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(CASE REPORT)

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Arteria Lusoria: Computed tomography aspects: Two cases report in Niger

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Abstract

The term arteria lusoria designates an arterial anatomical variation concerning the supra-aortic trunks and which particularly concerns the right subclavian artery. It is a right subclavian artery which arises directly from the aorta downstream of the left subclavian artery and which crosses the midline to join the right supraclavicular region. It is the most common anomaly of the supra-aortic trunks.

The authors report their experience with two cases of this anatomical variant. One of the cases was discovered incidentally, the second case was discovered following the exploration of symptoms described by the patient.

Both cases were explored by CT scanning with injection of iodinated contrast product, which made it possible to describe the origin of the artery, its route, its caliber, among other things.

Keywords: Arteria Lusoria; Supra-Aortic Trunks, CT scan; Niger

1. Introduction

The term arteria lusoria designates an arterial anatomical variation concerning the supra-aortic trunks and which particularly concerns the right subclavian artery. It is a right subclavian artery which arises directly from the aorta downstream of the left subclavian artery and which crosses the midline to join the right subclavicular region. It is the most common anomaly of the supra-aortic trunks. [1,2]

The authors report their experience with two cases of this anatomical variant.

2. Case Presentation

2.1. Case No. 1

This was a subject aged 60 years old at the time of diagnosis, female, with no medical or surgical history who had been referred to the radiology and medical imaging department for evaluation of a left renal tumor.

Clinical examination revealed an intra-abdominal left flank mass approximately 50 mm in diameter. The mass was not painful and the general condition was preserved. The rest of the clinical examination was normal.

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The examination requested was a thoraco-abdominopelvic CT scan (figure 1). It was performed without and with injection of contrast product with 3 mm sections. The analysis of the images made it possible to find an arterial vessel at the thoracic level which arose downstream of the birth of the left subclavian artery. This vessel originated on the right side of the aorta, had a horizontal course towards the right, crossed the midline at the level of the third thoracic vertebra behind the esophagus. It then had an ascending course towards the right subclavian region. Its caliber was measured at 3 mm. The other arteries of the supra-aortic trunks arose as follows, first a bi-carotid trunk then the left subclavian artery.

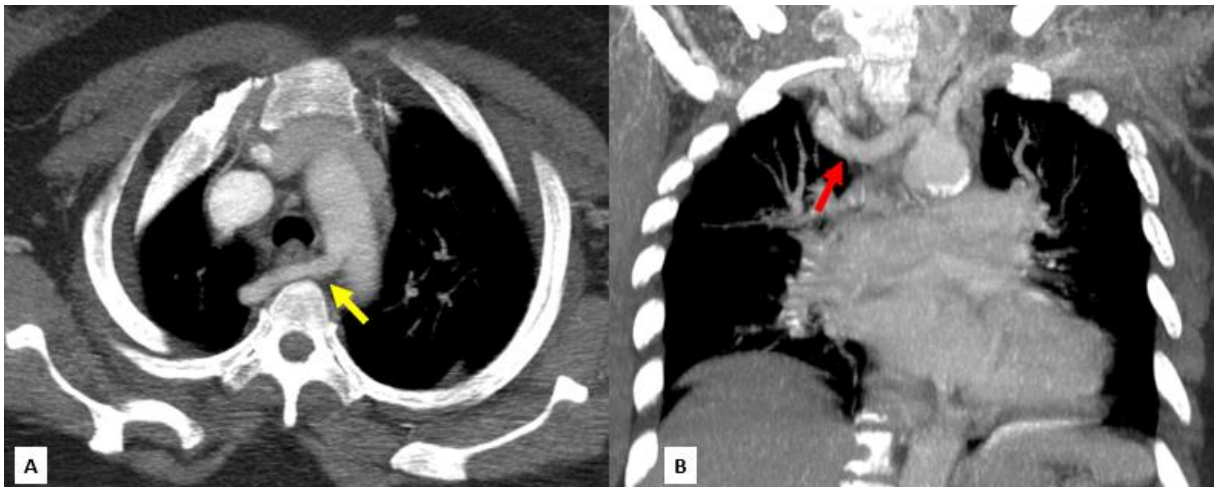

Figure 1 CT scan of the thorax in mediastinal window with injection of contrast product: (A: axial section); (B: coronal section) We note the arteria lusoria which arises from the posterior part and on the right lateral face of the arch of the arch of the aorta and crosses the median line at the level of the third dorsal vertebra.

