Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Radiology

Dysphagia Revealing an Aberrant Subclavian Artery or Arteria Lusoria: A Case Report

Chada Chbichib[1*], Imane Kazouini[1], Mohammed Boussif[1], Bouktib Youssef[1], Hajjami Ayoub[1], Boutakioute Badr[1], Ouali Idrissi Mariem[1], Cherif Idrissi El Ganouni Najat[1]

[1]Department of Radiology, AR-RAZI Hospital, CHU Mohammed VI, Cadi Ayyad University, Marrakech, Morocco

DOI: 10.36347/sjmcr.2023.v11i10.031 | **Received:** 02.09.2023 | **Accepted:** 09.10.2023 | **Published:** 21.10.2023

***Corresponding author:** Chada Chbichib
Department of Radiology, AR-RAZI Hospital, CHU Mohammed VI, Cadi Ayyad University, Marrakech, Morocco

Abstract **Case Report**

Aberrant right subclavian arteries (ARSA), also known as arteria lusoria, are among the commonest aortic arch anomalies, by passing behind the esophagus, it can cause a condition known as lusoric dysphagia, responsible for symptoms of discomfort. This artery is often associated with other anomalies, such as the non-recurrent laryngeal nerve, the bicarotid trunk, and with diseases such as aneurysms, congenital heart defects and even genetic syndromes. Here we report a case of an 82-year-old women patient has been referred to our department for an angio scanner of the supra-aortic trunk for etiological assessment of chronic dysphagia. Which has revealed an aberrant right subclavian artery (Arteria lusoria) associated with a bicarotid trunk.

Keywords: Arteria Lusoria, dysphagia, imaging.

INTRODUCTION

Aberrant right subclavian artery (ARSA), known clinically as arteria lusoria (AL), is the most common embryologic abnormality of the aortic arc with reported prevalence of 0.4–2% [1]., described for the first time by hunauld in 1735 [2] and has been reported in association with other different anatomical anomalies of the aortic arch. This vessel's route to its usual site usually takes a retro esophageal path, although it can sometimes pass anteriorly to the trachea or even between these two structures. ARSA usually has no symptomatology and no pathological significance. But in some cases due to this trajectory, the ARSA is of clinical interest because it can cause esophageal compression and symptoms of dysphagia - a condition known as dysphagia lusoria - or dyspnea [3]. This aberrant vessel also has surgical significance, because of its spatial relations to many structures, and it can be damaged during surgical procedures.

CASE REPORT

An 82-year-old woman, with no particular notable history, was admitted to our department for an angio scanner of the supra-aortic trunk for etiological assessment of chronic dysphagia. On examination, the patient reports chronic dysphagia to solids and liquids, with no other associated signs. Computed tomography with injection of contrast product showed an anomalous ramification of the aortic arch: An aberrant right subclavian artery (arteria lusoria) which originates from the aortic arch (Fig. 1) and crosses the midline between the spine and the esophagus (Fig. 2) to reach the right side (Fig. 3). Both common carotid arteries originate from a common trunk. There was no abnormality of origin of the left subclavian artery (Fig. 2, 4, 5). CT angiogram with 3D reconstruction (Fig. 5) shows a common origin of bilateral carotid arteries arising from the aortic arch who is called a truncus bicaroticus associated with arteria lusoria. However, no other anomaly in layout had been objectified elsewhere.

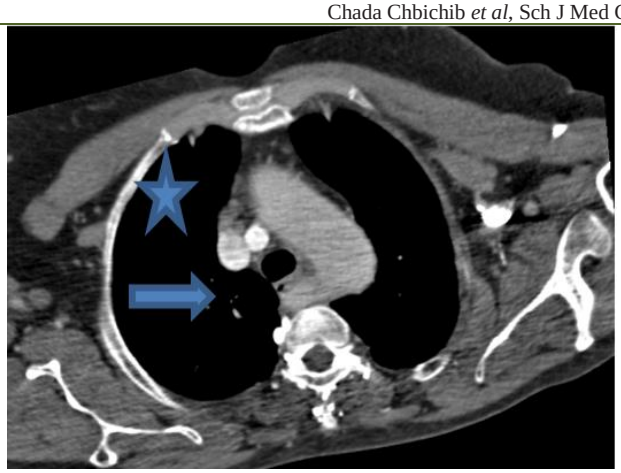

Figure 1: Post contrast Computed Tomography – Angiography axial image An aberrant right subclavian artery (arteria lusoria), (bleu arrow), which originates from the aortic arch (bleu star), crosses the midline between the spine and the esophagus

