Schwannoma of the Medial Plantar Nerve: A Case Report
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STATEMENT OF PURPOSE
To understand the clinical and intra-operative appearance of Schwannoma in the feet and to acknowledge the optimal management in case of unusual presentation.

BACKGROUND & LITERATURE REVIEW
Schwannoma is a benign peripheral nerve sheath tumor originating from Schwann cells. It’s an encapsulated tumor representing 5% of all benign soft tissue neoplasms. Rarely do these tumors have a malignant potential and sizes usually range from 1.5-3cm. Schwannomas can be noted between ages 20-50 years and are equally seen in men and women with no racial predisposition.

Schwannomas can be found anywhere along the peripheral nervous system including neck, trunk, upper and lower extremities. Presentations of these tumors are rare in the lower extremity with fever cases noted to the foot. In one study by Ruggieri et al., only 14 out of 189 (7.4%) soft tissue tumors found in the foot from 1990-2007 were correlated with Schwannoma. Another study by Hao et al., showed incidence of Schwannoma in the foot to be 4% (7 out of 174) in a 3-year period.

Clinical diagnosis of these lesions are difficult as they have an initial asymptomatic presentation due to its slow growing nature and rarely are they appreciated on x-rays. As the tumor slowly expands it starts to displace and compress the nerve fascicles leading to clinical symptoms. These lesions are mobile, have a soft texture, cause numbness, pins and needles feeling, which are similar to other soft tissue tumors. Hence diagnostic imaging becomes a main play when determining differential diagnosis, anatomic characterization, size, and location. This can range from ultrasound, MRI, and even CT imaging to help build a better pre-operative diagnosis. With MRIs these lesions have a fusiform shape and are isointense under T1 and hyperintense under T2. High intensity ultrasound is also an effective modality and lesions appear as oval, well-defined, hypoechoic and homogeneous mass.

Schwannomas are managed multiple ways including observation and intra-capital encapsulation. The treatment of choice is total resection of the tumor and has minimal nerve damage or neurological deficits.

CASE STUDY
A 53-year-old male with a past medical history of pneumonia and asthma presented to the office with right foot plantar medial heel pain, exacerbated with initial step or long periods of weight bearing.

Initial physical exam positive for tenderness on palpation to the anterior medial heel with negative palpable mass and no pins and needles. Initially was treated for plantar fasciitis and exhausted conservative treatment. Nine months in, had continued severe pain, hindering daily activity. Had palpable mobile mass at the medial posterior aspect of his foot. This time positive pins and needles sensation along the medial arch was noted.

Ultrasound obtained: showed a 27x14x18mm homogenous lesion with well-defined margins and internal vascularity.

MRI obtained: showed a well-circumscribed solid mass within the subcutaneous medial plantar tissue. The lesion was hyperintense on T2 and hypointense on T1 with no invasion to adjacent soft tissue. It was situated superficial to the abductor hallucis muscle and medial to the flexor digitorum brevis muscle.

Total resection was performed.

CASE STUDY (CONTINUED)
Intra-operative finding: Solid mass situated eccentrically within the medial plantar nerve sheath. No interference with surrounding soft tissue noted. It was tan-white with smooth, defined, glistening, rubbery surface. It was encapsulated, no fluid inside, and measured 2.5 x 2 x 1.8cm.

Pathological report confirmed Schwannoma.

Weight bearing post-op and no complications or recurrence noted in follow-up visits.

ANALYSIS & DISCUSSION
Schwannoma is a rare finding in the lower extremity, even more so in the foot. If left undiagnosed patients can develop severe pain altering daily activities. Along with clinical features, diagnostic imaging plays a crucial role in narrowing the differential diagnosis and allows for proper management. This case highlights the importance of early imaging and clinical identification of a growing soft tissue mass when the differential diagnosis for plantar medial foot pain is numerous.

REFERENCES