Massive Hematemesis: Case of Esophageal-Subclavian Fistula

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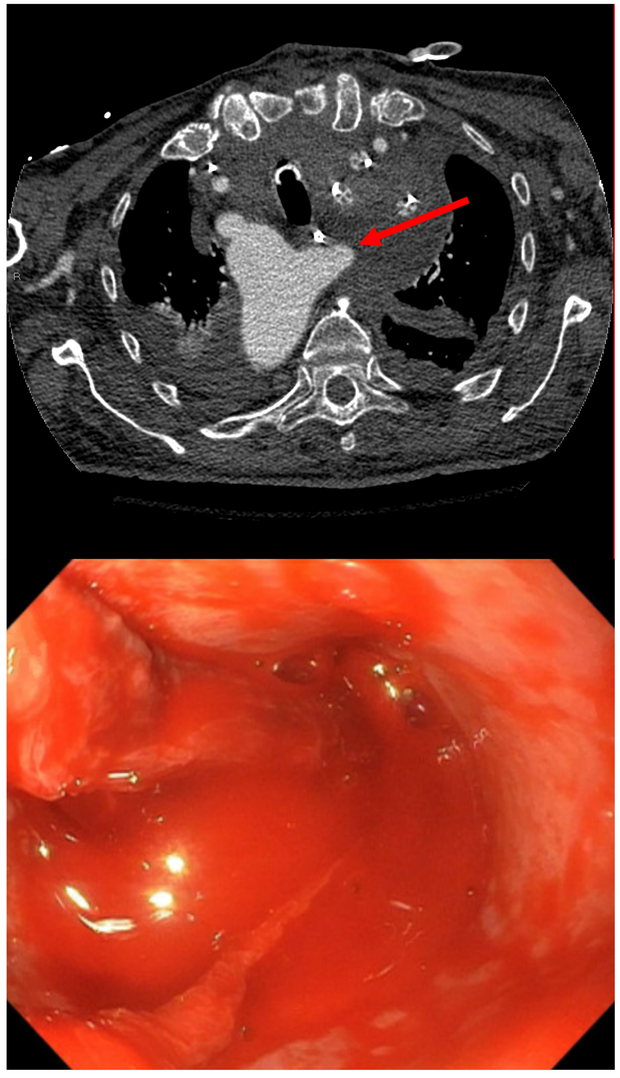
INTRODUCTION

- Esophageal-subclavian fistulae are rare and are most commonly seen as a complication of congenital aortic arch abnormalities.
- An aberrant left subclavian artery (ALSA) is an uncommon anatomical variant that occurs in approximately 1% of the general population.
- Here, we report a case of an esophageal-subclavian fistula leading to massive hematemesis in a patient with a right aortic arch with an ALSA.

CASE DESCRIPTION

- A 76-year-old male with atrial fibrillation, prior pulmonary embolism (on anticoagulation), and multinodular goiter presented to an outside hospital after being found down at home.
- Patient was transferred to our center for resection of the goiter causing airway compression.
- The post-operative course was complicated by multiple infections and prolonged intubation.
- CT imaging incidentally noted a four vessel aortic arch with retro-esophageal ALSA.
- Two months into the hospitalization, patient had large volume hematemesis and subsequent cardiac arrest requiring multiple rounds of resuscitation and Blakemore tube placement into the esophagus.
- Upon deflation of the Blakemore, he again went into cardiac arrest and was ultimately dependent on continuous massive transfusion protocol before successfully deflating the device.
- Emergent endoscopy was notable for clotted blood in the stomach and active, pulsatile bleeding of the proximal esophagus (25cm), concerning for artero-esophageal fistula.
- Thoracic surgery, cardiac surgery, and vascular surgery were consulted; however, given overall poor prognosis and high risk with invasive surgery, no operative intervention was offered.
- Patient was transitioned to comfort care and died two days later.



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DISCUSSION

- While arterial-esophageal fistulae are rare, it is important to recognize these cases early as they can lead to fatal hemorrhage if not surgically intervened upon.
- In the case of ALSA, the vessel takes a retro-esophageal course and often forms a dilated segment at the proximal end, called a diverticulum of Kommerell, which compresses the esophagus posteriorly.
- The vascular pressure on the esophagus can ultimately create a fistula.
- Prolonged use of indwelling devices, such as nasogastric tubes (NGT) and endotracheal tubes (ETT), may create pressure necrosis and erosion of the posterior wall, thus contributing to fistula formation.
- While there are currently no guidelines for screening for aortic arch abnormalities, those with aortic arch abnormalities noted on CT imaging may benefit from avoidance of prolonged use of NGT or ETT.

Figure 1. *CT-Chest w/ Con*: Right-sided aortic arch with separate origins of the right subclavian, right common carotid, left common carotid, and left subclavian arteries. The left subclavian artery branches near the diverticulum of Kommerell (arrow) and passes posterior to the esophagus.

Figure 2. *Endoscopy report*.
- Red blood in the entire esophagus with large fibrin clot
- Suspected aorto-enteric fistula at 25cm found in the proximal esophagus with active, spurting bleeding under apparent systemic pressure
- Clotted blood in the entire examined stomach