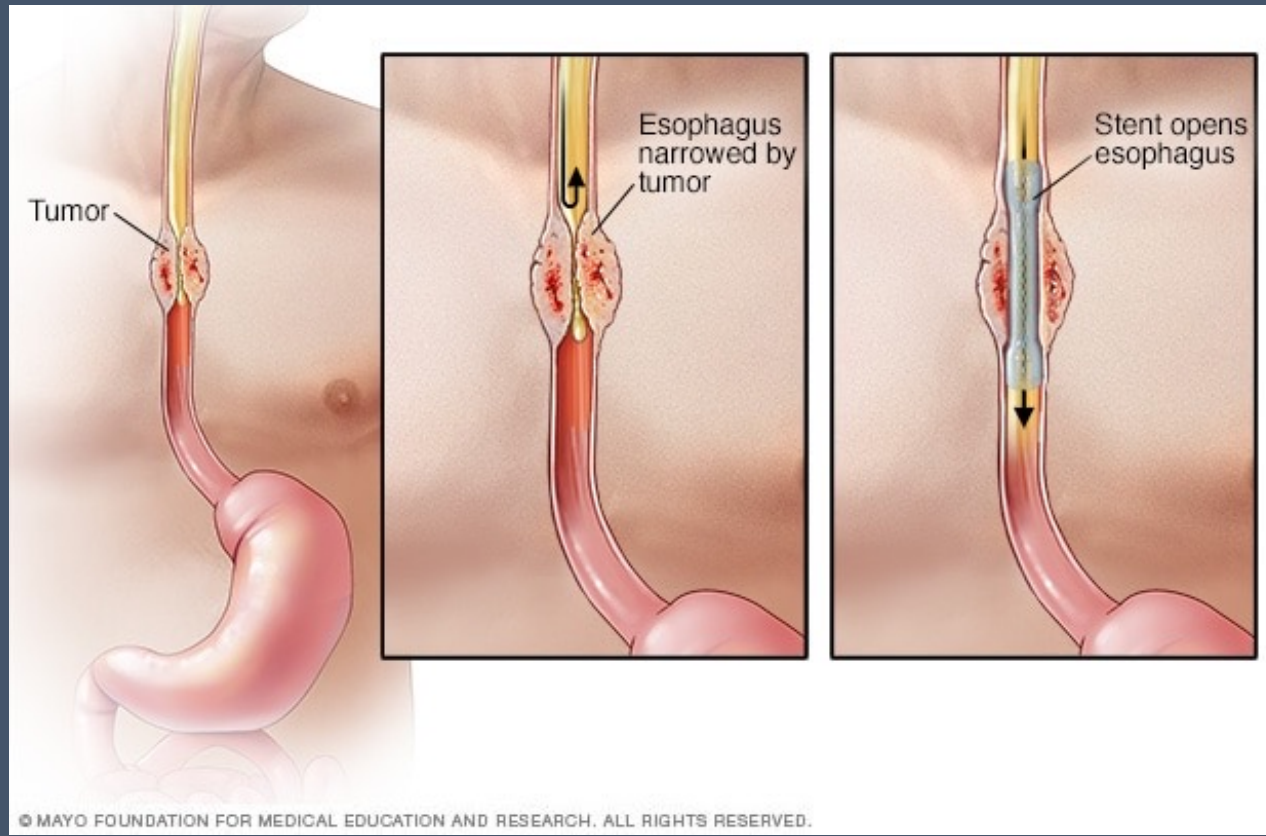
Delayed complications

- Tumor ingrowth or food impaction
- Stent migration
- Esophageal fistula



Case # 1 Esophageal cancer & dysphagia

Goal of stent placement: to relieve dysphagia and improve nutrition



Case # 1 Esophageal cancer & dysphagia

A 68 y/o M with recently diagnosed **esophageal adenocarcinoma**

Disease c/b **progressive dysphagia** leading to admission for malnutrition

Patient wants to eat

Primary team **consulted GI service for esophageal stent**

Case # 1 Esophageal cancer & dysphagia

Always make sure oncology team involved

Note: Patient does **not** have metastatic disease

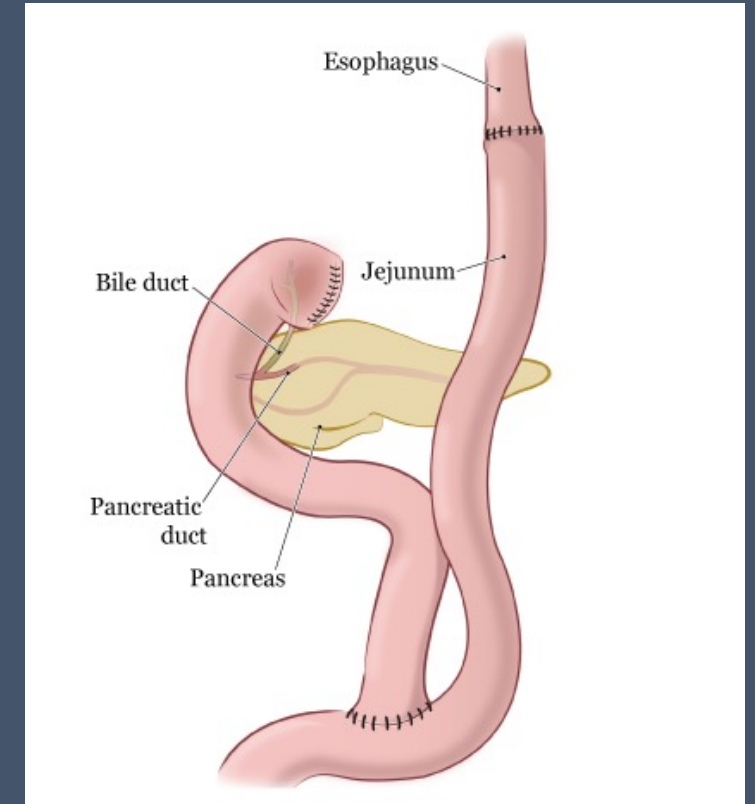
Esophageal stent deferred as patient without metastatic disease and could still have treatment/surgery

