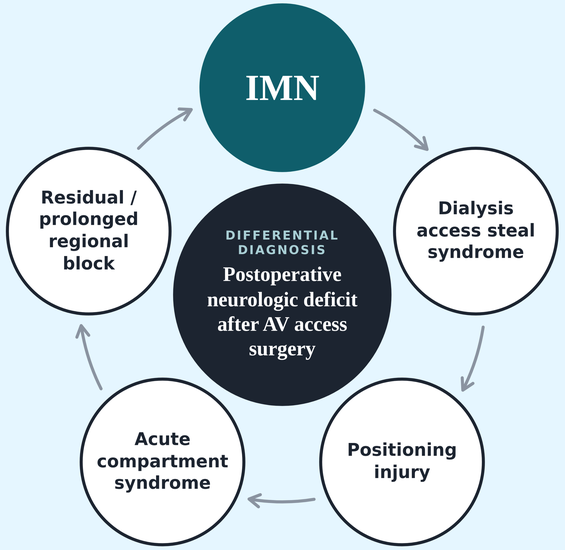
Beyond the Block: IMN and Other Causes of Neurologic Deficit after Regional Anesthesia for AV Graft Surgery

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INTRODUCTION

- Ischemic monomelic neuropathy (IMN) is a rare complication of hemodialysis AV access, particularly brachial artery-based access. It results in acute sensorimotor neuropathy from ischemic injury to peripheral nerves.
- Neurologic deficits result from microvascular ischemia affecting multiple peripheral nerves (medial, ulnar, and radial), while macrovascular perfusion remains preserved, resulting in a warm extremity with palpable pulses.
- Following regional anesthesia, the deficit may be mistaken for a persistent or residual brachial plexus block, delaying recognition and treatment of IMN.



CASE

A 66-year-old woman (BMI 17.5, ASA IV) with ESRD on hemodialysis and HFrEF presented for left brachial artery to axillary vein AV graft creation.

•Preoperatively: Left radial pulse weakly palpable.

•Left supraclavicular block for primary anesthesia: 19 mL 0.5% bupivacaine, no paresthesia or injection resistance.

•Surgery was uneventful. Graft thrill and radial/ulnar pulses were palpable at closure. Discharged home the same day.

•POD 1: Routine anesthesia pain service follow-up revealed complete arm, wrist, and finger paralysis; minimal palmar/fingertip sensation; subjective coldness; and new severe axillary pain beginning ~16 hours after the block.

•Symptoms persisted beyond the expected duration of the block, prompting ED evaluation.

•Vascular surgery noted radial and ulnar doppler signals and a palpable graft thrill despite near-complete motor loss, raising concern for IMN.

•Emergent graft ligation resulted in immediate return of finger and arm movement and marked pain relief.

•POD2 : 5/5 strength, intact perfusion, minimal pain.

CONCLUSIONS

- IMN is a time-sensitive, limb-threatening complication that can mimic residual regional anesthesia.
- Deficits persisting beyond the expected duration of the block should raise suspicion for an ischemic etiology rather than persistent block.
- Preserved distal pulses and a warm, perfused extremity do not exclude IMN. Diagnosis is primarily clinical, with multi-nerve motor and sensory deficits despite preserved distal perfusion.
- Structured postoperative regional anesthesia follow-up can facilitate early recognition of evolving neurological complications.
- Prompt restoration of nerve perfusion, including access ligation when indicated, may improve neurological recovery.

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