

# ARTERIA LUSORIA AND KOMMERELL ANEURYSM WITH ESOPHA-GEAL FISTULOUS COMMUNICATION: REPORT OF A RARE CASE

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## ABSTRACT

An aberrant right subclavian artery with a kommerell aneurysm is seldom seen. Kommerell aneurysm has the proclivity and inclination to rupture, therefore, accurate diagnosis is critical. We report a case of 80 years old-age man who presented to our emergency department with a 2-month history of mild cough and 2 weeks history of hematemesis. The patient was vitally stable and a chest radiograph was performed to evaluate the pulmonary findings. Significant superior mediastinal widening was noted. CT aortogram showed a contained ruptured aneurysm at the origin of the aberrant right subclavian artery having retro esophageal course with posterior mediastinal hematoma reaching up to carina. Overall findings were suggestive of the variant anatomical origin of the right subclavian artery with kommerell aneurysm and its esophageal fistulous communication. Precise diagnosis plays a crucial role in the successful management of this potentially fatal and lethal condition.

**Keywords:** Aberrant right subclavian artery, Kommerell s diverticulum, fistulous esophageal communication

## Introduction

Aberrant right subclavian artery, also known as arteria lusoria, is noted in approximately 1% of the population and Kommerell diverticulum is seen in about 60% of cases of aberrant subclavian artery.<sup>1</sup> Aneurysmal dilatation of these are rarely seen. These can be asymptomatic or can also be symptomatic by causing mass effect on adjacent structures like trachea and esophagus.<sup>2</sup> Aneurysm can be life threatening if ruptured and needs urgent surgical/endovascular repair. We report a case of 80 years old who was diagnosed with aberrant right subclavian artery with kommerell aneurysm and its esophageal fistulous communication.

## Case Presentation

Old-age man presented to our emergency department with a 2-month old history of mild cough and 2 weeks

history of hematemesis. The patient was vitally stable and a chest radiograph was performed that showed significant superior mediastinal widening of about 15.7 cm in maximum transverse dimension was noted without any lobar collapse or pneumothorax. An urgent CT aortogram was done that showed a contained ruptured aneurysm at the origin of the aberrant right subclavian artery having retro esophageal course with a largely contained sac of what appears posterior mediastinal hematoma reaching up to carina measuring approximately 7.3 x 8.8 x 10.3 cm (AP X TR X CC).

An imperceptible anterior wall of hematoma was noted with the esophagus and multiple internal air locules concerning communication with the esophagus. Irregular star-shaped fronds of active contrast extravasation are seen in this largely contained sac. The rest of the visualized arteries show no stenosis

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or pseudoaneurysm. Overall findings were suggestive of the variant anatomical origin of the right subclavian artery with Kommerell aneurysm and its esophageal fistulous communication.

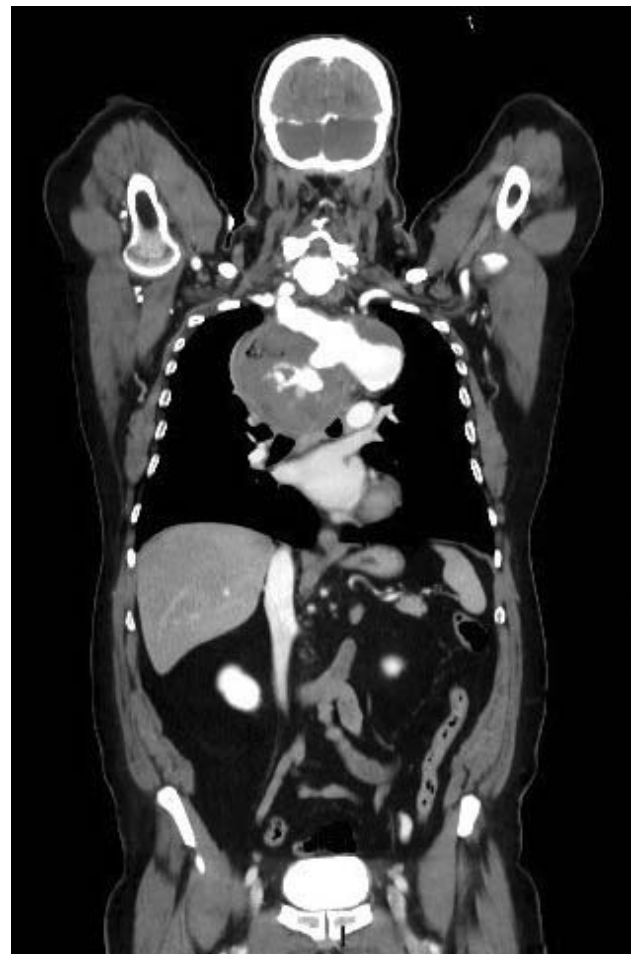
Patient had sudden onset of hematemesis and was immediately taken to operating room but unfortunately patient died in the room due to massive bleed.