In meantime while awaiting oncology treatment a PEG could be placed

Not: Would NOT recommend PEG-J as that could impact esophagectomy in future

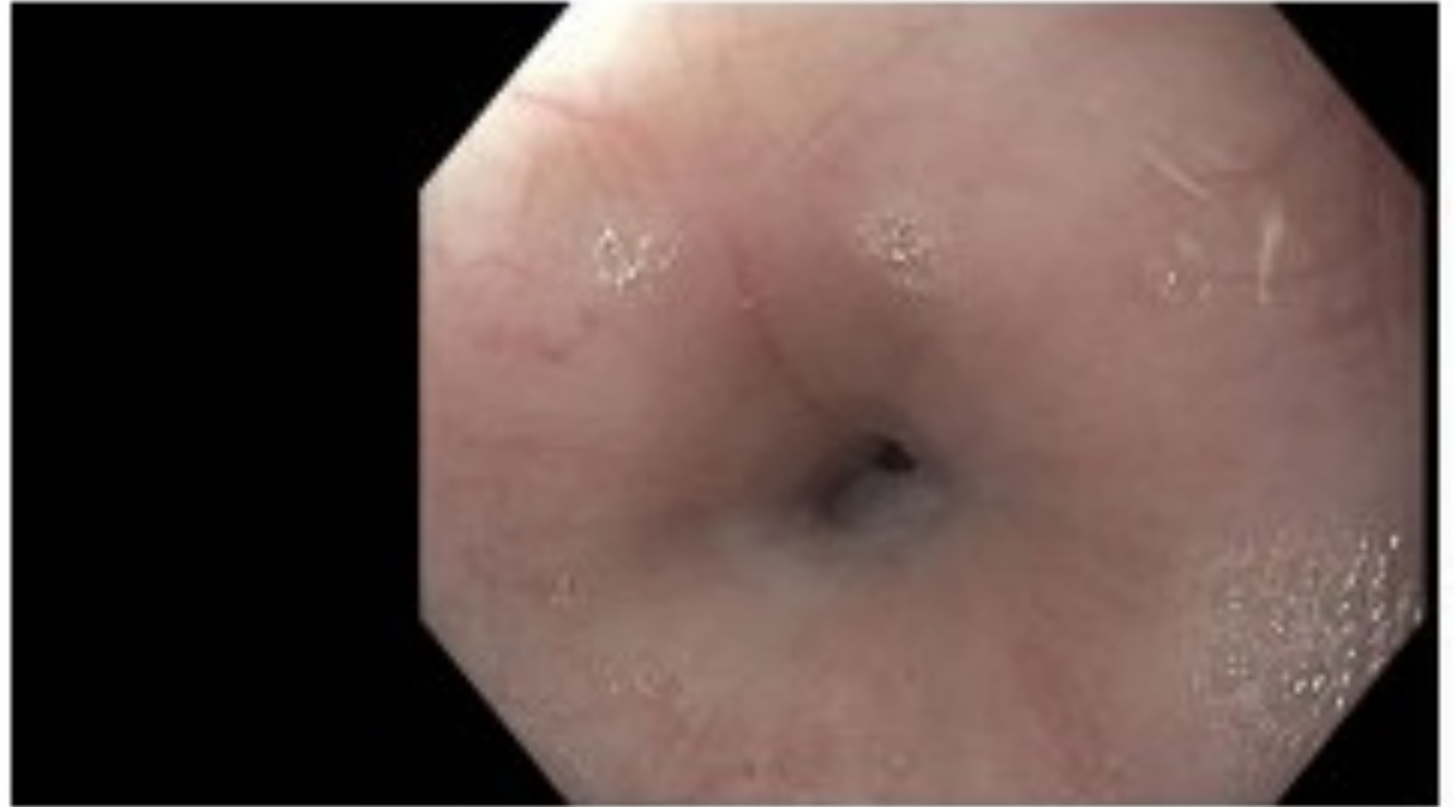
Case #2 Benign stenosis

- 56 y/o M presents with dysphagia
- Pertinent PMH of gastric cancer (2003) s/p subtotal gastrectomy and chemo/XRT (2004) c/b recurrence s/p total remnant