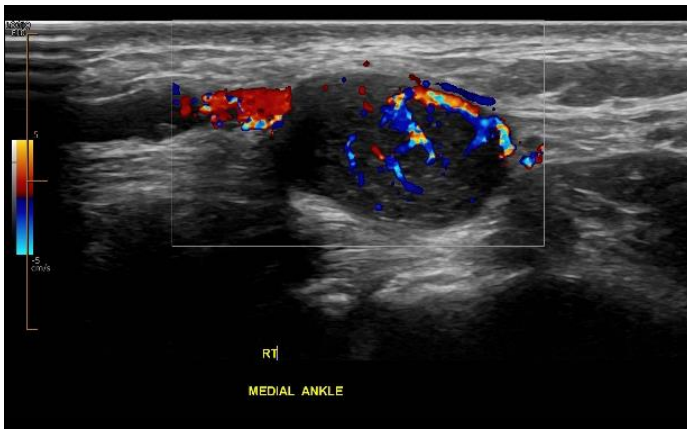
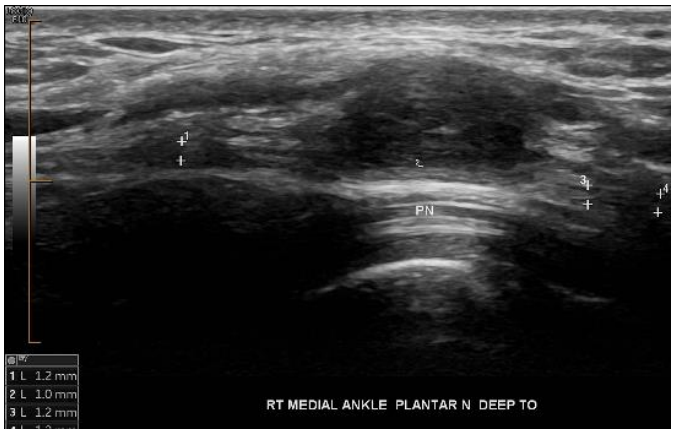
MEDIAL CALCANEAL PERIPHERAL NERVE SHEATH TUMOUR

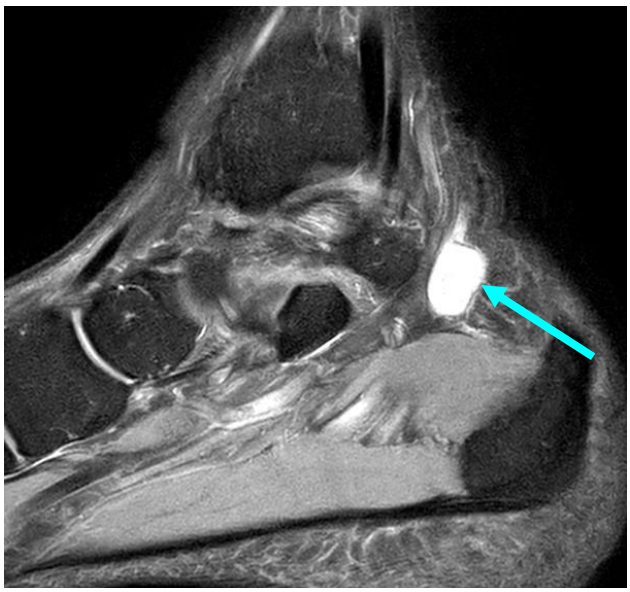
37M with 2 years of medial heel pain and swelling.

