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Magnetic resonance angiography diagnosis of late-onset dysphagia due to arteria lusoria

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Anatomic variations of the great vessels, particularly involving the subclavian artery, are important to recognize due to their potential impact on surgical, endovascular, and diagnostic procedures.[1,2] Arteria lusoria is the most common aortic arch anomaly also known as aberrant right subclavian artery in a pathology where brachiocephalic trunk is absent and four large arteries arise from the arch of the aorta: the right common carotid artery (CCA), the left CCA, the left subclavian artery, and the final one with the most distal left-sided origin, the right subclavian artery. This vessel travels to the right arm, crossing the middle line of the body and usually passing behind the esophagus. If the artery compresses the esophagus, it may produce a condition called dysphagia lusoria. The incidence is reported to be 0.2 to 1.7% in population. Frequently, the arteria lusoria arises from an aortic arch diverticulum at the proximal descending aorta, first described by Kommerell.[3]

In this report, we present a rare case of an anomalous right subclavian artery originating posteriorly from the aortic arch with accompanying vascular stenosis diagnosed in an adult.

A 67-year-old male patient was hospitalized and intubated by the anesthesia team with preliminary diagnoses of respiratory distress and general condition deterioration and pneumonia. His past medical history was unremarkable, and there was no history of trauma or significant cardiovascular events. Subsequently, a magnetic resonance imaging (MRI) was performed, which revealed an anomaly of the right subclavian artery and aorta. A contrast-enhanced magnetic resonance (MR) angiography was, then, conducted to confirm the diagnosis. Although the MRI images showed significant compression on the esophagus and mild compression on the trachea, the patient had no prior history of shortness of breath or difficulty swallowing.

Contrast-free MR angiography of the carotid and cervical arteries was performed. The imaging findings revealed right subclavian artery originating from the posterior-inferior aspect of the aortic arch and passing posterior to the esophagus and trachea (Figure 1a, b, d), suggesting an aberrant subclavian artery (arteria lusoria) variant. The proximal right subclavian artery was dilated, measuring approximately 27 to 28 mm in diameter, and exhibited a distinct bulging appearance with no significant calcification (Figure 1a, b). Both CCAs displayed narrow diameters at their origin (approximately 22 mm), indicative of potential vascular narrowing. Left internal carotid artery (ICA) showed a segmental narrowing of approximately 5 mm with a 40% diameter reduction in the proximal segment (Figure 1a, b). Segmental hypoplasia of the right vertebral artery was observed, and a short segment stenosis was noted in the vertebrobasilar system (Figure 1c).

The patient was intubated and hospitalized in intensive care unit for 15 days and died due to pneumonia and sepsis. Written informed consent was obtained from the patient.

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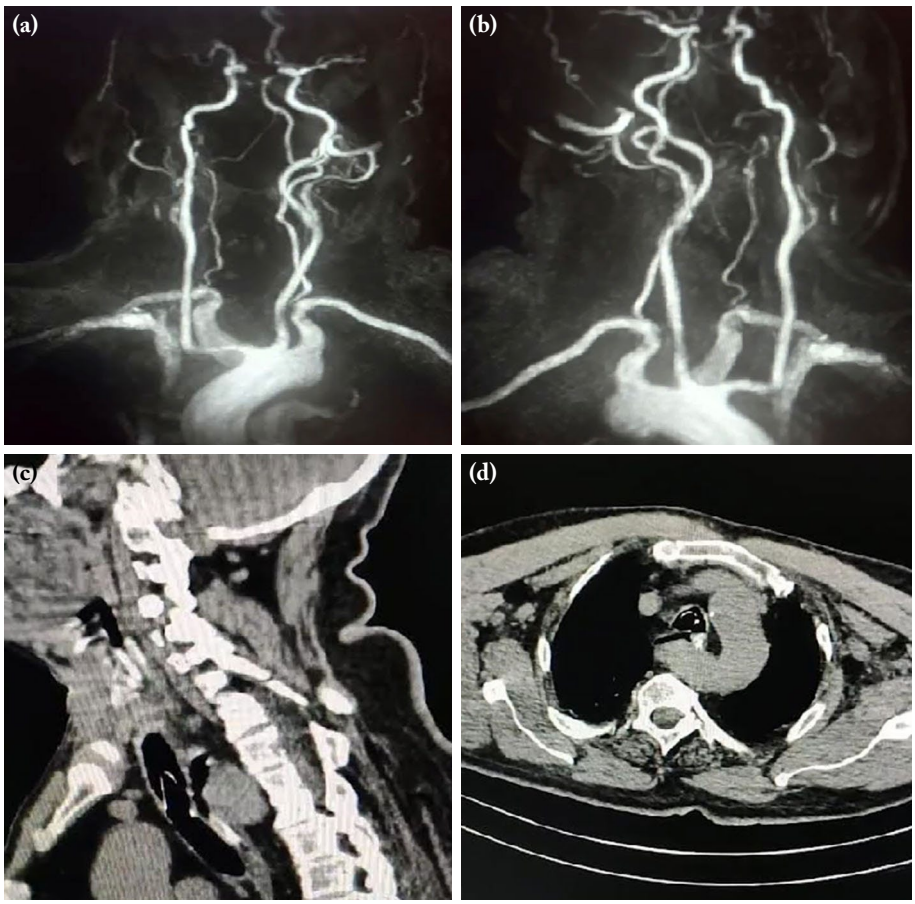

Figure 1. (a-c) The aberrant course of the right subclavian artery, stenosis in the left internal carotid artery and hypoplasia of the right vertebral artery. **(d)** The course of the aberrant subclavian artery and aorta demonstrating compression on the esophagus and trachea.

Anomalies in the origin and course of the subclavian artery, particularly arteria lusoria, are typically asymptomatic but may manifest with symptoms due to esophageal or tracheal compression or associated vascular pathologies.[1,2,4] In this case, the aberrant course of the right subclavian artery, combined with significant stenotic lesions in the cervical arteries, underscores the importance of accurate imaging for both diagnosis and management.[5,6]

In conclusion, the presence of luminal narrowing in the ICAs and CCAs raises concerns about cerebrovascular insufficiency, particularly in light of the patient's symptoms. The findings also highlight the utility of MR angiography and MRI imaging in non-invasively identifying vascular anomalies without the risks. The anomalous origin and course of the right subclavian artery, coupled with stenotic changes in the cervical arterial system, necessitate a tailored approach to management, potentially including surgical or endovascular intervention if symptoms persist or worsen.

Patient Consent for Publication: A written informed consent was obtained from the patient.

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