Two Cases of Aortoenteric Fistula Following Foregut Surgery

Benjamin Smith MD, Justin Dhyani MD, Vladan Obradovic MD, Anthony T. Petrick MD
Geisinger Medical Center, Danville, PA

Background

- Aorto-enteric fistula (AEF) is a rare entity with a high mortality rate that presents both diagnostic and therapeutic challenges
- AEFs are categorized as primary or secondary
  - **Primary** (<1%) - occur due to aortic aneurysm, foreign bodies, tumors, radiation therapy, and infection[1, 3]
  - **Secondary** (up to 1.6%) - occurs after open or endovascular aortic intervention[2,4]
- **Presentation**
  - A sentinel upper GI bleed followed by catastrophic hemorrhage
  - Abdominal pain and a pulsating abdominal mass

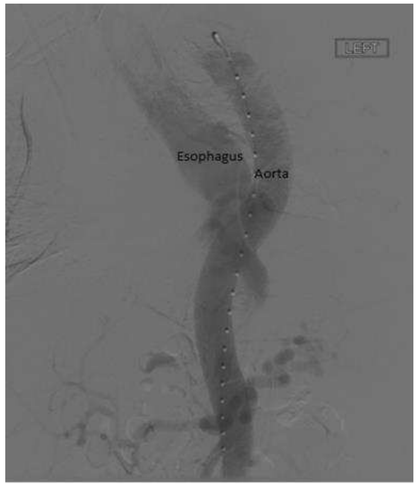
Case 1

- A 63-year-old female with a history of distal esophagectomy following complications from a paraesophageal hernia repair
- Presented in hemorrhagic shock with acute onset hematochezia and hematemesis
- An esophagogastroduodenoscopy (EGD) found blood in the stomach, but unable to visualize the location of the bleed
  - Temporized with a Blakemore tube
- Taken to the endovascular operating room for combined EGD and endovascular treatment
  - Brisk arterial bleeding was noted from ulceration at the esophagogastric anastomosis
  - An aortogram was performed via femoral artery access
    - Confirmed an AEF (figure 1)
  - An endovascular stent was placed with complete occlusion of the fistula
- The patient did well for about two years, at which time the aortic stent graft was visible on EGD
  - Required thoracic aortic reconstruction with esophagectomy and diversion
  - Underwent esophageal reconstruction with colonic interposition about three months later
- Doing well at 10-year follow-up and described an excellent quality of life

Case 2

- A 41-year-old male with a history of Nissen fundoplication at age 17 and known recurrent hiatal hernia
- Presented to an outside hospital with syncope and dry heaving
  - CT showed herniated fundoplication with gastric ischemia and concern for aortogastric fistula (**Figures 2,3**)
- Taken to the operating room for an emergent laparoscopic takedown of the herniated fundoplication
  - Fundoplication was reduced except for a portion of the posterior stomach adherent to aorta
  - This tissue was transected, fully reducing the hernia
  - Brisk arterial bleeding was noted from the transected portion of the stomach
  - Converted to laparotomy with direct aortic pressure while endovascular access was established via the femoral artery
  - An aortic stent was placed occluding the fistula, and the abdomen was packed
- Brought back to the OR for definitive paraesophageal hernia repair two days later
- Eventually discharged home and made a full recovery with an excellent quality of life at 4-month follow-up

Figure 1: Aortogram demonstrating Aorto-enteric fistula



Conclusion

- AEF should be in the differential for patients with a history of foregut surgery who present with mediastinal inflammatory processes and acute gastrointestinal bleed
- Arterial imaging is essential but may not definitively diagnose an AEF after a sentinel bleed
- Initial management includes resuscitation and hemorrhage temporization
- Endovascular aortic repair is preferred over open repair, given decreased morbidity and mortality
- Definitive surgical repair can be achieved, but may need to be staged
- Providers should maintain a high index of suspicion and prepare for a combined foregut and endovascular approach

Figure 2: Enhancing aortogastric fistula on CT scan



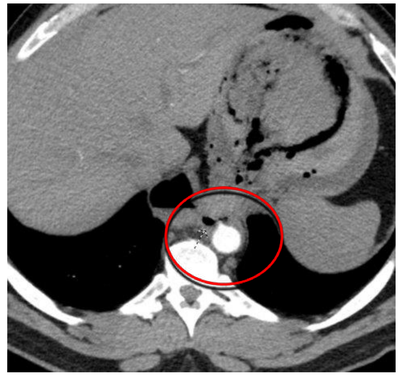


Figure 3: Enhancing aortogastric fistula on CT scan

References

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4. Hallet et al. Journal of Vascular Surgery. 1997