gastrectomy and Roux-en-Y (2020) s/p chemoradiation (2021) and now with **dysphagia**
- Oncology follow-up visit December 2021 when he reported food getting “stuck” after swallowing with mostly solid foods
- Referred to Gastroenterology for an EGD



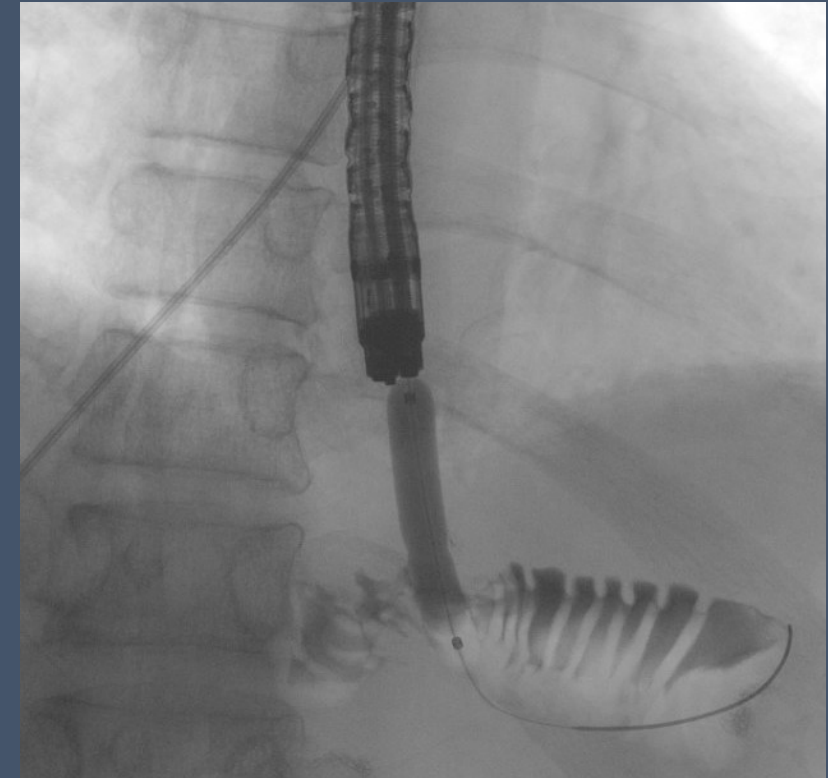
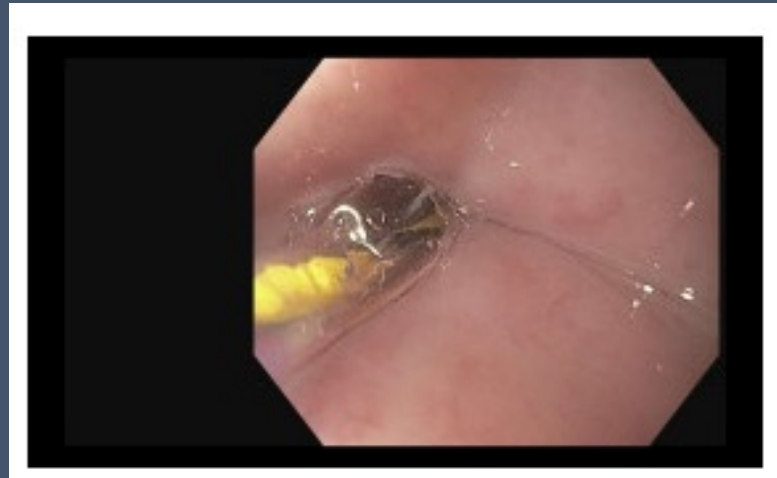
Diagnosis/initial management of EJ stenosis

