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Case Report

AORTIC PSEUDO-ANEURYSM WITH AORTOESOPHAGEAL FISTULA IN ESOPHAGEAL MALIGNANCY DETECTED ON CT ANGIOGRAPHY: A CASE REPORT

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ABSTRACT
Aortoesophageal fistula is a rare cause of gastrointestinal bleeding with a poor prognosis. Classically the patients present with the triad of midthoracic pain, sentinel arterial hemorrhage, and exsanguination after a symptom-free interval. The diagnosis can be made rapidly with CT angiography. Aortic pseudoaneurysm and aortoesophageal fistula due to invasive esophageal cancer is rare and usually fatal due to massive haemorrhage. This case report describes an aortic pseudoaneurysm and aortoesophageal fistula in a patient with esophageal cancer in a patient with hematemesis, referred to the emergency department. The diagnosis was promptly made on Multidetector Computed Tomography (MDCT). The patient died despite aggressive management.

Abbreviation
TEVAR – Thoracic endovascular aortic repair
AEF – Aorto esophageal fistula

***Keywords**: MDCT, Aortic Pseudo Aneurysm, Aorto Esophageal Fistula, Carcinoma Esophagus*

INTRODUCTION
Aortoesophageal fistulas constitute upto 10-20% of aortoenteric fistulas (Molina *et al.,* 1995). Aortic pseudoaneurysm and aortoesophageal fistula are uncommon, and have a high mortality. The poor prognosis is in part due to the difficulty in making a timely diagnosis for surgical intervention. More commonly it is discovered late after catastrophic upper gastrointestinal hemorrhage or at post mortem (Kapoor *et al.,* 2005). In some cases there may be interval between a sentinel hemorrhage and fatal hemorrhagic event in which diagnosis and life saving procedure can be performed (Chandrashekar *et al.,* 2007; Carter *et al.,* 1978). A high index of suspicion and radiological imaging using multidetector computed tomography may be able to help make a quick diagnosis and decrease mortality. In the index report, we present a case of aortoesophageal fistula diagnosed on CT Angiography.

CASE
A 60-year-old male follow up case of squamous cell carcinoma esophagus (T4aNOMO) currently under chemotherapy presented to the emergency department with complaints of severe chest pain for 3 days, associated with massive hematemesis. The patient was hypotensive (BP 78/49 mmHg) tachypneic, and non responsive. Emergency management with fluid resuscitation and blood transfusion was given to quickly stabilize the patient. Subsequently, CT Angiography (CTA) of the chest was done which showed irregular mural thickening involving the mid thoracic esophagus in the sub-carinal location, eroding the aortic wall and causing formation of a contrast filled outpouching with contrast leak from aorta into lumen of esophagus. High attenuation fluid suggestive of haematoma was seen surrounding the outpouching in the esophageal lumen (Figures 1). Hematoma was seen in the entire length of the distal esophagus and also extending into the stomach. The diagnosis of aortic pseudoaneurysm and

aortoesophageal fistula was made and endovascular stenting planned however, the patient died in spite of aggressive resuscitation measures before being shifted for TEVAR.