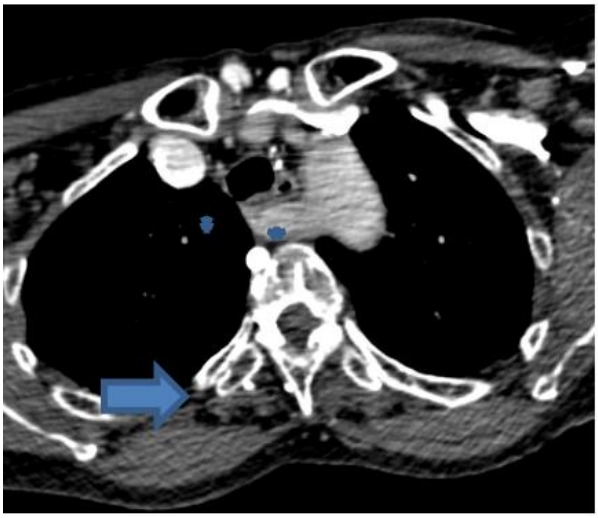

Figure 2: Postcontrast Computed Tomography – Angiography axial image Arteria lusoria (bleu arrow) crosses the midline between the spine and the eosophagus. Both common carotid arteries (bleu stars), originate from a common trunk. There is no abnormality of origin of the left subclavian artery

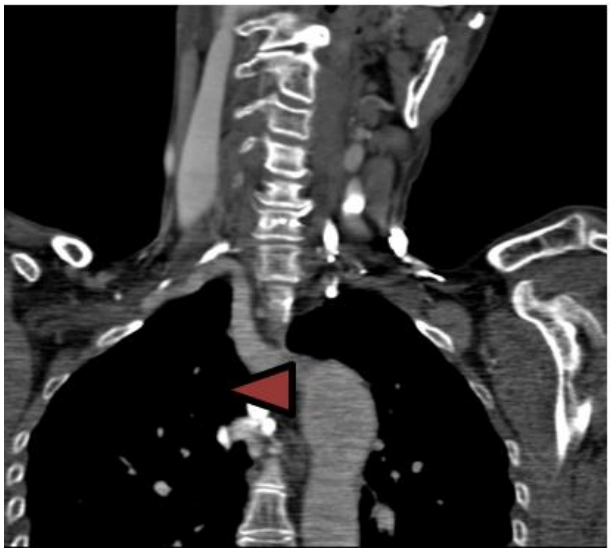

FIGURE 3: Postcontrast Computed Tomography – Angiography coronal image Arteria lusoria originates from the aortic arch (arrow head), crosses the midline between the spine and the oesophagus to reach the right side

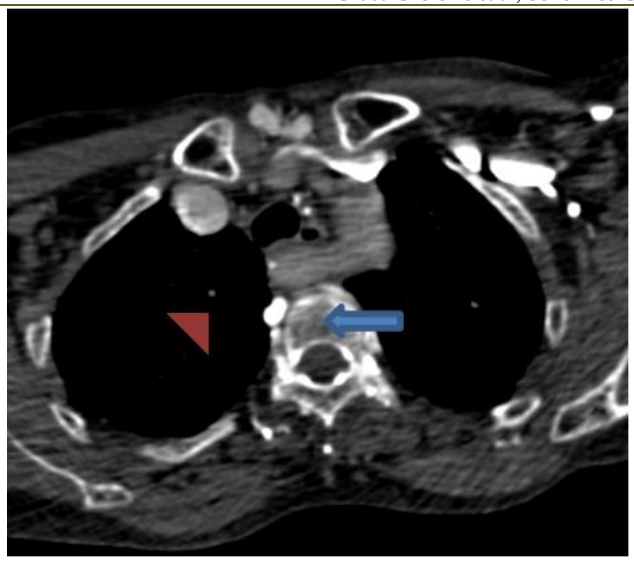

Figure 4: Postcontrast Computed Tomography – Angiography axial image Truncus bicaroticus gives rise to the right common carotid artery (arrow head) and the left common carotid artery (bleu arrow) associated with arteria lusoria

DISCUSSION

In approximately 80% of individuals, three arteries arise from the arch of the aorta. From right to left, the brachiocephalic trunk arises (divided into the right common carotid artery and the right subclavian artery), followed by the left common carotid artery, and finally the left subclavian artery [1]. When an aberrant right subclavian artery (arteria lusoria) is present, the brachiocephalic trunk is absent and four arteries arise from the arch of the aorta: the right common carotid artery followed by the left common carotid artery, the left subclavian artery, and finally the right subclavian artery, with the most distal left-sided origin. It is commonly associated with other congenital anomalies of the heart and great vessels resulting from embryologic malformation of the aortic arch, including truncus bicaroticus, which is a common trunk of bilateral common carotid arteries. The association of ARSA and truncus bicaroticus is somewhat rare [4]. Arteria lusoria results from abnormal embryologic development of the aortic arch. The aberrant origin of the right subclavian artery is caused by the involution of the right fourth vascular arch and proximal right dorsal aorta and the persistence of the seventh intersegmental artery originating from the proximal descending thoracic aorta, resulting in the arteria lusoria following an abnormal trajectory. The artery crosses the midline between the oesophagus and vertebral column to reach the right side [5, 6]. An aberrant right subclavian artery is usually asymptomatic; the anomaly does not cause symptoms in most patients and can be discovered incidentally during evaluation of other mediastinal anomalies or found at autopsy. It became symptomatic when the esophagus and trachea are hemmed in between the lusorian artery dorsally and anteriorly by a truncus bicaroticus wich is the case in our patient or from aberrant subclavian artery aneurysm, or possibly from atherosclerotic hardening or fibromuscular dysplasia of arteries.

