

Pseudoaneurysm in a brachiocephalic arteriovenous fistula: A silent threat unveiled

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INTRODUCTION

A pseudoaneurysm is characterized by the formation of extravascular hematoma by iatrogenic rupture of a vessel wall¹ and, in hemodialysis patients, it results from repeated puncturing of the vein of the arteriovenous fistula (AVF) at the same site, which can be diagnosed with help of Doppler ultrasonography or computed tomography angiography (CTA). The management of pseudoaneurysmal AVFs is similar to true aneurysms. If it has ruptured or there is a risk of imminent rupture (skin ulceration and scab/infection), emergency ligation of the aneurysm is required².

CASE REPORT

We presented the case of a 45-year-old patient with end-stage kidney disease undergoing hemodialysis presented to our vascular access center with a cutaneous lesion at the puncture site of a right brachiocephalic arteriovenous fistula (fig. 1A-B). Doppler ultrasound evaluation revealed the presence of a false aneurysm along the cephalic vein (fig. 1C). An angiographic assessment identified an outflow stenosis distal to the puncture site. The patient underwent angioplasty using a 10 mm DORADO balloon to address the stenosis. Surgical intervention followed, with placement of limb tourniquet at 250 mmHg. First, isolation and excision of the false aneurysm was performed, with subsequent venous reconstruction through venoplasty (fig. 2). A favorable clinical and angiographic outcome was achieved. This image underscores the necessity of vigilant surveillance and timely intervention to prevent vascular access complications.

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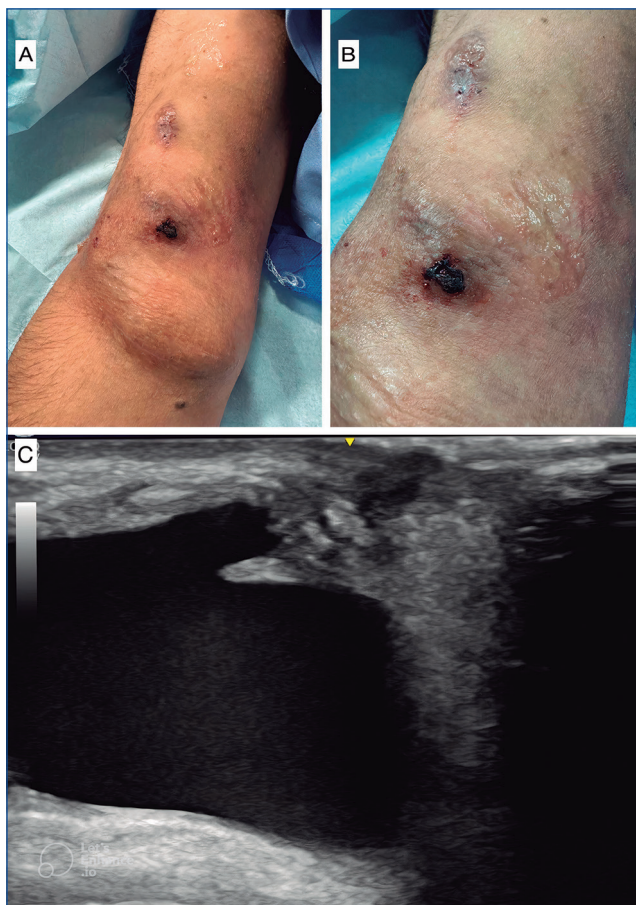


Figure 1. A and B) AVF arm with puncture lesion. C) Sonography image of the false aneurysm.

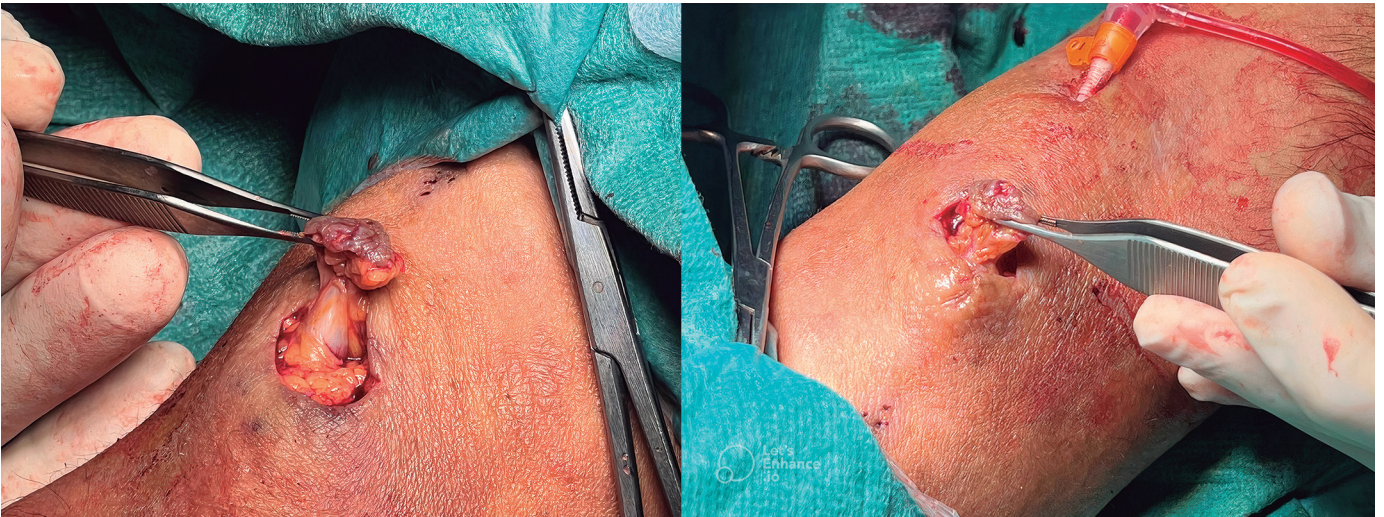


Figure 2. Surgical perspective of the false aneurysm.

REFERENCES

1. Rahil MA. Successful treatment of a venous pseudoaneurysm in a brachio basilic fistula using ultrasound-guided manual compression: two case reports. *J Ultrasound*. 2019;22:345-7. doi: 10.1007/s40477-018-0280-y. Epub 2018 Feb 2. PMID: 29396811; PMCID: PMC6704213.
2. Mudoni A, Cornacchiari M, Gallieni M, Guastoni C, McGrogan D, Logias F, et al. Aneurysms and pseudoaneurysms in dialysis access. *Clin Kidney J*. 2015;8:363-7. doi: 10.1093/ckj/sfv042. Epub 2015 Jun 10. PMID: 26251700; PMCID: PMC4515897.