- EGD February 9, 2022:
 - Tight fibrotic appearing stricture in the distal esophagus
 - This was dilated serially using a CRE balloon 6-->7mm with some mucosal disruption



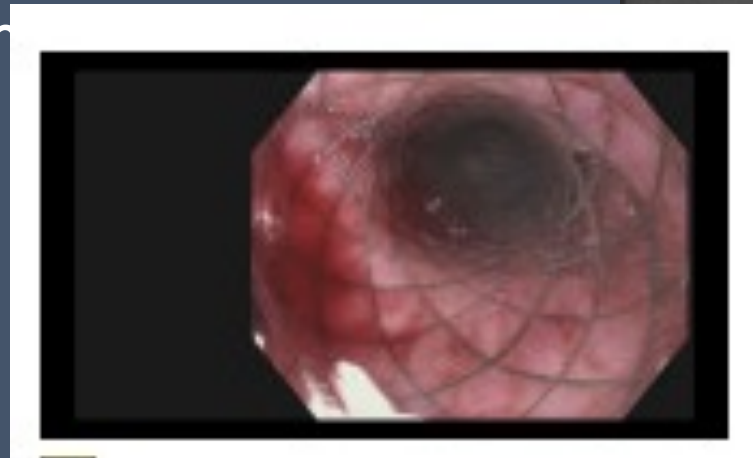
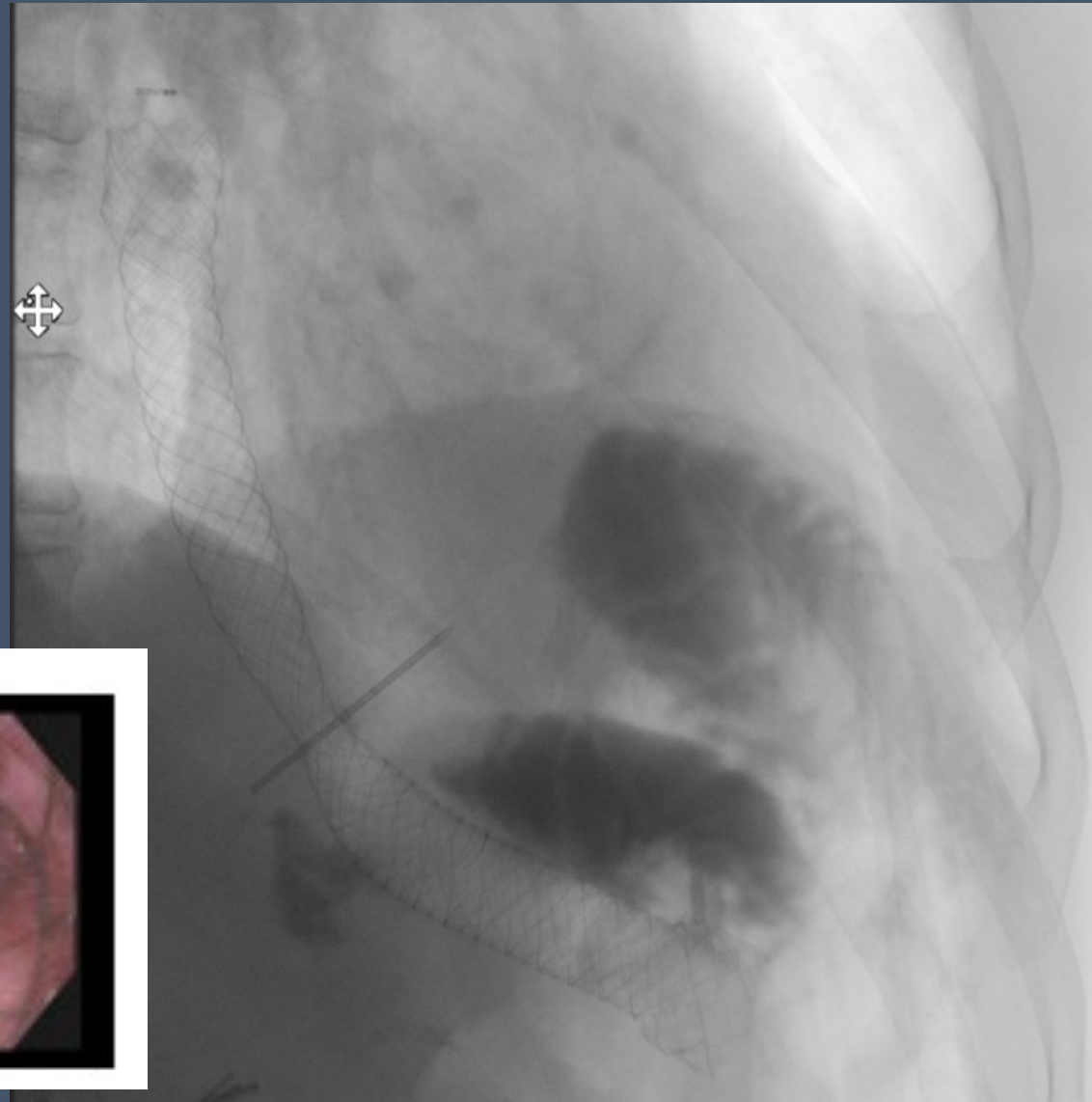
Fluoroscopic guidance for dilation of EJ anastomosis

