Dysphagia Lusoria After Weight Loss Surgery

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Introduction

- Dysphasia lusoria is an impairment of swallowing due to esophageal compression from an aberrant right subclavian artery (ARSA)[1]
- Aberrant right subclavian artery occurs during embryogenesis when the fourth vascular arch and right dorsal aorta involute leaving the seventh intersegmental artery attached to the descending aorta[2]
  - 80% of cases – ARSA passes between esophagus and vertebral column[3]
  - 15% of cases – ASRA passes between esophagus and trachea[3]
  - 5% of cases – ASRA passes anterior to both esophagus and trachea[3]
- Majority of patients with ARSA are asymptomatic
- 20-40% of aberrant arteries lead to tracheal-esophageal symptoms[4]
  - Dysphagia consistent with a mechanical obstruction is a common presentation for symptomatic adults[5]
  - Additional symptoms – regurgitation of unchewed food, post prandial bloating, chest pain, thoracic pain, coughing, Horner's syndrome, and "pill esophagitis"[2,3]

Case Presentation

- 49-year-old female with PMH of obesity with BMI 36, hypertension, and burning reflux seen in consultation for weight loss surgery
- **Preoperative Workup**
  - Upper endoscopy showed evidence of esophagitis, diffuse gastritis, bile reflux, and moderately sized hiatal hernia
  - Completion of physician supervised weight loss program and evaluation from a psychiatrist and dietitian
- **Surgery** - Underwent an uneventful laparoscopic Roux-en-Y divided gastric bypass with primary hiatal hernia repair
- **Postoperative Course**
  - Postoperative day one – barium esophagram showed normal postoperative changes (Figure 1)
  - Follow up at one week and one month – doing well, tolerating pureed diet with persistent reflux, lost 17 pounds at one month postoperative
  - Two months postoperative – symptoms of dysphagia with occasional regurgitation of undigested food
- **Dysphagia Workup**
  - CT scan and endoscopy showed compression of the mid esophagus by a posteriorly replaced right subclavian artery, consistent with dysphagia lusoria
  - Barium esophagram – barium pill got stuck at the level of the compression from her aberrant right subclavian artery (Figure 2)
  - Hiatal hernia repair intact with no evidence of obstruction at this site
- **ARSA Surgery**
  - Underwent plug embolization of her ARSA followed by right subclavian to right carotid transposition (Figure 3)
- **Post Procedure**
  - Dysphagia symptoms resolved
  - Continued to lose weight from gastric bypass surgery
  - Able to come off all diabetic and hypertensive medications
  - Gastroesophageal reflux symptoms completely resolved

Imaging

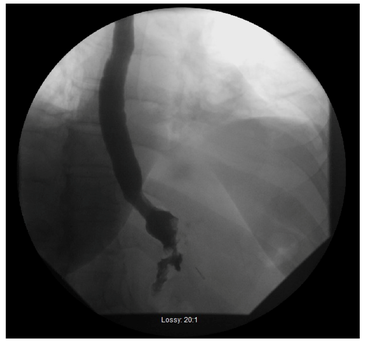


Figure 1 (left): Barium esophagram obtained post-operative day one showing normal post-operative changes and no evidence of compression.

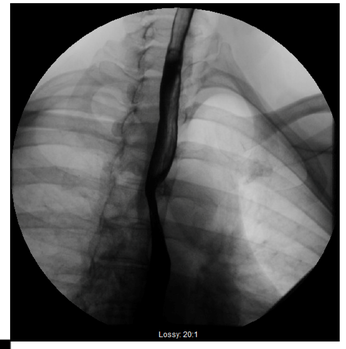


Figure 2 (right): Barium esophagram at two months post-operation showing compression of the proximal third of the esophagus

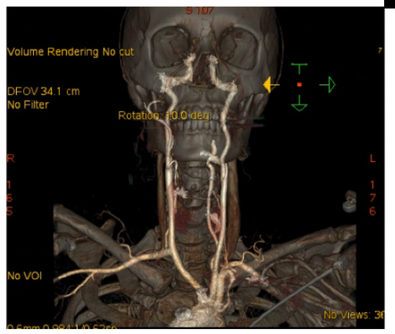


Figure 3 (left): Post-surgical angiogram depicting plug embolization of aberrant right subclavian artery to right carotid transposition

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Discussion

- Dysphagia lusoria is a rare cause of dysphagia in adults
- Majority present in fourth decade of life, similar to the patient in this study
- Best method for diagnosing dysphagia lusoria is barium esophagram followed by either a CT or MRI scan
  - Barium esophagram typically shows oblique ascending extrinsic compression above the level of the aortic arch
  - Both CT angiography and MR angiography can be used to assess the anatomy of the aortic arch and its relationship to surrounding organs[2]
  - Physical exam and upper endoscopy are usually unremarkable[2]
- Severity of symptoms dictates management of dysphagia lusoria patients[2]
  - Changes in lifestyle and dietary modification are successful treatments for mild to moderate symptoms
  - Surgical intervention justified for patients that do not respond to conservative therapy
- Specific surgical approach not determined[6]
  - Surgical approach largely dictated by the surgeon's personal preferences and the vascular anatomy[2]
  - Goal of surgery – remove the aberrant vessel and reconstruct the vessel in its appropriate position
  - Common surgical approaches – cervical approach, sternotomy, thoracotomy contralateral or ipsilateral to the side of the aortic arch (in cases of aneurysmal disease), or a combined approach[7]
    - Presented case – cervical approach utilized using an incision over the supraclavicular fossa

Conclusion

- We hypothesize that the patient's dysphagia lusoria may be related to her considerable weight loss following gastric bypass surgery and that the loss of the periesophageal fat pad may have allowed for esophageal compression by the ARSA

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