No therapeutic procedure was indicated to this case. The presence of this anatomical variant of the supra-aortic trunks was however noted in the report.

2.2. Case No. 2

This is a subject aged 55 years old at the time of diagnosis, female, with no medical or surgical history who was referred to the radiology and medical imaging department for evaluation of chest pain.

On clinical examination, the patient reported intermittent retrosternal chest pain, sometimes accentuated by food intake. The patient reported that this symptomatology had been evolving for several years. The physical examination at the thoracic level revealed normal symmetry of the thorax on inspection, at the palpation the vocal vibrations were normal, on percussion the sound was normal, on auscultation the murmur was normal. The general condition was preserved. The rest of the clinical examination was normal.

The chest x-ray taken in a standing position revealed a normal appearance of the mediastinum, pulmonary transparency was normal, the costo-diaphragmatics angles were normal, the rib cage and peripheral soft tissues were normal.

Figure 2 Normal frontal chest x-ray

Faced with this normal chest X-ray, an additional CT scan of the chest was requested.

The CT examination of the thorax (figure 3) was carried out without and with injection of contrast product with 3 mm sections. The analysis of the images made it possible to find an arterial vessel which originated downstream of the birth of the left subclavian artery. This vessel originated on the right side of the aorta, had a horizontal course to the right, crossed the midline at the level of the third thoracic vertebra, and was behind the esophagus. It then had an ascending course towards the right subclavian region. Its caliber was measured at 2.7 mm. The other arteries of the supra-aortic trunks also arise from a bi-carotid trunk first then the left subclavian artery.

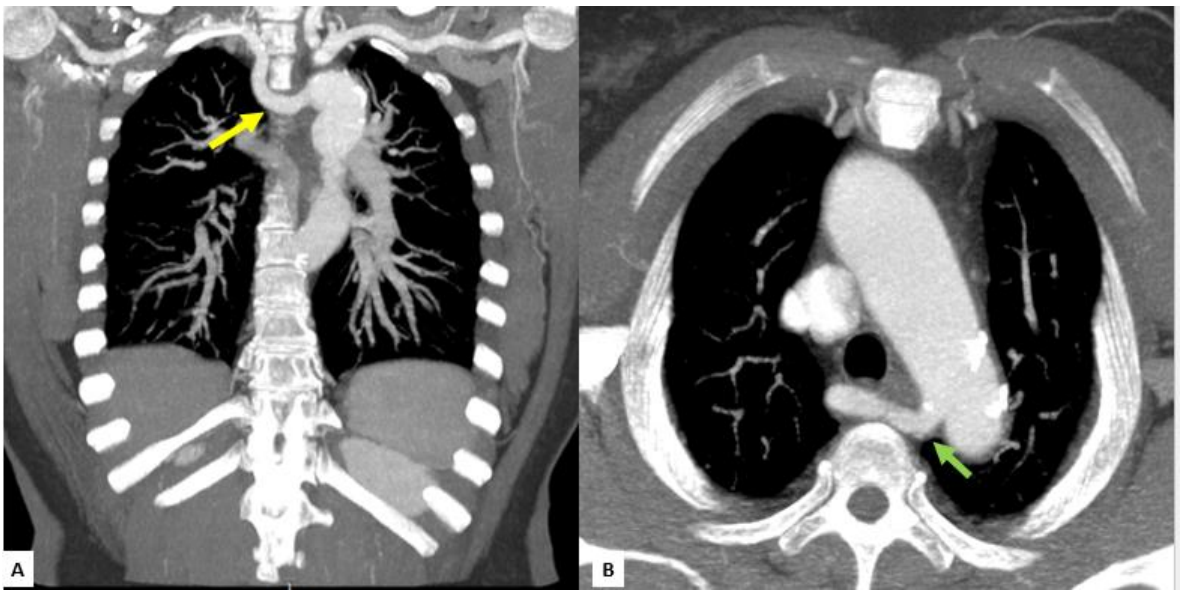

Figure 3 CT scan of the thorax in mediastinal window with injection of contrast product: (A: axial section); (B: coronal section) Note the arteria lusoria which arises from the posterior part and on the right lateral face of the arch of the aorta and crosses the midline at the level of the third dorsal vertebra.

No therapeutic procedure was indicated in this case to. The presence of this anatomical variant of the supra-aortic trunks was however noted in the report.

3. Discussion

The aberrant right subclavian artery or arteria lusoria was described as the most common anatomical variant of the branches of the supra-aortic trunks [1,2].