- EGD April 11, 2022
 - Stenosis present
 - Jag wire placed and under fluoroscopic guidance the stricture was mapped out
 - Dilation performed
 - Contrast was injected and no leak was seen



Stent placement

- Patient with persistent dysphagia despite two previous dilations
- Underwent an EGD May 2, 2022
 - Placement of a 14 mm x 147 mm fully covered esophageal stent across EJ stricture with overstitch to prevent migration



Post procedure care

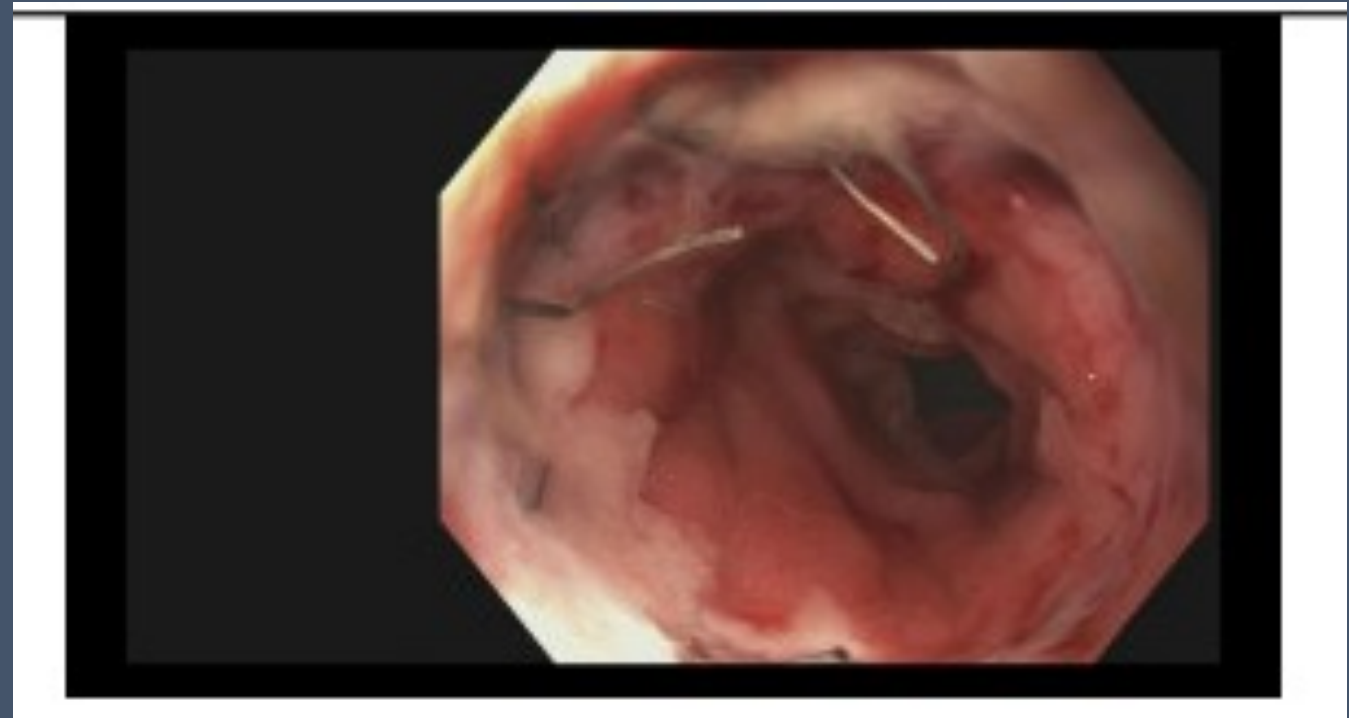
- Patient had to be **admitted to hospital for pain management**
- May 3, 2022 patient requiring IV pain medication and declining to try clear liquids due to significant pain
- May 4, 2022 he continued with need for IV pain medication and inability to tolerate any POs due to pain. **Patient requested stent removal**



