

Endovascular Repair of Brachiocephalic Pseudoaneurysm

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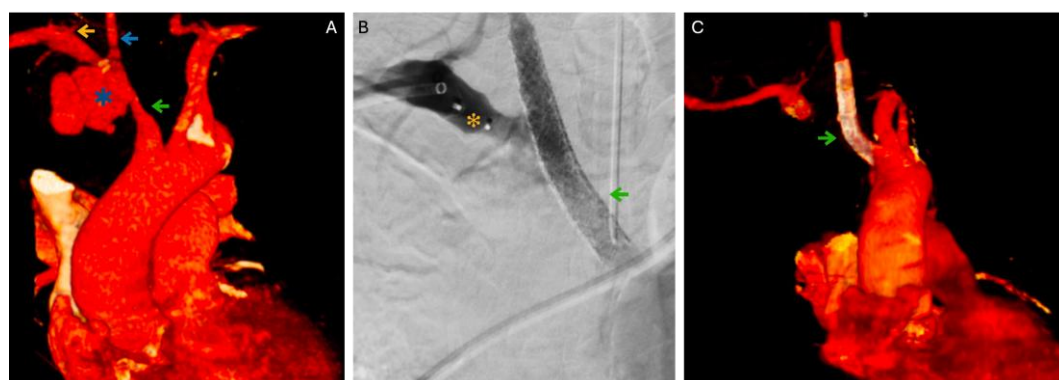


Figure 1: Brachiocephalic trunk (Green arrow in A, B and C). Right subclavian artery (Yellow arrow in A). Pseudoaneurysm (Blue asterisk in A). Amplatzer Vascular Plug II (Yellow asterisk in B).

Infectious or mycotic aneurysm of the brachiocephalic trunk (BCT) is a rare, potentially life-threatening, and challenging condition to manage. Although there is no consensus regarding its treatment, complex endovascular management allows minimally invasive treatment of severe pathology involving the supra-aortic trunks. We treated a 66-year-old man with no significant past medical history who presented with functional decline and prolonged febrile syndrome. During follow-up, he developed right shoulder pain and atypical chest pain. Coronary disease was ruled out. CT angiography revealed an approximately 8 cm distal BCT pseudoaneurysm, and blood cultures were positive for *Staphylococcus aureus* (Figure 1A).

Given the lesion's location and after ruling out airway and esophageal fistula, we opted for endovascular treatment combined with prolonged, targeted antibiotic therapy. Through an open approach to the common carotid artery at the base of the neck, two covered stents (BeGraft 8 × 57 mm and 10 × 57 mm) were deployed from distal to proximal to accommodate the diameter mismatch between the common carotid artery and the BCT. Via a brachial approach using a 7 Fr sheath, the ostium of the right subclavian artery was occluded with a 10 mm Amplatzer Vascular Plug II (VPII®, Abbott, Plymouth, Minnesota, USA) to eliminate retrograde flow (Figure 1B). The patient showed good clinical and radiological evolution, with exclusion of the pseudoaneurysm and reduction of the hematoma. No recurrent infection occurred, and antibiotic therapy was completed after two months (Figure 1C).



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We treated a similar case several years ago, which facilitated planning in this instance [1]. We also have experience with this endovascular management using covered stents in other territories [2]. Most BCT pseudoaneurysms occur after blunt or penetrating thoracic trauma, with infectious etiology being rarer. Pseudoaneurysms can cause local compression, thrombosis, embolization, and hemorrhagic shock [3]. There is no consensus on the management of these lesions in an infectious context, but favorable outcomes have been reported in patients treated endovascularly. Due to high morbidity and mortality, more aggressive open surgical management has fallen out of use, although advantages include the possibility of hematoma drainage and repair with autologous biological material, which may be superior to endovascular prosthetic material. In areas with more experience, such as the aorta, management using endografts for infectious lesions is considered an acceptable alternative to open repair, especially when there is no fistula with digestive cavities [4]. It can also allow initial management with subsequent open repair under improved clinical conditions.

We present a rare case in which there is no standardized treatment, and we opted for endovascular resolution with both technical and clinical success. Further studies are needed to evaluate the long-term outcomes of these endovascular prostheses in infectious contexts.

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Research Ethics Committee Approval: The patient provided written informed consent for participation, and the study was conducted in accordance with the ethical guidelines outlined in the Declaration of Helsinki.

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Conflicts of Interest: None.

Supplementary Materials: None.

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