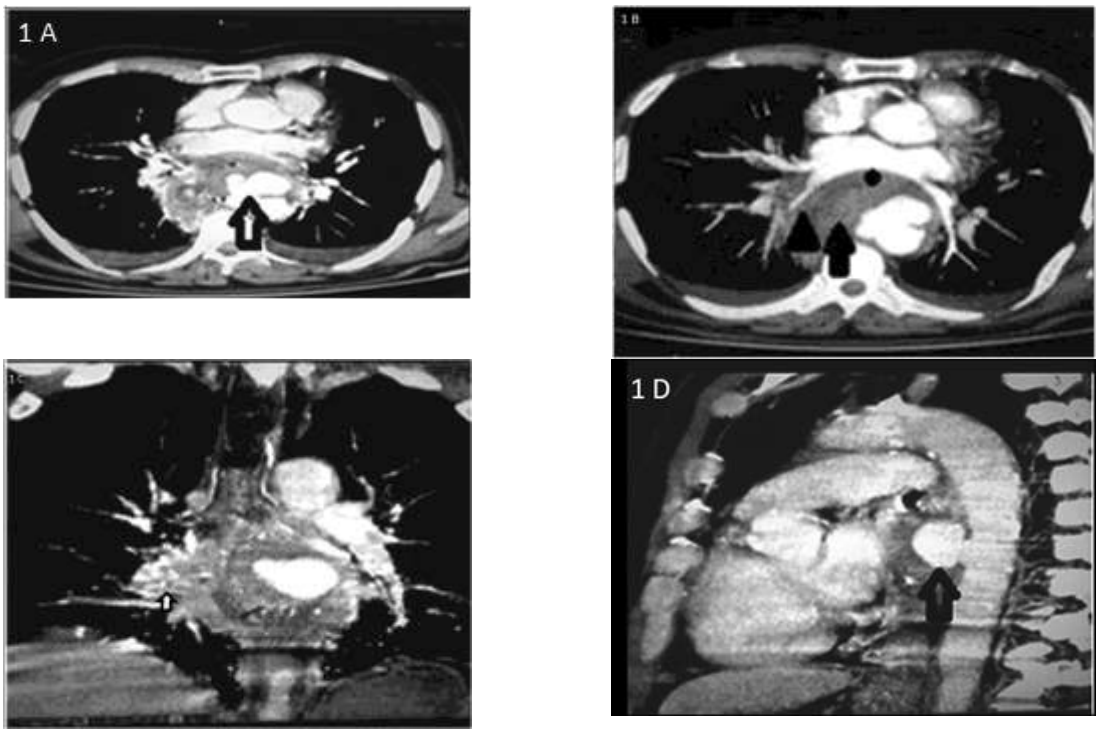

Figure 1 [A-D]. CTA axial (A and B), coronal (C) and sagittal (D) images showing irregular mural thickening of oesophagous in sub carinal location eroding into aortic wall forming a contrast filled outpouching (open arrow A and D) with active extravasation of contrast into oesophageal lumen .Encasement of right inferior pulmonary vein (arrowhead in C) and hyperdense fluid in surrounding lumen seen (solid arrow in B).

Table 1: Causes of aortoesophageal Fistula

Atherosclerotic thoracic aortic aneurysm
Mycotic aneurysm
Pseudoaneurysm
Penetrating ulcer of the thoracic aorta
After repair of thoracic aneurysm
Foreign body
Carcinoma of the esophagus
Benign esophageal ulceration
After esophageal surgery
Tuberculosis in the mediastinum
Radiotherapy

DISCUSSION

Primary pseudoaneurysm of aorta with aortoesophageal fistula is a rare phenomenon (Alrenga 1976; Hollander and Quick 1991). There are a varied number of events which may lead to precipitate a

pseudoaneurysm and aortoesophageal fistula. These include infection, trauma, a low platelet count, suture rupture, iatrogenic injury, tissue necrosis, and infiltrating neoplasms (Albuquerque *et al.*, 1992 and Mlekusch *et al.*, 2006; Byard, 2013) [Table 1].

1. Aortic pseudoaneurysm and aortoesophageal fistula is uncommon but well described complication of carcinoma of the esophagus (Gabrail *et al.*, 1991). The classical clinical presentation of aortoesophageal fistula is Chiari Triad, which includes mid thoracic pain, a sentinel bleed, and a terminating hemorrhagic event (Molina *et al.*, 1995). The occurrence of these classical symptoms occurs however only in a minority of patients with malignant neoplasm of the esophagus (Carter *et al.*, 1978). Our patient had a sentinel hemorrhage, followed by a stable uneventful interval terminating with massive exsanguination, but with absence of any mid thoracic pain.

There are several factors that lead to aortoesophageal fistula formation in the setting of an esophageal malignancy. It may be caused by thrombosed vasa vasorum with aortic perforation, which accelerate formation of fistula between the aorta and esophagus (Gabrail Poon 1991; Söreide *et al.*, 1976; Poon *et al.*, 1968). In addition, direct invasion from tumors in the adventitia, bacterial infection, and ulceration as tumor disintegrates may also contribute to formation of fistula (Hollander and Quick 1991, Postoloff and Cannon 1946; Barron, 1916; Schattenberg and Ziskind, 1939). In this case likely cause appears to be invasion of the wall of the aorta by neoplastic cells from an esophageal focus and subsequent necrosis of tumor with initiation of chemotherapy.

Aortoesophageal fistula is frequently diagnosed late or discovered on autopsy. However, in our case a definitive diagnosis was made by CT Angiography. Additionally, aortography and esophagography are ancillary methods used for diagnosis (Barron, 1916). Upper gastrointestinal endoscopy should be avoided as it can trigger a lethal hemorrhagic event (Molina *et al.*, 199, Schattenberg, Ziskind, 1939). Present treatment strategy is combination therapy which includes controlling fatal bleeding with TEVAR in urgent phase and radical surgery in semi urgent phase.

Combined early endovascular and late surgery have been shown to be more effective in some cases.

CONCLUSION

Aortoesophageal fistula is an acute emergency and unstable patient requires urgent management. Rapid diagnosis allows for timely initiation of a measured management approach. CT Angiography is a quick effective method for accurate diagnosis of aortoesophageal fistula before initiation of endovascular/surgical intervention.

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