

Vascular Steal Syndrome Identified During Nerve Block Follow up after Arteriovenous Fistula Creation

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Introduction

- After peripheral nerve blockade, postoperative neurological symptoms may be present in up to 15% of patients while permanent nerve injury has a reported incidence ranging from 0.014 - 0.04%¹
- Peripheral nerve injury after a block for an arteriovenous fistula (AVF) creation may be confounded by vascular access steal syndrome, which is a decrease or reverse of flow in the arterial segment distal to the fistula due to its low resistance²
- The patient may present with a cool extremity or ischemic nerve pain at rest that can lead to loss of limb if not diagnosed promptly³

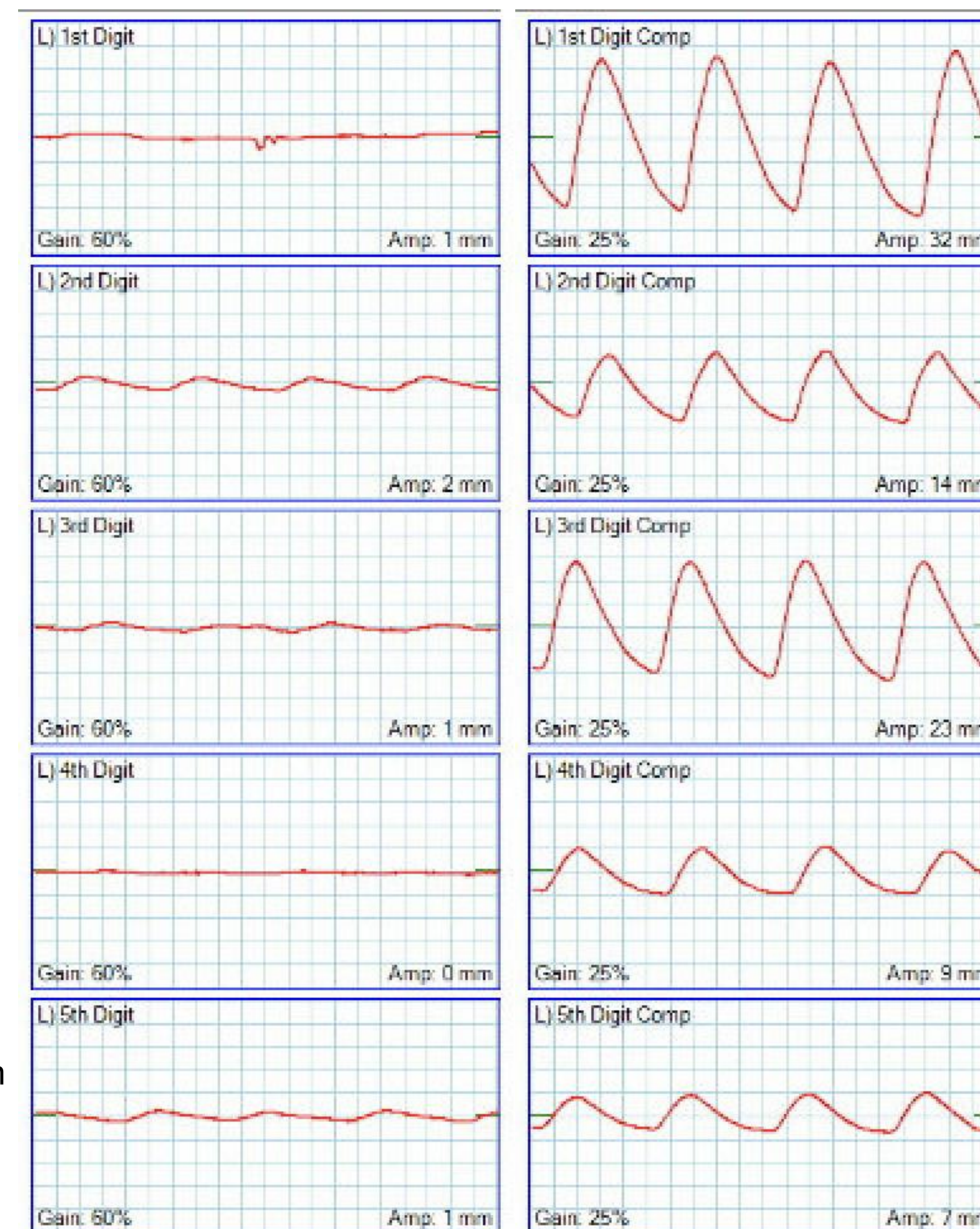


Figure 1: Peripheral vascular doppler exam showing dampened waveforms in the left digital arteries with improvement after AVF compression

Case Description

A 73-year-old female with end stage renal disease, type 2 diabetes, and hypertension with no prior neuropathy received an infraclavicular nerve block for a left AVF creation

Post-operative day 5:

- During phone follow-up, patient endorsed intermittent numbness in 3rd-5th digits on palmar and dorsal sides of left hand
- Instructed to call regional service if symptoms worsened

Post-operative day 12:

- Patient notified regional team of severe burning sensation extending across palm to left thumb with weakened grip strength
- Vascular surgery notified and patient was immediately directed to the emergency room
- Computed tomography angiogram: poorly opacified deep palmar and superficial palmar arches with absence of opacification of arterial branches to the 5th digit
- Peripheral vascular doppler exam: dampened waveforms in left digital arteries with significant improvement during fistula compression

Post-operative day 14:

- AVF plication performed with resolution of weakness and majority of sensory loss

Discussion

- Post-block follow up assesses duration of the block and residual sensory or motor deficits
- If sensory symptoms are persistent, re-assessing in 4-6 weeks and providing the patient with a point of contact for further care is recommended
- Motor symptoms beyond the duration of the nerve blockade should be addressed immediately
- Additional follow-up may require surgical consultation, nerve conduction studies, or chronic pain consultation

Conclusions

- Routine follow-up after regional anesthesia is important for procedures that can lead to varying degrees of nerve pain in the blocked extremity
- Patient care continues beyond the block procedure
- Communication with surgical team should occur after abnormal findings in a timely manner to help facilitate diagnostic imaging or surgical intervention

References

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