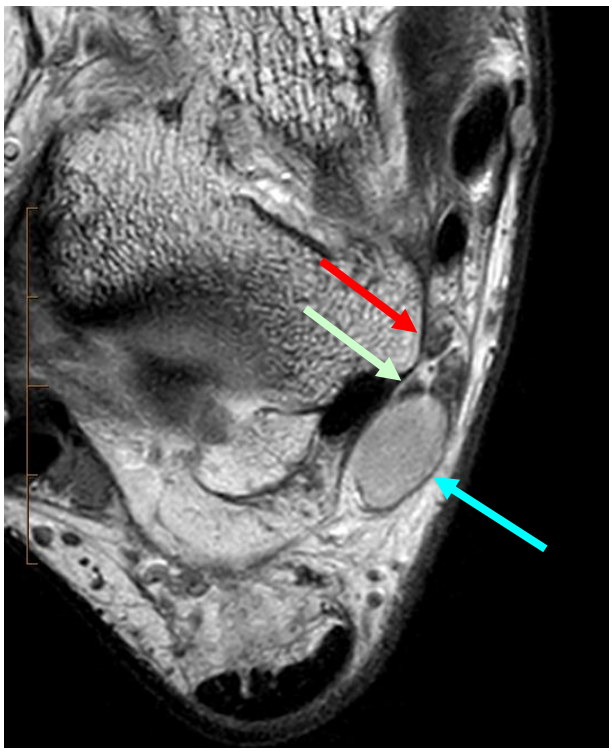




Ultrasound Findings:

- Well circumscribed 16 x 14 x 8mm solid hypoechoic vascular mass at the medial aspect of the calcaneus.
- Directly posterior to the medial calcaneal nerve, behind the posterior tibial neurovascular bundle.





Above: Sagittal PD SPAIR image demonstrates a homogeneously high signal ovoid well circumscribed mass in the tarsal tunnel (light blue arrow).

Right: Axial PD weighted imaging best depicts the posterior tibial nerve (red) and medial calcaneal nerve (light green), which appears intimately associated with the posteriorly positioned mass.

MRI Findings:

- Well-circumscribed ovoid soft tissue lesion behind the posterior tibial neurovascular bundle at the level of the subtalar joint.
- Homogeneously bright signal on T2 weighted imaging.
- The mass appears continuous with but eccentrically positioned relative to the medial calcaneal branch of the posterior tibial nerve.
- No evidence of denervation of the intrinsic muscles of the foot.

Discussion:

- **Aetiology**
  - Peripheral nerve sheath tumours (PNSTs) are typically benign primary neurogenic tumours
  - Can be associated with syndrome Neurofibromatosis 1 and 2.
- **Clinical**
  - Clinical presentation is specific to the nerve involved.
  - Pain at rest, muscle weakness and shorter duration of symptoms can be suggestive of a malignant peripheral nerve sheath tumour.
- **Imaging findings**
  - Well circumscribed lesions which displace rather than invade adjacent tissues
  - MRI: isointense on T1, hyperintense on T2, intense enhancement.
- **Differential diagnosis**
  - Schwannoma:
    - Lesion usually ***develops eccentric to nerve fibres***.
    - 5% of all benign soft tissue lesions, occur between 20-50 years of age.
    - Pain and neurological symptoms are uncommon unless large.
  - Solitary neurofibroma:
    - Fusiform lesion from which the ***nerve enters and exits centrally***.
    - Account for 5% of benign soft tissue lesions, often in younger patients 20-30 years.
  - Malignant peripheral nerve sheath tumour (MPNST)
    - Less frequent than benign PNSTs, 50% associated with neurofibromatosis type 1.
    - MRI does not confidently differentiate from benign.
    - MRI features that predict MPNST:
      - Size over 5cm; peripheral enhancement; peri-lesional oedema; intra-tumoral cystic lesions
  - Traumatic Neuroma
- **Management**
  - Surgery is usually the management of choice.
  - Schwannomas can be completely resected from the parent nerve as they do not infiltrate the nerve.
  - Removal of neurofibromas requires resection of the nerve.
  - Recurrence is unusual.

Further Reading:

Kransdorf MJ: Benign soft-tissue tumors in a large referral population: Distribution of specific diagnoses by age, sex, and location. AJR 164:395-402, 1995.
Murphey MD, Smith WS, Smith SE, Kransdorf MJ, Temple HT. Imaging of musculoskeletal neurogenic tumors: Radiologic-pathologic correlation. RadioGraphics 1999;19:1253-1280.
Snearly WN. Radsource. MRI Web Clinic – May 2011. Schwannoma of the Median Nerve. URL: https://radsource.us/schwannoma-of-the-median-nerve/