Complications: Chest pain

Stent removed May 4, 2022

- EGD:
 - Sutures cut using endoscopic scissors, the stent was then removed using a rat tooth forceps
 - Contrast injected and revealed no leak or extravasation
 - Significant improvement in narrowing at the EJ anastomosis
- Note: Prepare patients as esophageal stents are poorly tolerated especially in benign setting



Updates since stent removed

Now requiring serial dilations with CRE balloon dilator

- June 6, 2022
 - June 21, 2022
 - July 6, 2022;
 - July 20, 2022
 - August 5, 2022 (most recent)
- August 11, 2022 saw nutrition but continued with difficulty eating due to dysphagia
 - Patient is now going to surgery for colonic interposition
 - The choice of the colon as an esophageal substitute (used when there is unavailability of the stomach)

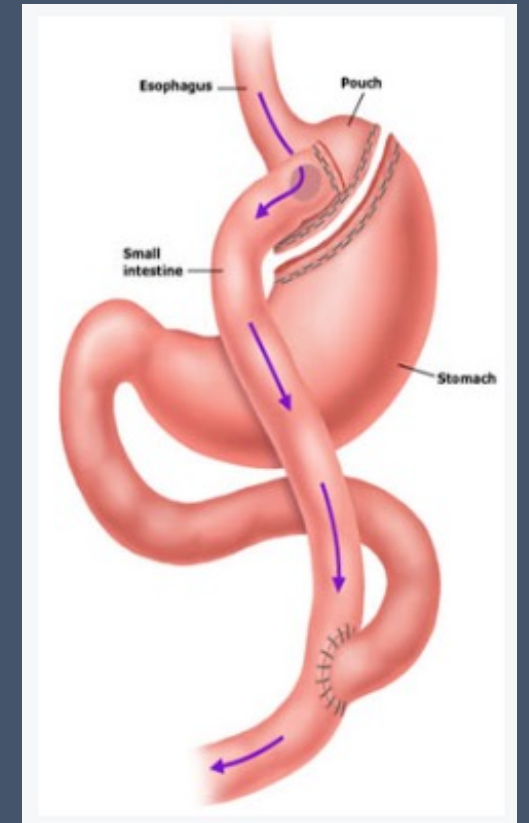


Case #3 EGJ Leak

70 y/o F with PMH of RYGB (2000) later **c/b gastric tumor in remnant stomach s/p laparoscopic resection (January 6, 2021)**. During resection, a paraesophageal hernia containing the gastric pouch was noted and during the repair the **GJ anastomosis was disrupted** and had to be repaired

After surgery she developed severe abdominal pain with imaging concerning for GJ perforation and brought back to OR for repair/oversew and placement of IR drains within fluid collections

