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Incidental Discovery of an Arteria Lusoria with Kommerell's Diverticulum and Bicarotid Trunk During the Preoperative Assessment of an Aneurysmal Cyst of the Petrous Bone: A Case Report

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Abstract **Case Report**

Arteria lusoria corresponds to an aberrant right subclavian artery. The association of arteria lusoria, Kommerell's diverticulum, and a bicarotid trunk represents an unusual anatomical configuration. Knowledge of this configuration helps prevent complications during surgical or endovascular procedures.

Keywords: Arteria lusoria Kommerell's diverticulum, aneurysmal cyst.

INTRODUCTION

Arteria lusoria corresponds to an aberrant right subclavian artery. Kommerell's diverticulum is one of the anomalies of the aortic arch and corresponds to the dilated origin of a vessel arising from the aortic arch, known as a proximal dilatation called Kommerell's diverticulum. Its association with a bicarotid trunk is rare and presents both anatomical and surgical interest.

These anomalies are most often asymptomatic and are discovered incidentally during imaging examinations performed for other indications, but they may also lead to complications. Dysphagia is the most frequent complication in aortic arch anomalies.

CASE PRESENTATION

This is a 45-year-old patient followed for a large aneurysmal cyst, referred to our department for CT angiography of the supra-aortic trunks as part of the preoperative assessment.

The examination was performed using spiral acquisition with millimetric slices, without and with injection of iodinated contrast material.

The study of the aortic arches revealed:

- An aberrant right subclavian artery arising from the postero-superior portion of the aortic arch, following a retroesophageal course.
- A proximal ectasia measuring 16 mm in diameter, compatible with Kommerell's diverticulum.
- A bicarotid trunk giving rise to both common carotid arteries.
- A left subclavian artery of normal caliber and course.
- Vertebral arteries and a normally opacified circle of Willis.

In addition, there was an expansive lytic lesion centered on the left petrous bone, measuring approximately 51 × 70 × 60 mm, with parietal calcifications and multiple septations enhanced after contrast injection. The lesion exerted a mass effect on the cerebellum, with infiltration of the jugular bulb and sigmoid sinus, consistent with the known condition (aneurysmal cyst).

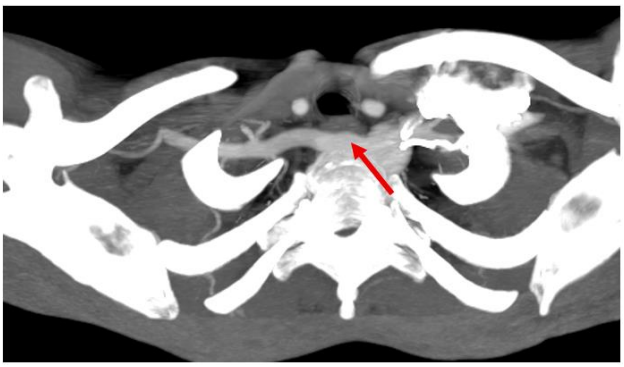

Figure 1: CT angiography image of the supra-aortic trunks (SAT), axial section showing the aberrant right subclavian artery (red arrow)

Figure 2: CT angiography image of the supra-aortic trunks (SAT), coronal section showing Kommerell's diverticulum (red arrow)

Figure 3: CT angiography image of the supra-aortic trunks (SAT), coronal section showing a bicarotid trunk (red arrow)

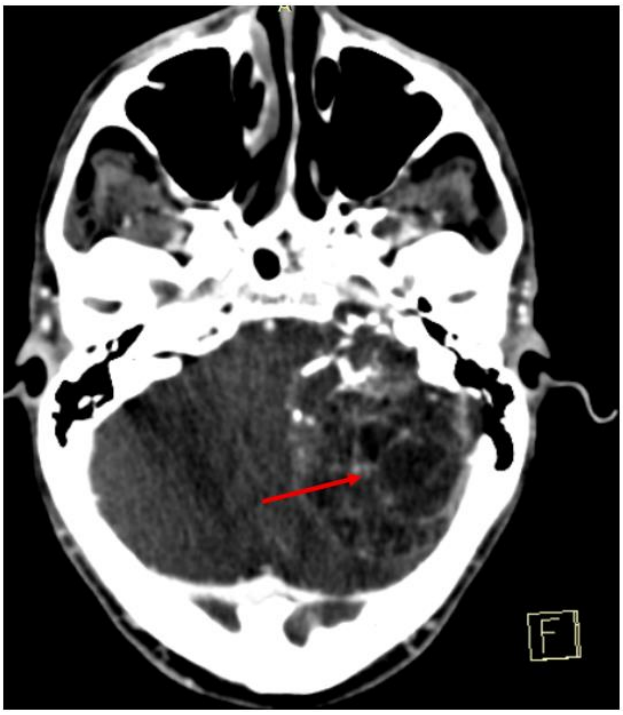

Figure 4: CT angiography image of the supra-aortic trunks (SAT), axial section showing an aneurysmal cyst (red arrow)

DISCUSSION

The most common embryological anomaly of the aortic arch is the aberrant right subclavian artery, clinically known as arteria lusoria.

The clinical entity "dysphagia lusoria" was first described by Bayford in 1787 in a woman with a history of dysphagia, in whom an aberrant right subclavian artery was discovered at autopsy.

Kommerell's diverticulum corresponds to a remnant of the primitive dorsal aorta and may evolve into aneurysmal dilatation. Its coexistence with a bicarotid trunk is uncommon and may have implications in thoracic, vascular, or ENT surgery.

This anomaly is often asymptomatic and discovered incidentally during imaging performed for another purpose.

Thoracic CT angiography is the examination of choice for exploring all aortic arch anomalies. It confirms the diagnosis, clarifies anatomical relationships (preoperative assessment), and allows long-term follow-up.

The right subclavian artery is the most posterior vessel, with an oblique course upward and to the right, passing behind the esophagus. It may arise from Kommerell's diverticulum.

In our case, the diverticulum measured 16 mm, a size considered non-surgical in the absence of clinical signs of compression. Clinical and radiological follow-up was recommended.

CONCLUSION

Arteria lusoria is part of developmental anomalies of the primitive vascular system.

The association of arteria lusoria, Kommerell's diverticulum, and a bicarotid trunk represents an unusual anatomical configuration. Knowledge of this configuration helps prevent complications during surgical or endovascular procedures.

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