



### Case Report

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## Dysphagia lusoria: A rare sighting

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### Abstract

Aberrant right subclavian artery is a rare cause of dysphagia. It is a congenital anomaly in which the right subclavian artery originates from the dorsal part of the aortic arch and courses through the mediastinum between the esophagus and the vertebral column. We report a case of a patient with chronic dysphagia caused by this condition. The case is discussed further in regards of imaging and treatment options.

**Keywords:** Lusoria, Aberrant light, Subclavian artery.

### INTRODUCTION

Dysphagia is a subjective awareness of difficulty or obstruction during swallowing [1]. It is a common disease and has shown a recent increase in its incidence recently. It is characterized by difficulty in swallowing, caused due to compression of the esophagus from an anomalous right subclavian artery that arises from the descending aorta and courses behind or in front of the esophagus.

It was first described by Bayford in 1794 as *lusus naturae*, meaning a freak or jest of nature, the so called "dysphagia lusoria" [2].

The aim of this case report is to describe a female patient with a chronic history of dysphagia in whom all other causes had been ruled out.

### CASE REPORT

A 48 years old female patient presented to the ENT outpatient department, with the chief complaints of difficulty in swallowing solid foods more than liquids, since 11 years, which had recently worsened. The nutritional status of the patient appeared to be of average built. There was no visible swelling in the neck region.

### CT FINDINGS

- In our case there is e/o aberrant right subclavian artery arising from arch of aorta and coursing to right side posterior to esophagus s/o aberrant right subclavian artery causing compression of the esophagus.
- Visualized bilateral pyriform fossae, aryepiglottic folds, epiglottis, thyroid cartilage, Oesophagus, and trachea appear normal.
- Cervical spine appears normal
- Mucosal thickening in left maxillary and sphenoid sinus

### Impression: CT neck reveals

Aberrant right subclavian artery causing compression of the oesophagus (dysphasia lusoria).

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## DISCUSSION

The arch of aorta has 3 branches:

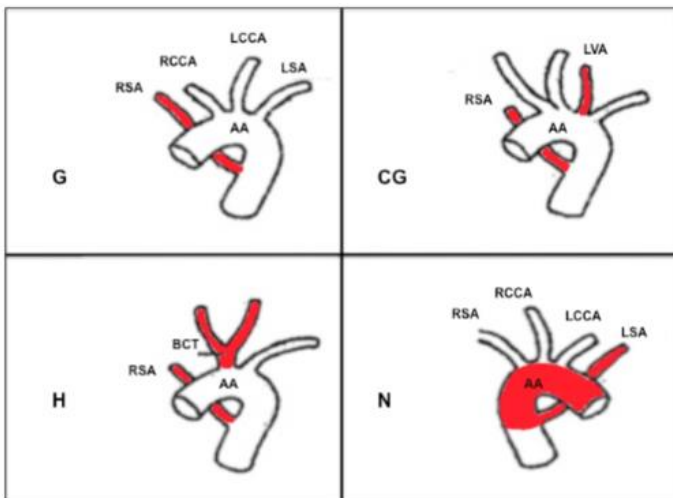
- Brachiocephalic trunk (further dividing into right common carotid artery and right subclavian artery),
- Left common carotid artery,
- Left subclavian artery

The interruption of the right arch between the right common carotid artery and right subclavian artery [3] leads to the absence of brachiocephalic trunk and four large arteries arise from the arch of the aorta:

- Right common carotid artery,
- Left common carotid artery,
- Left subclavian artery,
- arterialusoria -the right subclavian artery originating in the most distal part on the left side.

The most common intra thoracic embryologic abnormality of the aortic arch is an aberrant right subclavian artery, which occurs in 0.5% to 1.8% of the population [4, 5]. Edwards hypothesised that this abnormal origin of the right subclavian artery is through the involution of the 4th vascular arch with the right dorsal aorta [6].

According to the Adachi–Williams’ classification, there are four basic types of anomalous patterns of the ARSA ramification [7].



**Legend:** AA: Aortic Arch; RSA: Right Subclavian Artery; RCCA: Right Common Carotid Artery; LCCA: Left Common Carotid Artery; LSA: Left Subclavian Artery; LVA: Left Ventricular Artery; BCT: Bi-Cardiac Trunk.