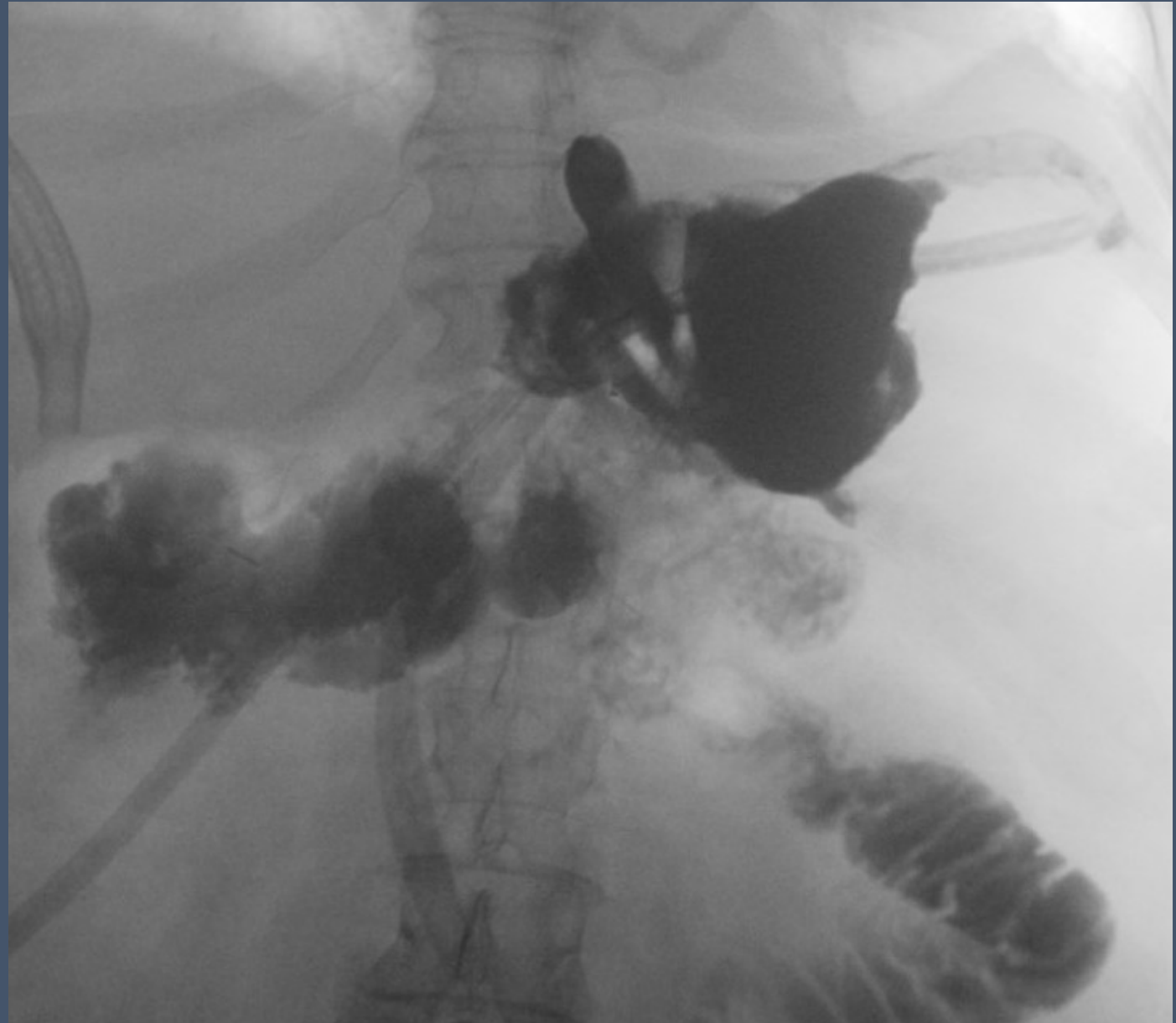
Transferred to MGH on January 14, 2021, for further management of a **persistent GJ anastomotic leak**



Diagnosing the GJ leak

UGI series 1/19/21:

- Findings suspicious for **extraluminal contrast in the upper abdomen concerning for leak at the gastrojejunal anastomosis**



