



PATIENT WITH CONCURRENT PARAESOPHAGEAL AND LEFT DIAPHRAGMATIC HERNIAS

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INTRODUCTION

- A paraesophageal hernia (PEH) is a type of hiatal hernia that occurs in approximately 5% of all hiatal hernias.¹
- Risk factors for PEH include conditions that increase intra-abdominal pressure; i.e., chronic cough, chronic constipation, heavy physical labor, etc.¹
- Gastric volvulus is a rare complication of PEH where $\geq 50\%$ of the stomach undergoes rotation in the hernia sac.¹⁻³
 - Three types of gastric volvulus: organoaxial type, mesentericoaxial type, and a combination of the two. The organoaxial type is the more common type of with the rotation being along the long axis of the stomach.¹⁻²
- Diaphragmatic hernias are not as common in adults as they are in children, as a congenital defect is the cause. In adults, it is termed an acquired diaphragmatic hernia, and is more commonly attributed to blunt or penetrating trauma.⁴⁻⁶
- Also referred to as a traumatic diaphragmatic hernia (TDH) they are often missed in the acute stages in 12%-66% of cases⁵ and can present in later stages with increased morbidity and mortality.⁴⁻⁶
- Classification of phases of TDH.⁴
 - Acute phase = time of the original trauma to recovery from the incurred injuries
 - Latent phase = time from recovery from initial injury, at which time patients may or may not be symptomatic
 - Obstructive phase = when the herniated viscus becomes incarcerated
- Presentation of TDH varies widely, with symptomatology seen in **Figure 1**.

FIGURE 1. Symptomatology⁴

TDH - Most Common Presenting Symptoms

Gastrointestinal

- ✓ Nausea
- ✓ Vomiting
- ✓ Early satiety
- ✓ Postprandial pain
- ✓ Intermittent (partial) obstructive symptoms

Pulmonary

- ✓ Shortness of breath at rest or on exertion
- ✓ Decreased Exercise tolerance

General

- ✓ Chest or abdominal pain/discomfort

CASE DESCRIPTION

Patient demographics: 78-year-old, Caucasian male; 5'9"; 79 kg
Chief Complaint: Episodic moderately severe left upper quadrant pain occurring about 2 times per week

HPI:

- Patient referred to General Surgeon from his Primary Care Provider after complaints of left upper quadrant pain and question of possible splenic infarction. He is asymptomatic at the time of presentation to the clinic.
- Reports severe sharp pain while eating which resolves spontaneously.
- States he has episodes where the "food just will not go down."
- Pain has also awakened him from sleep on several occasions.
- Patient denies any recent injury, illness, or trauma. He does recall a blunt trauma/fall from a ladder 1 year ago but did not have any imaging done at the time.
- Past Medical History: benign essential hypertension, benign prostatic hyperplasia, and gastroesophageal reflux disease
- Surgical history: unspecified abdominal hernia repair, hand surgery, right ear tympanoplasty
- Family history: coronary arteriosclerosis
- Social history: Retired and lives in a home with his wife. Patient is a former pipe smoker – quit 35.5 years ago; alcohol consumption: 1 glass of wine per week

Pre-Operative Physical Exam:

Vital Signs:
Oral Temp 98.2 °F (36.8 °C)
Pulse 58 bpm
Respiration rate 17 breaths/min
BP 120/74 mmHg; R arm; sitting
SpO2 98% on room air

General: Pleasant, alert, and oriented. Not in acute distress.
Lungs: Clear to auscultation bilaterally without rales, rhonchi, or wheezes.
Heart: Regular rate and rhythm normal S1-S2.
Abdomen: Soft, non-distended abdomen. Non-tender to palpation in abdominal regions, no splenomegaly, with normoactive bowel sounds.
Extremities: Well perfused, no clubbing, cyanosis, or edema.

Differential Diagnoses: gastroesophageal reflux disease (GERD), peptic ulcer disease (PUD), gastritis, pancreatitis, splenic infarction, colitis

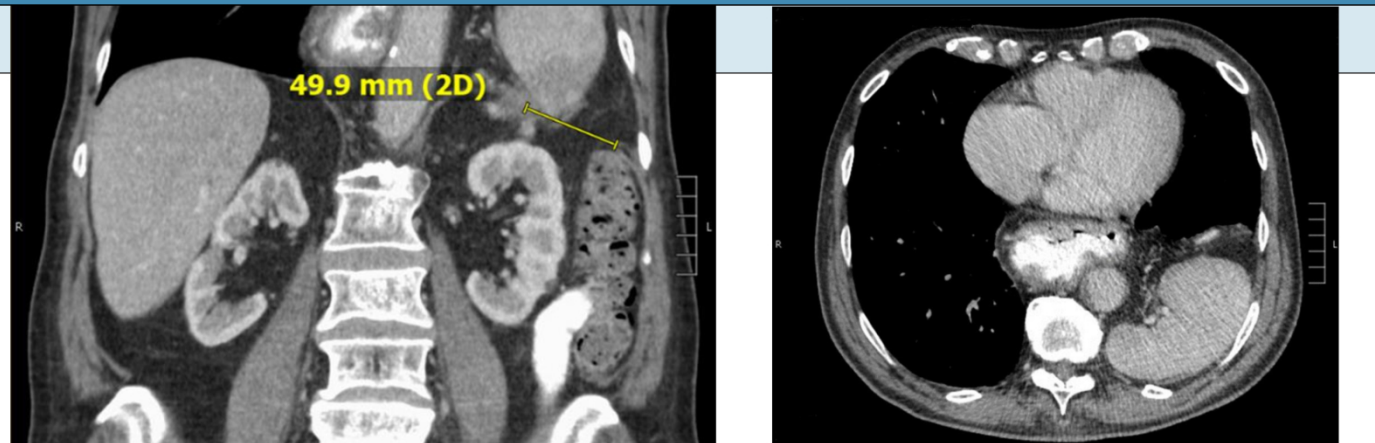
Plan: computerized tomography (CT) scan ordered for further assessment of the patient's condition.

