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Myopericytoma of the Foot: A Case Report

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ABSTRACT

Myopericytoma is a rare soft tissue tumor found in the subcutaneous and superficial soft tissues in the extremities. The present study reports a unique case of myopericytomas found in the first and second toes of a patient. The masses were surgically excised, and on pathologic and immunohistochemical examination, the diagnosis of myopericytoma was made. At the follow-up visit, the patient had no recurrence of the soft tissue tumor.

Myopericytoma is an uncommon soft tissue tumor first described by Granter et al [1] in 1998, with 7 cases of the soft tissue mass located in the subcutaneous and superficial soft tissues in the distal extremities. It has been described as a well-circumscribed, unencapsulated nodular proliferation with many thin-walled vessels and a concentric, perivascular arrangement of ovoid spindle-shaped myopericytes in the dermis, subcutis, or soft tissues, often occurring in adults. Most myopericytomas have a benign nature, but there have been reports of malignant myopericytomas [2].

Clinically, most myopericytomas present as painless, slow-growing soft tissue tumors in the superficial or deep soft tissues. They typically appear singly, but there have been rare case reports of multiple myopericytomas in an individual patient. Diagnosis typically requires a full pathologic and immunohistochemical evaluation to differentiate the mass from other masses that have very similar characteristics [2].

We report the case of a patient with 2 myopericytomas located on both the plantar hallux and the second toe.

Case Report

Our patient is a 61-year-old female who presented to the clinic with painful soft tissue masses on the plantar aspect of her hallux and second toe of her left foot. Her past medical history was significant for prediabetes mellitus, basal cell carcinoma, hypertension, Hashimoto thyroiditis, uterine fibroids, depression, and anxiety. She had no history of any other painful soft tissue masses or trauma to the area involved.

On examination of the plantar aspect of the proximal phalanx of the hallux, a small, semifirm, round soft tissue mass was present (Fig. 1). There was a similar mass located on the plantar aspect of the proximal phalanx of the second toe. Both masses were semimobile beneath the skin. The masses were tender to palpation and elicited a positive Tinel sign. Magnetic resonance scans were obtained to allow further evaluation of the mass (Fig. 2).

The patient was subsequently taken to the operating room because she had worsening pain associated with these lesions. Intraoperatively, linear incisions were made overlying the soft tissue masses. With minimal dissection of the superficial soft tissues, the soft tissue masses were easily identified (Fig. 3). The masses were carefully resected and sent to pathology for evaluation. There were no deep attachments or stalks noted (Fig. 4). The patient had an uncomplicated postoperative course. At her 2-week postoperative follow-up visit, the patient noted her pain was relieved, and the sutures were removed. With extended follow-up, she has yet to have a recurrence of either mass.

Pathologic analysis of the lesions revealed that the soft tissue masses have multilayered, concentric perivascular cell growth (Figs. 5–7). Immunohistochemical staining was positive for smooth muscle actin and negative for cytokeratin MNF-116, desmin, and S-100 stains. Both of these findings led to the diagnosis of myopericytoma.

Discussion

Myopericytomas are rarely reported in the foot and ankle. Originally described by Granter et al [1], myopericytomas are soft tissue masses that originate from myopericytes and have characteristics of vascular smooth muscle cells and pericytes. In 2002, the World Health

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Fig. 1. Preoperative appearance of soft tissue masses. One mass was located to the plantar aspect of the first proximal phalanx lateral to the flexor tendon. Another mass was located to the plantar aspect of the second proximal phalanx medial to the flexor tendon.

Fig. 3. Intraoperative appearance of the soft tissue. After minimal dissection, the well-encapsulated mass was easily visualized at the plantar aspect of the hallux.

Organization classified myopericytomas as an independent perivascular neoplasm of soft tissue and bone [3].