The aberrant right subclavian artery most often produces dysphagia lusoria, usually a dysphagia to solids without any difficulty in swallowing fluids from esophageal compression, or dyspnea and chronic coughing from tracheal compression. Other symptoms are much rarer. Aneurysmal dilatation of the proximal lusorian artery is a lethal condition. In this setting, symptoms include right arm ischemia from embolization, esophageal fistulization, local compression causing thoracic outlet syndrome or superior vena cava syndrome, and chest pain and hemorrhagic shock from rupture [6, 7]. ARSA can be diagnosed or suspected with barium esophagogram, computed tomography (CT), magnetic resonance imaging (MRI), digital subtraction angiography (DSA), endoscopy and endoscopic ultrasound. New advances in CT technology allow even small vascular structures to be visualized in detail. Multidetector computed tomography (MDCTA) is now an established diagnostic test in the evaluation of many vascular diseases. The barium esophagogram shows a characteristic diagonal, extrinsic and smooth impression at the level of the third and fourth dorsal vertebrae. Profile views show that the extrinsic impression is posterior and located above the level of the aortic arch. As dysphagia is frequent when ingesting solid foods, the inclusion of a bolus of barium-soaked bread can improve localization of the anomaly [8]. CT or MRI (magnetic resonance imaging) angiography has replaced conventional angiography and is the gold standard for the diagnosis. It not only confirms the diagnosis but also helps to exclude aneurysm of the aorta or other associated anomalies and to plan the operation [9]. MRI represent a noninvasive procedure and the patient is spared the potential risk of intravenous contrast agents. MRI is not as useful as MDCT due to the respiratory artefacts and cardiac motion. Also it is not a preferred method due to its cost and prolonged scan time.

Although MR angiography may reveal the presence of a vascular anomaly, the information regarding nonvascular mediastinal structures is insufficient [9, 10]. There are several treatment options for an arteria lusoria. Surgical, endovascular, or combined interventions can be used. Treatment is indicated in symptomatic cases and also for prevention of complications due to aneurysmal dilatation of the lusorian artery. Most patient with arteria lusoria are asymptomatic and rarely need a treatment [11].

CONCLUSION

The aberrant right subclavian artery is a clinically significant anatomical variation, since it can mimic many different diseases, as well as cause dysphagia in patients. Furthermore, presence of the ARSA seems to predispose to aneurysms. Knowledge of this variation is of crucial importance to radiologists, head and neck surgeons, vascular surgeons, and clinicians. It has undergone both diagnostic progress thanks to the contribution of thoracic CT angiography, and the therapeutic supra-clavicular surgical approach.

REFERENCES

1. Schertler, T., Wildermuth, S., Teodorovic, N., Mayer, D., Marincek, B., & Boehm, T. (2007). Visualization of congenital thoracic vascular anomalies using multi-detector row computed tomography and two-and three-dimensional post-processing. *European journal of radiology*, *61*(1), 97-119.
2. Hunauld, N. A. (1735). Examen de quelques parties d'un signe. *Hist Acad R Sci*, *2*, 516-523.
3. Myers, P. O., Fasel, J. H. D., Kalangos, A., & Gailloud, P. (2010, June). Arteria lusoria: developmental anatomy, clinical, radiological and surgical aspects. In *Annales de cardiologie et d'angeiologie* (Vol. 59, No. 3, pp. 147-154). Elsevier Masson.
4. Meena, D. (2014). Aberrant right subclavian artery in association with common trunk of both carotid arteries: Diagnosis with CT. *West African Journal of Radiology*, *21*(2), 80.
5. Bisognano, J. D., Young, B., Brown, J. M., Gill, E. A., Fang, F. C., & Zisman, L. S. (1997). Diverse presentation of aberrant origin of the right subclavian artery: two case reports. *Chest*, *112*(6), 1693-1697.
6. Carrizo, G. J., & Marjani, M. A. (2004). Dysphagia lusoria caused by an [7] Freed, K, and V H Low. "The aberrant subclavian artery." AJR. American journal of roentgenology vol. 168,2 (1997): 481-4. doi:10.2214/ajr.168.2.9016231
7. BRANSCOM, J. J., & AUSTIN, J. H. (1973). Aberrant right subclavian artery: findings seen on plain chest roentgenograms. *American Journal of Roentgenology*, *119*(3), 539-542.
8. Alper, F., Akgun, M., Kantarci, M., Eroglu, A., Ceyhan, E., Onbas, O., ... & Okur, A. (2006). Demonstration of vascular abnormalities compressing esophagus by MDCT: special focus on dysphagia lusoria. *European journal of radiology*, *59*(1), 82-87.
9. Ming, Y. (2010). *Zhonghua yi xue za zhi* vol. 90(31), 2167-71.
10. Norris, C. R., Wilson, C. A., & Lin, M. C. (2021). Truncus Bicaroticus with Arteria Lusoria: A Rare Combination of Aortic Root Anatomy Complicating Cardiac Catheterization. *Federal Practitioner*, *38*(2), 84.