

Clinical History

39 year old male with history of prior ORIF of tibial fracture and multiple subsequent surgeries including fasciotomy for compartment syndrome.

The patient presents with persistent pain and paresthesia in the foot in the distribution of the superficial peroneal nerve.

Ultrasound was requested to evaluate the integrity of the superficial peroneal nerve and for a diagnostic anesthetic injection.

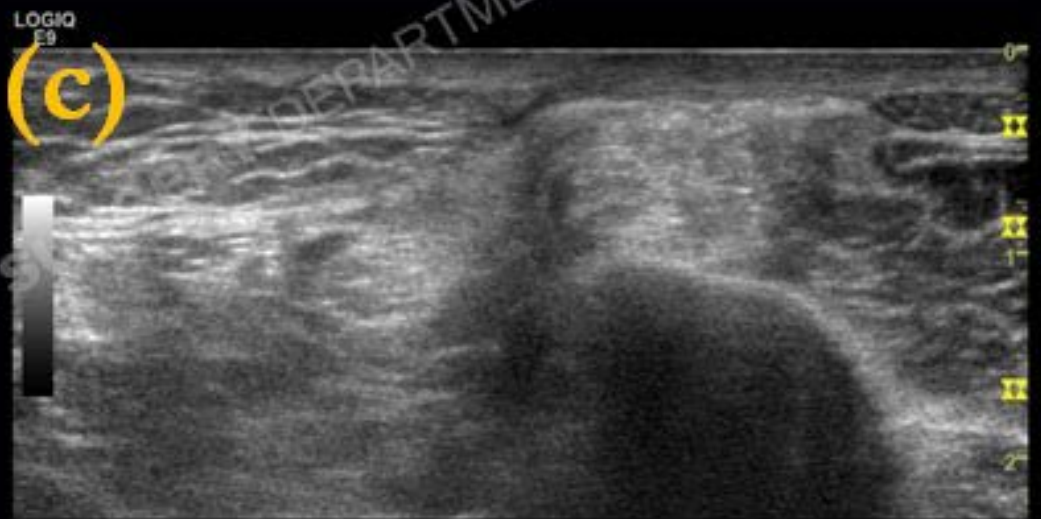


Ultrasound of the superficial peroneal nerve (SPN) at the level of the distal calf in short axis shows

(a) the normal fascicular architecture of the nerve (yellow arrow) with preserved hyper-echoic rim of epineurium (dotted line).

(b) However, the nerve abruptly ends as a heterogeneous mass of hypoechoic tissue representing scar tissue (white arrows).

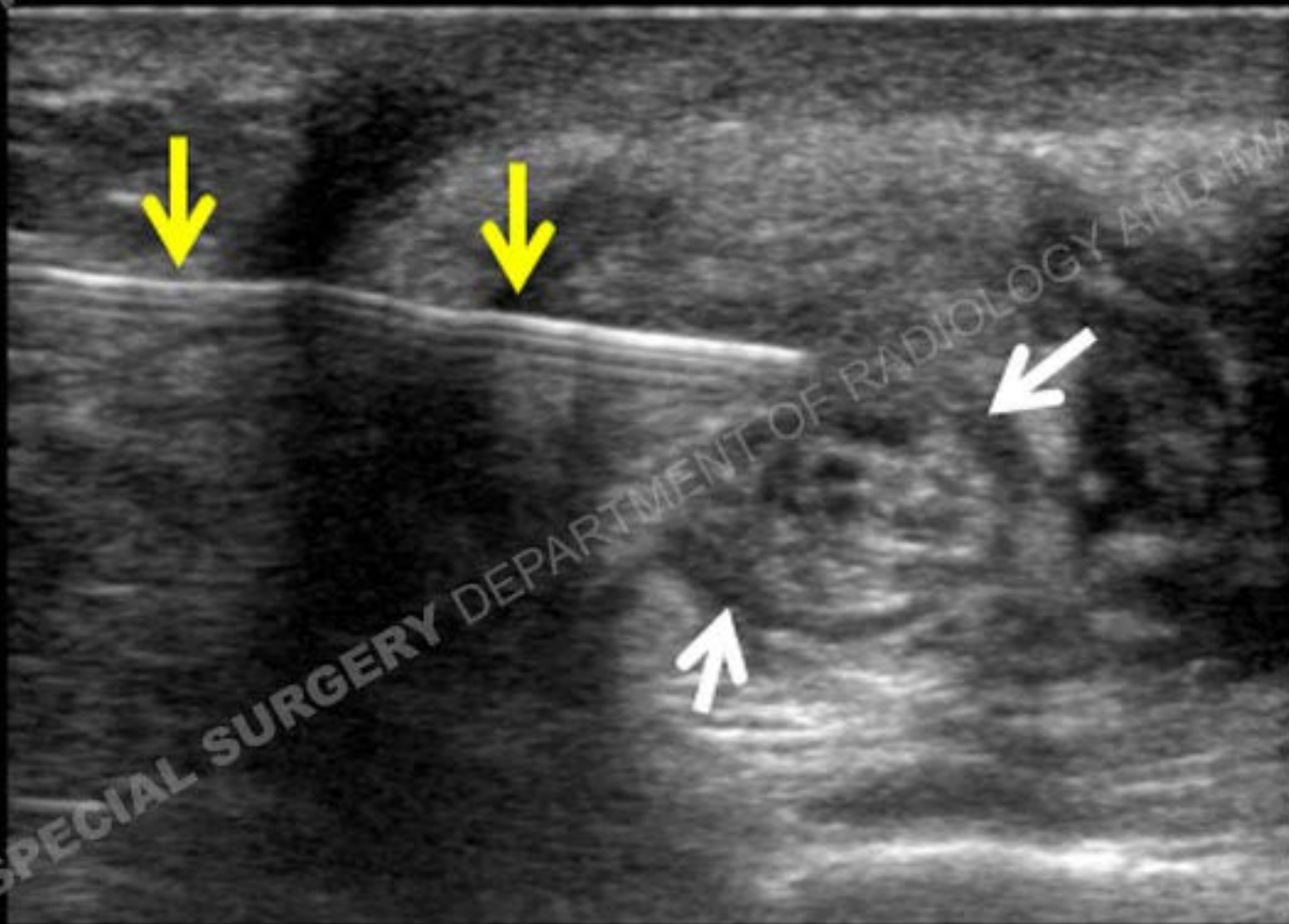
(c) Distal to this, the nerve is completely absent.





