When a Fistula Becomes a Headache: Cerebral Venous Drainage Due to Central Venous Occlusion

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A 60-year-old woman on hemodialysis through a left brachiocephalic arteriovenous fistula presented with headache worsened by recumbency, left-sided hearing impairment, and paraesthesias radiating towards the head. Dilated superficial veins and collateral circulation indicated venous hypertension[1] (Fig. 1A). Doppler ultrasound showed reversed cephalad flow in the left internal jugular vein. Angiography revealed complete left brachiocephalic vein occlusion, with fistula flow ascending through the left internal jugular vein (Fig. 1B), entering the intracranial venous system (Fig. 1C), and draining through the right internal jugular vein (Fig. 1D). A previous ipsilateral pacemaker, which had been removed, was considered the likely cause of the central venous occlusion.[2,3] Endovascular recanalization with angioplasty was attempted unsuccessfully. Ligation of the arteriovenous fistula was considered, but the patient died from an unrelated cause before the procedure could be performed. This case illustrates how central venous occlusion can redirect arteriovenous fistula flow into the intracranial venous system. This drainage pattern should be considered when neurological symptoms coexist with signs of venous hypertension in patients with an ipsilateral dialysis access.

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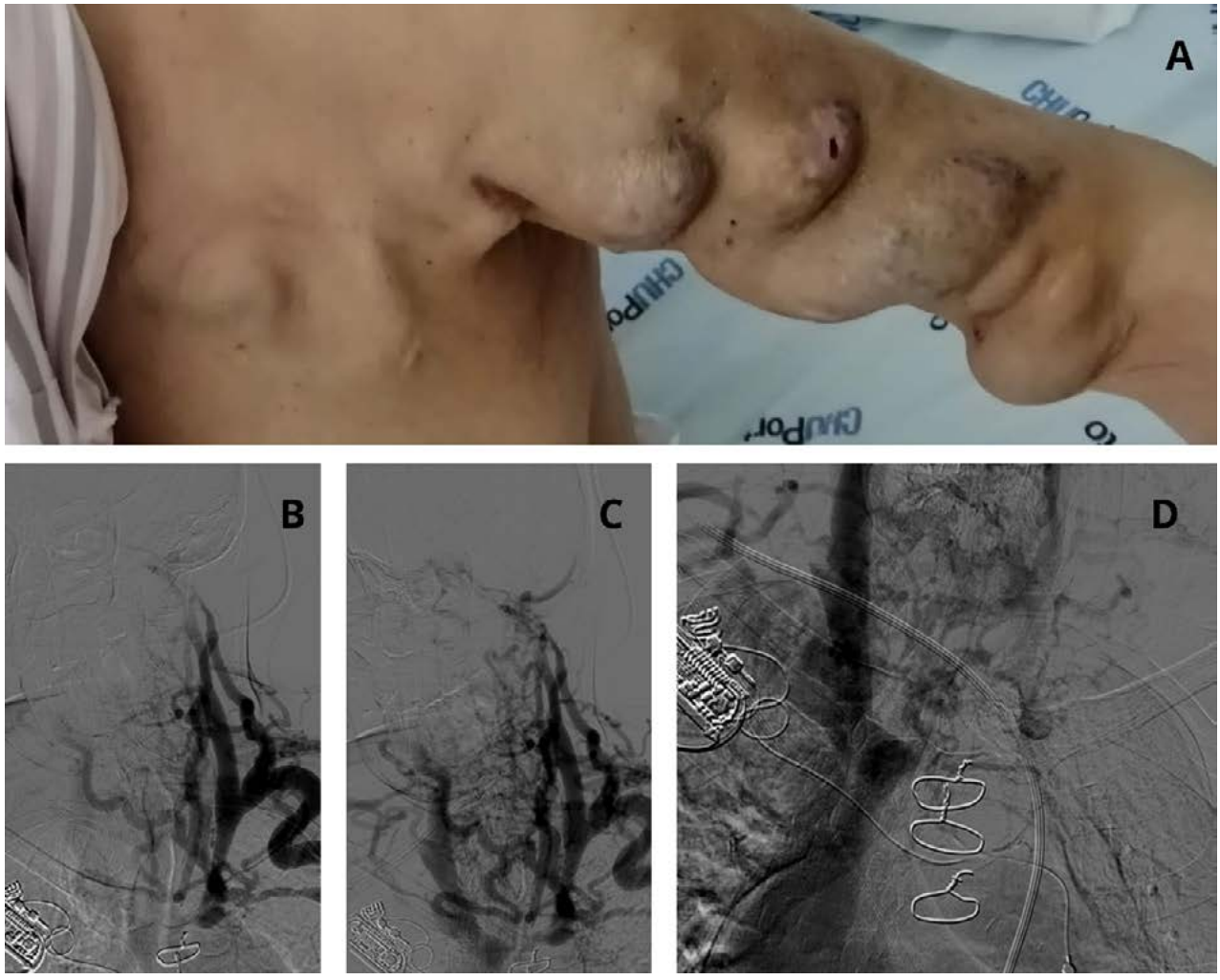


Figure 1. Clinical and angiographic findings of central venous occlusion. (A) Dilated superficial veins and aneurysmal enlargement of the left brachiocephalic arteriovenous fistula. (B) Complete left brachiocephalic vein occlusion with retrograde flow through the left internal jugular vein. (C) Cephalad progression of contrast towards the intracranial venous system. (D) Contralateral drainage through the right internal jugular vein.

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Conceptualization: SP, BD;
Investigation: SP, BD;
Data curation: SP;
Visualization: SP, BD;
Writing – original draft: SP;
Writing – review and editing: SP, BD, PA;
Supervision: PA.
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