DIAGNOSTIC IMAGING

CT scan results:

- 5 cm posterior diaphragmatic defect on the left containing the spleen, omentum, & tail of the pancreas
- 7 cm paraesophageal defect containing 2/3 of the stomach which had undergone organoaxial volvulus

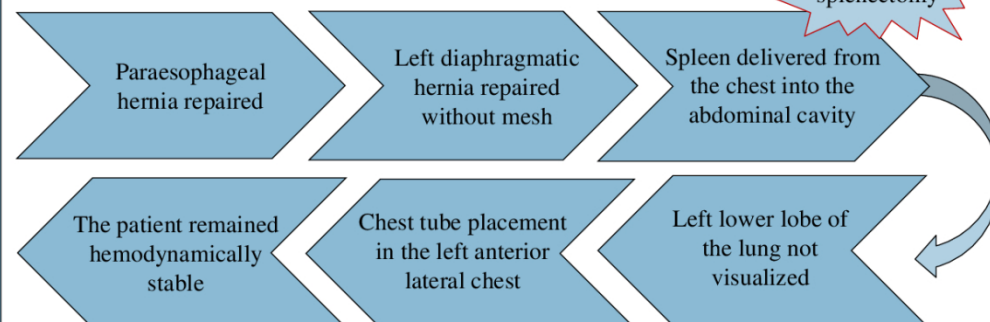
Based on the results of the CT scan and after further discussion with the patient and his family, surgical intervention was scheduled on a semi-urgent basis.



PATIENT MANAGEMENT

The patient underwent robotic repair of both paraesophageal and left diaphragmatic hernias with possible splenectomy.

Intra-Op:



POST-OPERATIVE COURSE

POD#0

- Patient is alert and in no acute distress
- Pain is well controlled
- On a clear liquid diet and receiving IV fluids
- Chest tube in place in the left chest wall without air leak and connected to suction
- Utilizing an incentive spirometer
- On heparin for DVT prophylaxis

POD#1

- Plan to remove the chest tube approved by Surgeon
- No acute distress after chest tube removal with clear lung sounds, no crepitus
- CXR in 3hrs after removal to rule out pneumothorax
- Soft mechanical diet
- Pain control and antiemetics
- Heparin for DVT prophylaxis
- Encourage ambulation and continued use of incentive spirometer

- Vitals and labs remained stable throughout the patient's hospital stay
- Physical exam benign with normal respiratory effort; abdomen soft, nontender, and nondistended

POD#2

- Patient discharged home
- Discharge medications: acetaminophen 325 mg tablet → 3 tablets (975 mg total) po Q6hrs x10 days
- Follow up with Surgeon in outpatient clinic in 2 weeks for wound check

DISCUSSION

- Initial presentation of both PEH and TDH, may be vague, intermittent, and mimic conditions such as GERD and PUD.
- If untreated, PEH may progress to gastric volvulus necessitating emergency surgery and partial or total resection of the stomach.²⁻³
- Complications of TDH can be life-threatening, resulting in diaphragmatic rupture, acute obstructive symptoms, respiratory failure, gastric or intestinal vascular compromise, and cardiac tamponade.⁷
- The size of the defect can also prove to be a challenge in diagnosing an acute injury, as a small diaphragmatic tear may not show marked margins of injury on imaging and lack of any herniated contents.⁵
- When there is a history of trauma, despite the timeframe, one must consider TDH as a potential cause of a patient's symptoms.⁴⁻⁵

CONCLUSION

- In this case, the patient's presentation of PEH and TDH were mild, in comparison to the extent of the defects found on imaging.
- In terms of TDH classification, the patient appears to have been in the latent phase, which is an ideal time to perform surgical intervention.
- It is unknown if the two hernias occurred simultaneously due to previous blunt trauma, or if one preceded the other and caused additional weakness in the diaphragm.
- The outcomes of this case were also positive without the need for splenectomy or an increase in mortality.
- Early diagnosis is key in the management of any type of hernia, so that proper treatment can be established, whether it be medically or surgically, and to avoid any potential life-threatening complications.

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