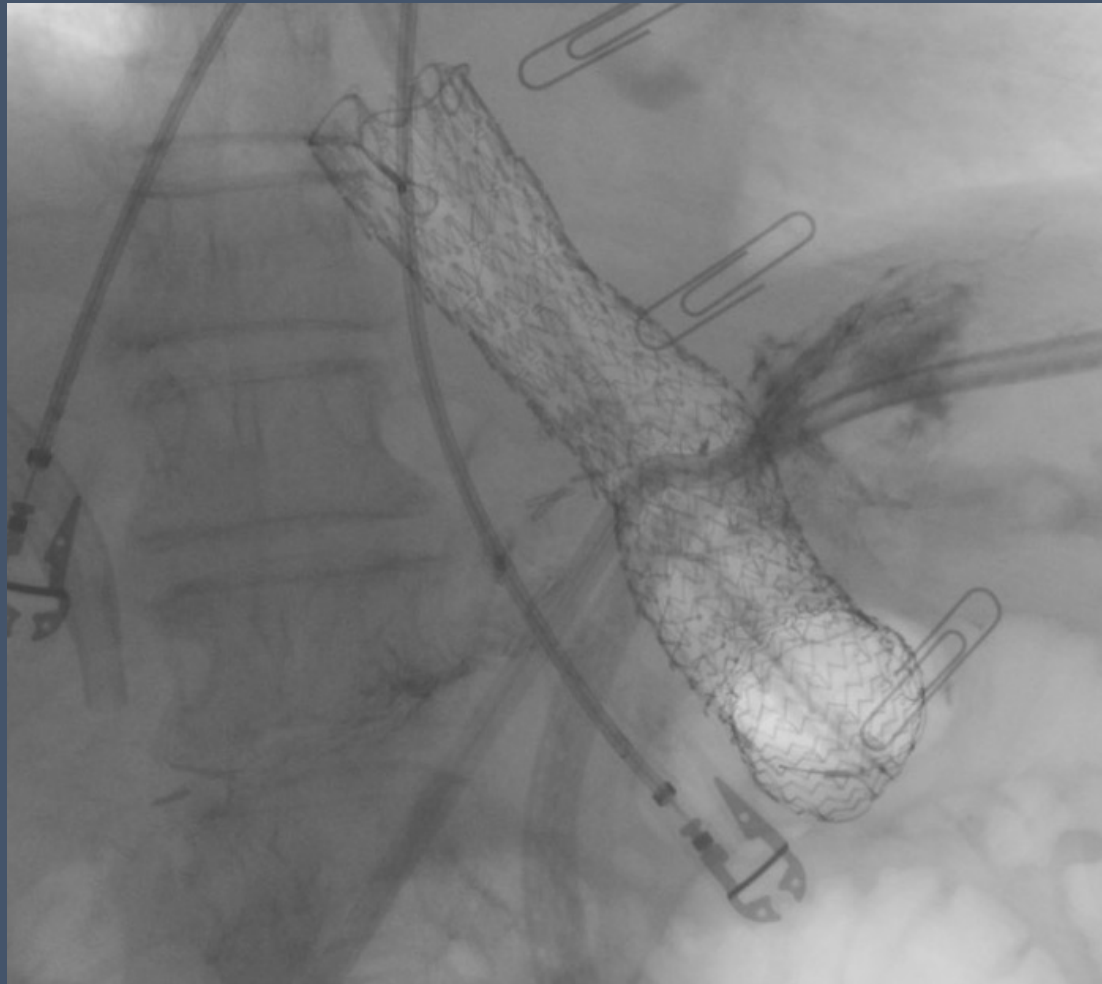
Endoscopic evaluation/management of likely GJ leak

GI consulted for endoscopic management of GJ leak

Underwent EGD January 22, 2021:

- Roux en y anatomy noted with disrupted GJ anastomosis. **Covered esophageal stent placed across the disruption at the GJ.**
- GE junction cavity was lavage but due to the size of the disruption internal drainage was not performed as would need surgical intervention





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Post procedure

- Patient with pain requiring PCA
- January 22 – January 27: Remained with NGT to LWS and strict NPO
- January 26 had a **swallow study which did not demonstrate leak and NGT was removed**
- January 27 **methylene blue challenge without any dye noted in IR drains**
- January 27 tolerated clear liquid diet



Patient update

Discharged on clear liquid diet and continued TPN

February 17 2021: Outpatient CT Abd&Pel; *without evidence of on-going leak at the GJ anastomosis, marked decrease in size of upper abdominal collection with small residual gas and fluid collection/tract*

EGD February 25 202: **Removal of esophageal stent, resolution of prior anastomotic leak**

Patient update

Early March 2021 IR drain removed

UGI series March 31, 2021: No leak or obstruction.

April 2, 2021: GI surgery clinic, doing well, cleared for soft solid diet.

Mid April 2021 she was taken off TPN, diet advanced, and discharged from rehab



QUESTION FOR AUDIENCE

When do you expect chest pain to improve/resolve post esophageal stent placement?

- A. Within 2-4 hours
- B. Within 24-72 hours
- C. Within a week



QUESTION FOR AUDIENCE

When do you expect chest pain to improve/resolve post esophageal stent placement?

A. Within 2-4 hours

B. Within 24-72 hours

C. Within a week

QUESTION FOR AUDIENCE

Which of the following foods would you advise a patient with an esophageal stent to avoid?

A. Oatmeal

B. Scrambled eggs

C. Celery

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QUESTION FOR AUDIENCE

Who would **not** be an ideal esophageal stent candidate?

- A. Patient with metastatic esophageal cancer
- B. Patient with benign esophageal stricture
- C. Patient with esophageal cancer awaiting surgery
- D. Patient with acute leak after esophagectomy
- E. All of the above



QUESTION FOR AUDIENCE

Who would **not** be an ideal esophageal stent candidate?

- A. Patient with metastatic esophageal cancer
- B. Patient with peptic esophageal stricture
- C. Patient with esophageal cancer awaiting surgery
- D. Patient with acute leak after esophagectomy
- E. All of the above



QUESTION FOR AUDIENCE

What type of stent would you recommend for a refractory stricture?

- A. Fully covered
- B. Partially covered
- C. Plastic stent
- D. Uncovered



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Questions?