Its incidence is between 0.8 and 1.7% of the population according to Natsis et al [3]. Embryologically, the right subclavian artery results from the remodeling of the 4th right aortic arch, the part of the dorsal aorta distal to the 4th arch, and finally the 6th cervical intersegmental artery. The right dorsal aorta involutes distally to the 6th cervical intersegmental artery, and due to the caudal growth of the aorta, fixed by its thoracic parietal branches, it will detach, allowing the release of the right subclavian artery from its attaches to the thoracic aorta. The presence of an arteria lusoria is the result of the interruption of this remodeling sequence. There is abnormal degeneration of the fourth right aortic arch, and a lack of involution of the distal part of the right dorsal aorta. The aberrant right subclavian artery will therefore no longer be connected to the proximal part of the arch (ascending aorta) but will be attached to the descending aorta by the remainder of the right dorsal aorta. It then becomes the 4th and last branch of the aortic arch [1].

In this series, the discovery of arteria lusoria was fortuitous in one case and due to symptomatology in the other case. Most authors report that the existence of arteria lusoria is asymptomatic in 90% of cases, which means that its discovery is fortuitous [1,4]. Also when its presence is symptomatic it is more often a question of dysphagia found in 71.2% of cases, we then speak about “dysphagia lusoria”. These symptoms can also be retrosternal pain found in 17.0% of cases as in the second case reported in this study [2].

The diagnosis is made by imaging. The first description of the arteria lusoria was made thanks to an x-ray of the esophageal transit using a radio opaque product by Kommerell [5]. As technological discoveries progress, diagnostic methods evolve. In this series, the diagnosis of arteria lusoria was made with CT scanning with intravenous injection of contrast product. This made it possible to describe the origin of the artery, its route, its caliber among other things. Computed tomography is the technique most used when the diagnosis is incidental because it is a routine technique, which is generally used to explore another thoracic lesion. Computed tomography also allows better analysis of the environment [6-8].

4. Conclusion

Arteria Lusoria is the most common anatomical variant of the branches of the supra-aortic trunk. Hence the interest in looking for it particularly but also looking for the type of arrangement of the supra-aortic trunks in general when analyzing CT scans of the thorax.

Compliance with ethical standards

Disclosure of conflict of interest

The others report no conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

[1] Fanette JEANNON Arteria Lusoria: morphodensitometric study of 150 cases. Clinical applications. Life Sciences [q-bio]. 2011. hal-01734018

[2] MichaB Polguj, Aukasz Chrzanowski, JarosBaw D. Kasprzak, Ludomir StefaNczyk, MirosBaw Topol, and Agata Majos. The Aberrant Right Subclavian Artery (Arteria Lusoria): The Morphological and Clinical Aspects of One of the Most Important Variations—A Systematic Study of 141 Reports. Hindawi Publishing Corporation. the Scientific World Journal. Volume 2014, Article ID 292734, 6 pages http://dx.doi.org/10.1155/2014/292734

[3] K. I. Natsis, I. A. Tsitouridis, M. V. Didagelos, A. A. Fillipidis, K. G. Vlasis, and P. D. Tsikaras. Anatomical variations in the branches of the human aortic arch in 633 angiograms: clinical significance and literature review, Surg Radiol Anat, vol. 31, no. 5, p. 319-323, June 2009, doi: 10.1007/s00276-008-0442-2.

[4] Kouki S, Fadhel A, Landoulsi M, Boujemaa H, Abdallah NB. CT atlas of anatomical variations of the supra-aortic trunks. Radiology Leaflets (2014). http://dx.doi.org/10.1016/j.frad.2014.10.014

[5] Myers PO, Fasel JHD, Kalangos A, Gailloud P. Arteria lusoria: Developmental anatomy, clinical, radiological and surgical aspects. Ann Cardiol Angeiol. 2010;59(3): 147-54.

[6] Kader Ndiaye et al. Dyspneizing arteria lusoria: report of a case. Pan African Medical Journal. 2020;37(318). 10.11604/pamj.2020.37.318.23253

[7] G. Vučurević, S. Marinković, L. Puškaš, I. Kovačević, S. Tanasković, D. Radak, A. Ilić. Anatomy and radiology of the variations of aortic arch branches in 1,266 patients. Folia Morphol. Flight. 72, No. 2, pp. 113–122 DOI: 10.5603/FM.2013.0019

[8] Nasser M, Petrocheli BB, Felippe TKS, et al. Aberrant right subclavian artery: case report and literature review. J Vasc Bras. 2023;22:e20210151. https://doi.org/10.1590/1677-5449.20210151