**Figure 1:** Adachi–Williams’ classification adapted by de Araújo *et al.* [7]. The main ARSA morphologic types are colored in red

- the right subclavian artery becomes the last branch and arises from the distal portion of the aortic arch ; other main branches are normal (common right and left carotid arteries and the left subclavian artery) (Type G-1);
- The right subclavian artery is same as above (as in type G) and the left vertebral artery originates directly from the aortic arch (Type CG-1);
- the right subclavian artery is anomalous (as in type G) and there is a bicardiac trunk, which gives origin to both the common right and left carotid arteries (Type H-1);
- there is a right aortic arch and the left subclavian artery origin succeeds both carotid arteries and the right subclavian artery (Type N-1) [7].

A similar abnormality can occur as a consequence of a left-sided

aberrant subclavian artery with a right-sided aortic arch, although this arterial abnormality is much rarer [8, 9].

Most of the patients remain asymptomatic, only a few patients complain of dysphagia mostly to solid food. Patient may usually become symptomatic when a “ring” surrounds the trachea or the esophagus and cause extrinsic compression on the esophagus. Ageing may cause oesophageal stiffening, which may result in late onset of symptoms.

In 1936, Kommerell described the radiologic findings of this persistent route of the aortic arch as an aortic diverticulum (Kommerell’s diverticulum). The 1st successful repair of this anomaly was reported by Robert Gross in 1946 [10].

Kieffer *et al* presented a case series of 33 patients treated surgically with proximal occlusion of the lusorian artery either by a cervical approach, median sternotomy, or left- or right-sided thoracotomy. The perioperative mortality rate in the patients with aneurysmal dilatation of the lusorian artery or an aneurysm at the aortic origin was 23.5 [11].

## Imaging

- Barium swallow, HRCT thorax and Magnetic Resonance (MR), particularly with vascular reconstruction remain the most important modalities
- Enlargement of the superior mediastinum is seen on chest radiographs.
- These modalities show the relationship of the mediastinal vascular and various other structures accurately and obviate the need of any intervention.
- These are also helpful to rule out other causes of extrinsic compression, like lung tumor or mediastinal adenopathies.
- The first imaging modality is fluoroscopy, which shows an indentation on the postero-lateral wall of the esophagus at the level and above the aortic arch [12].

## Management

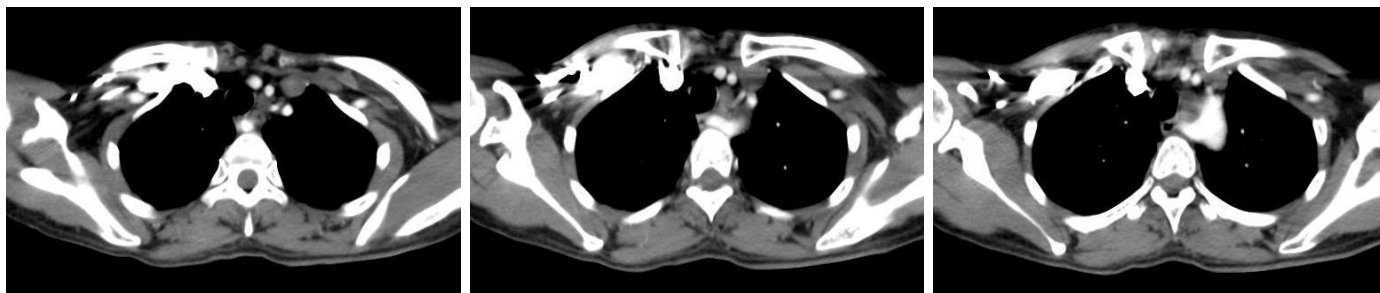
- relies on the degree of symptoms and the impact on the ability of the patients to maintain their weight and nutrition [13].
- Medical treatment with proton pump inhibitor and prokinetic drug is required when the patient becomes symptomatic and the nutritional status becomes compromised.
- surgical repair and reconstruction of the aberrant vessel is required only when the symptoms are severe or when there is no response to medical therapy
- The most common procedure is a left postero-lateral thoracotomy followed by division of the ligamentum with dissection.

The patient has not undergone any surgical intervention and is kept on regular follow up CT angiography will be the utmost requirement for possible aneurysm in case of any deterioration in symptoms.

## CONCLUSION

Aberrant Right Subclavian Artery being a rare entity needs special attention in patients with unexplained chronic dysphagia who show no other causes of dysphagia.

CT serves as the investigative tool of choice. Treatment option depends on the severity of the symptoms, from medical therapy for mild symptoms upto surgery in severe conditions



**Figure 2:** A,B,C: The images show an aberrant right subclavian artery at multiple levels, arising from arch of aorta and coursing to right side, posterior to esophagus and causing compression of the oesophagus.

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