LEFT SPN

Ultrasound of the SPN in long axis (left side of the image is proximal, right side of the image is distal) clearly illustrates the normal-appearing nerve (white arrows) abruptly ending as hypoechoic scar tissue (yellow arrows).



LEFT SPN

Ultrasound of the SPN in long axis during anesthetic injection showing needle (yellow arrows) placed next to the SPN and the injectate (white arrows) surrounding the epineurium of the nerve

The patient felt numbness in the entire distribution of the area of chronic pain and paresthesia due to the anesthetic, confirming that the stump neuroma was responsible for the patient's symptoms.

Diagnosis: SPN stump neuroma due to Iatrogenic Nerve Transection.

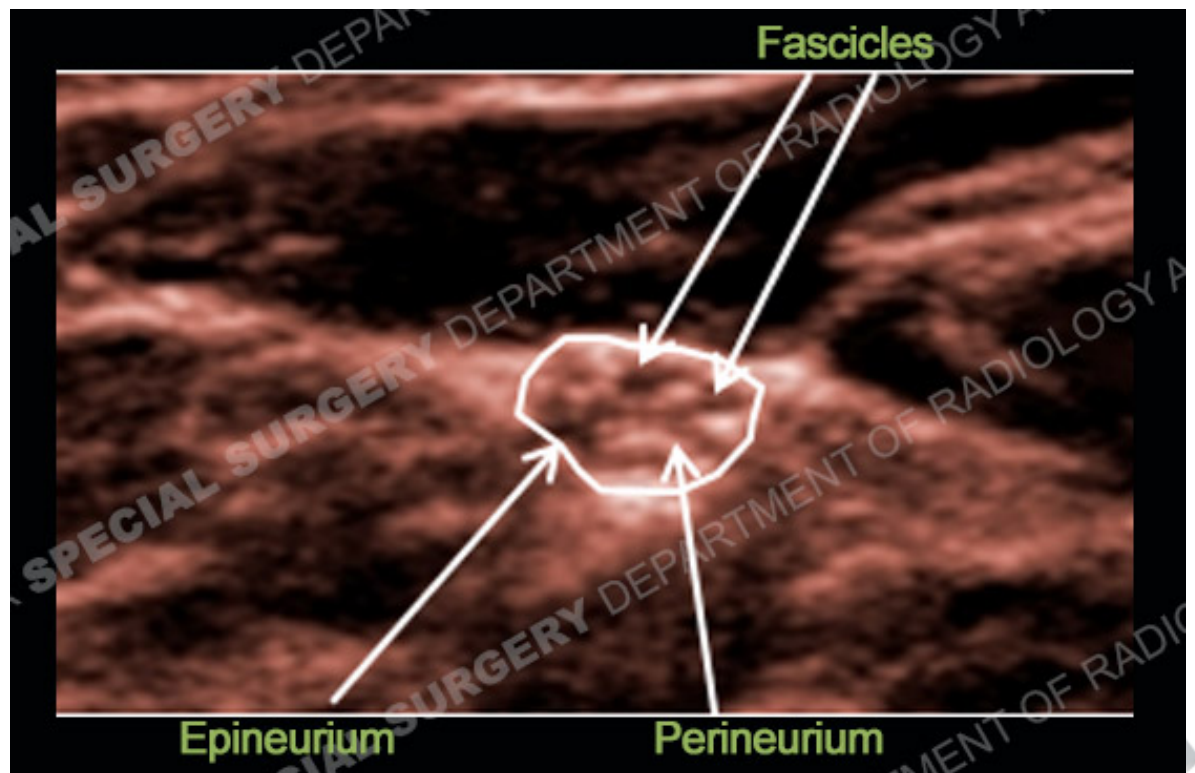
Discussion

One of the complications of a nerve transection, either post-traumatic (e.g. due to penetrating injury) or deliberate (as part of limb amputation), is the development of a stump neuroma.

Stump neuroma can result in pain and paresthesia in the distribution of that nerve.

Ultrasound can be a very accurate modality for evaluating the integrity of nerves, particularly nerves that course superficially in the extremities.

In short axis, a normal peripheral nerve should have individual hypoechoic (dark) fascicles separated by hyperechoic (bright) perineurium and surrounded by hyperechoic epineurium.



Discussion

On ultrasound, a stump neuroma manifests as a heterogeneous soft tissue/scar at the end of a transected nerve.

As in this case, ultrasound-guided injection of anesthetic around the nerve and the scar can be helpful for confirming that the patient's symptoms are related to the stump neuroma.