Myopericytomas have features of both glomus tumors and hemangiopericytomas. They affect patients of all ages, with a peak incidence at 50 years [2]. They are typically benign, nodular formations, usually in the subcutaneous tissues, located in the distal extremities. They can occur in other locations, including proximal extremities, head, neck, lungs, muscle, and bone. Myopericytomas are typically slow growing and, as in our case, can present with pain or tenderness in the anatomic region [4,5].

Our case is consistent with the observations of myopericytomas being well circumscribed but nonencapsulated tumors that consist of

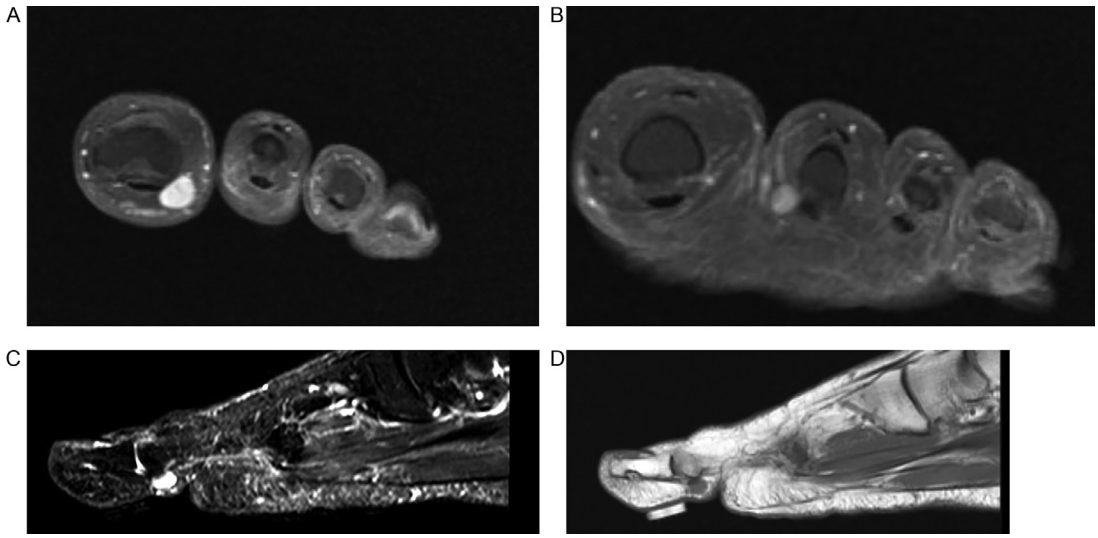

Fig. 2. Magnetic resonance images of the soft tissue mass. (*A*) T2 coronal view depicting the hyperintense pass on the plantar lateral aspect of the hallux. (*B*) T2 coronal image showing the hyperintense mass on the plantar medial aspect of the second toe. (*C*) Sagittal STIR image depicting the hyperintense mass on the plantar aspect of the hallux. (*D*) T1 sagittal image showing the hypointense mass underlying the marker on the plantar aspect of the hallux.

Fig. 4. Soft tissue mass specimen from the plantar hallux.

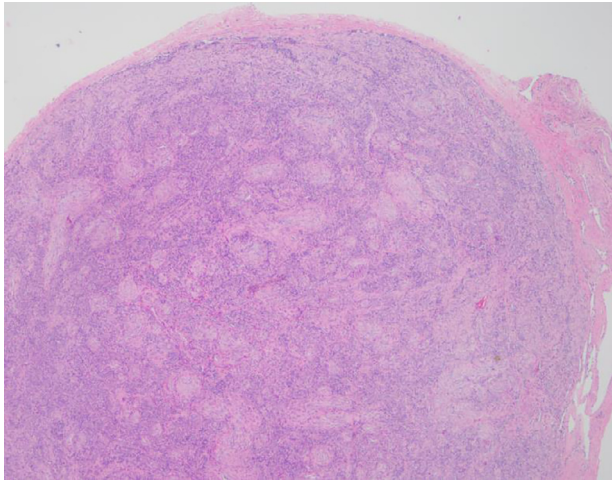

Fig. 5. Myopericytoma is a benign perivascular soft tissue tumor that is generally small and well circumscribed. A nodular proliferation of the neoplastic pericytes is appreciated at this power (magnification ×20; hematoxylin-eosin stain).

