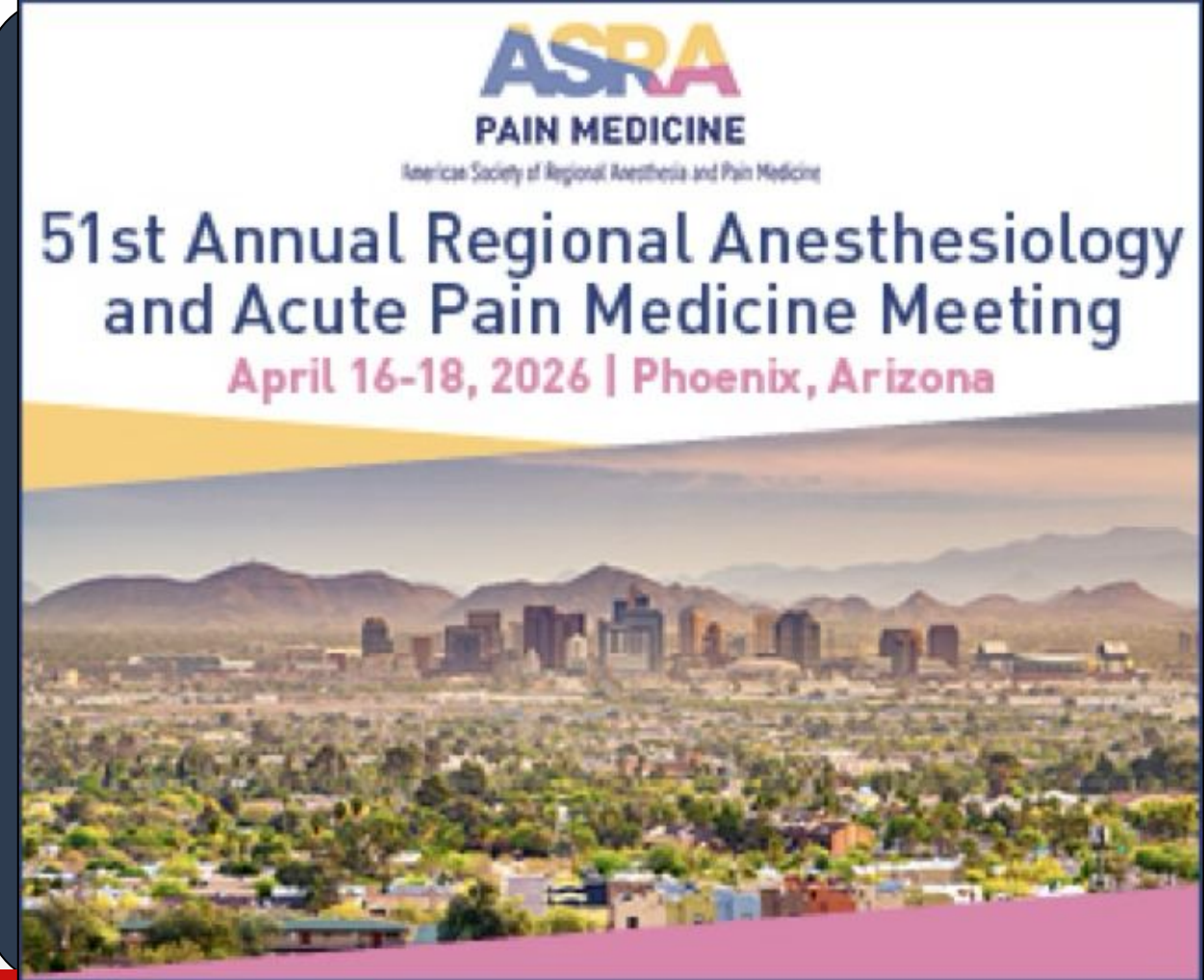




This is Not the Block You are Looking For

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The Case

Patient: 53 year old Female

Past Medical History:

- Hypertension
- Type 2 diabetes
- End-stage renal disease
- Asthma
- History of pulmonary emboli

Presentation:

Isolated left hand numbness one week after arteriovenous fistula (AVF) creation performed under supraclavicular peripheral nerve blockade (PNB) for surgical regional anesthesia.

Concern:

Persistent neurologic deficit raised concern for perioperative neurologic injury, prompting evaluation of competing etiologies including regional anesthesia–related nerve injury versus vascular complications associated with fistula creation.

Protocol:

Based on this patient’s persistent sensory deficit after supraclavicular block and given the nature of the surgery, urgent in-person ev

Physical Exam:

- Diminished sensation in median, ulnar and radial distributions isolated to the left hand
- 4/5 strength in median, ulnar and radial distributions isolated to the left hand
- Diminished capillary refill in left hand
- Left hand cool to touch
- Normal sensation and strength in the remainder of the left upper extremity. .

Assessment:

The neurologic deficit did not follow the expected sensory patterns of a supraclavicular nerve block, so the suspicion for PNB-related nerve damage was low. Given that the deficit was isolated to the hand and presented along with diminished capillary refill and a cool hand, there was high suspicion for vascular injury. Vascular surgery was called to evaluate the patient further.

Vascular Assessment:

Vascular surgery determined that the symptoms were caused by dialysis-access associated steal syndrome.

Plan:

Emergently take patient to the operating room for arteriovenous fistula ligation.

Discussion

The incidence of peripheral nerve injury (PNI) after PNB has been reported as 0.03% in some literature and as low as 0.00037% in literature examining PNB with use of ultrasound guided techniques. In patients that have nerve injury, 97% have partial recovery and 71% fully recover. In fact, the risk of non-anesthesia relate PNI has been reported as 9 times higher than the risk with PNB.

Monitoring for PNI is a critical aspect of regional anesthesia. Close follow-up after PNB is crucial for early identification of PNI so that severe injuries are evaluated quickly, especially patients at higher risk of nerve injury, such as those at risk of double crush injuries.

Workup after PNI commonly consists of electromyography and nerve conduction studies. These tools help assess timing, location and severity of PNI and can also assess early signs of recovery. There is currently no pharmacologic therapy for neuroregeneration, so treatment is limited to physical therapy (maintain muscle mass and prevent flexion contracture).

In severe PNI affecting motor function that has not improved for > 6 months, nerve transfers, grafts or tendon transfers are treatment options to reinnervate the affected muscle(s).

References

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