**Figure 1:** Axial contrast enhanced CT aortogram at the level of arch of aorta showing aberrant right subclavian artery



**Figure 2:** Axial contrast enhanced CT aortogram at the level of arch of aorta showing an irregular star-shaped fronds of active contrast extravasation representing contained ruptured aneurysm and air locules representing fistulous communication with anteriorly placed esophagus



**Figure 3:** Coronal contrast enhanced CT shows Kommerell Aneurysm with multiple air locules representing fistulous communication

## Discussion

Aberrant right subclavian artery is an anatomical variant and also called as arteria lusoria. Kommerell diverticulum was used for the first time back in 1936 to represent a diverticulum at the origin of an aberrant right subclavian artery in a left-sided aortic arch. Aberrant right subclavian artery and its aneurysm is rarely seen. An aneurysm of a Kommerell diverticulum is often abbreviated to the term Kommerell aneurysm. These aneurysms seen as a fusiform dilation of the diverticulum at the origin of the aberrant subclavian artery.<sup>1</sup> The Kommerell's diverticulum is also called as lusoria diverticulum, remnant diverticulum, or lusoria root. Three types of aortic arch diverticulum have been previously described in literature.

1. Aberrant right subclavian artery with diverticulum in left sided aortic arch.
2. Aberrant left subclavian artery with diverticulum in a right-sided aortic arch.
3. Diverticulum at the aortic ductal junction.

Based on Edwards classification, right-sided aortic arch can be of three types:

Type 1 - Right-sided aortic arch with mirror image arch branches.

Type 2 - Right-sided aortic arch with aberrant left subclavian artery and Kommerell's diverticulum.

Type 3 - Right-sided aortic arch with isolated left subclavian artery communicating with the pulmonary artery.

Presentation can be asymptomatic or may cause symptoms due to mass effect on trachea and esophagus.<sup>2</sup> These symptoms depend on the location and size of the aneurysm (posterior to esophagus, between esophagus and trachea or anterior to trachea). Aneurysms are associated with a high mortality rate if they rupture. These diverticulum can be managed using open or endovascular approaches with low morbidity and mortality.

Treatment strategy should depend on clinical presentation and patient factors. Early diagnosis plus surgical and/or endovascular management is pivotal and can be lifesaving.<sup>3</sup> Postoperative morbidity account for ischemic complications or subclavian steal syndrome secondary to vascular reconstruction and phrenic or recurrent nerve injury. Pulmonary embolism, bleeding, sepsis and chylothorax lead to increasing rate of mortality.



Figure 4

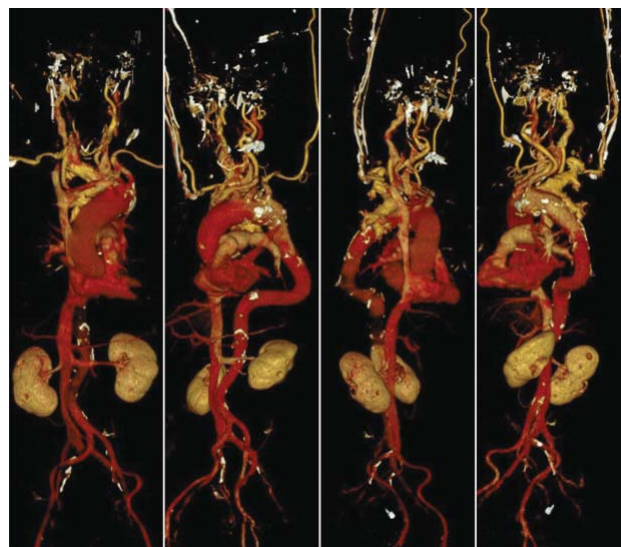


Figure 5

Figure 4 and 5: 3D reconstruction/volume rendered 3D images showing left aortic arch with aberrant origin of right subclavian artery and its Kommerell Aneurysm

## Conclusion

Arteria lusoria with its kommerell aneurysm having fistulous esophageal communication is emergency and needs urgent diagnosis with immediate surgical and/or endovascular management to lesser mortality.

**Conflict of Interest:** All authors declare no conflict of interest.

**Funding Role:** None to declare.

**Author Contributions:** All authors contributed equally to the drafting of study.

**Ethical Statement:** The patient signed an informed consent form, as per the ethical guidelines of hospital board.

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