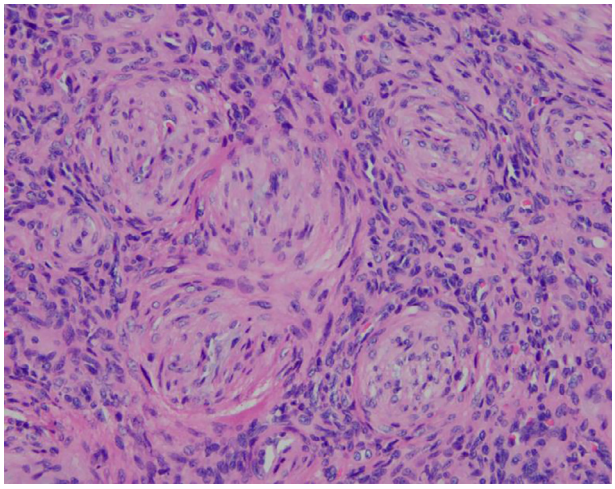

Fig. 6. Myopericytoma is characteristic for its multilayered, concentric perivascular growth of the tumor cells. The tumor cells are plump and spindled or ovoid with eosinophilic cytoplasm and relatively uniform bland nuclei. Mitoses and cytologic atypia are rare. An associated lymphocytic infiltrate is seen (magnification × 200; hematoxylin-eosin stain).

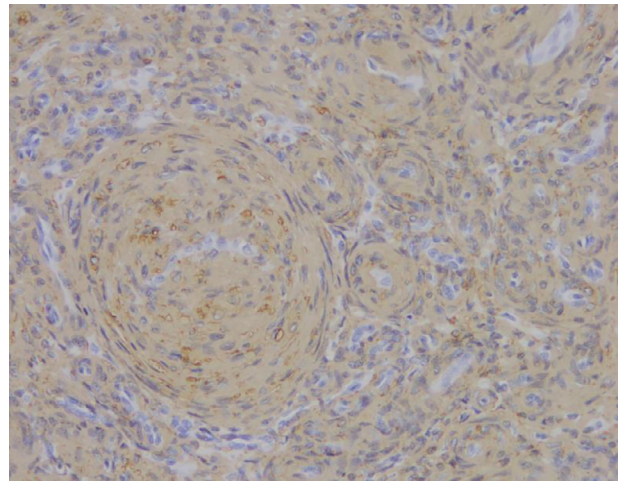

Fig. 7. Immunohistochemical stain for smooth muscle actin (SMA) highlights the concentric perivascular growth of the neoplastic pericytes. The tumor is negative for cytokeratin MNF-116, desmin, and S-100 stains (magnification × 200; SMA stain).

spindle-shaped cells with a concentric perivascular growth pattern and with positive immunohistochemical staining for smooth muscle actin. Desmin, as in our case, is typically negative immunohistochemically, but there have been case reports of myopericytomas that have stained positive for desmin. Most case reports describe the nature of myopericytomas as benign in nature with very rare recurrence after excision [2].

Few case reports exist that discuss myopericytomas in the foot or ankle. Dray et al [4], in a review of 54 cases of myopericytoma-type lesions, noted that 26 were in the lower extremity, with multiple occurrences on the sole of the foot and the heel [4]. Provenzano et al [5] reported a painful myopericytoma present on the second webspace. These authors also surgically excised the painful lesion and reported no recurrence.

In conclusion, we present the case of a patient with a myopericytoma of the foot, a rare, mostly benign, tumor with spindle-shaped cells in a concentric perivascular growth pattern with positive immunohistochemical staining for smooth muscle actin. Typically, these lesions are surgically excised, especially if a diagnosis is desired. Pathologic evaluation and immunohistochemical staining are pertinent for the diagnosis.

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