

What Is Your Diagnosis?



A 35-year-old man presented with a 2.5-year history of a painful 1.5×1.2-cm slightly firm, subepidermal nodule on the medial aspect of the right heel.

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The authors report no conflict of interest.

The Diagnosis: Angioleiomyoma

Angioleiomyomas are benign neoplasms arising from the smooth muscle of vein walls.¹ They are typically solitary, firm, subcutaneous nodules^{1,2} varying in color from pink to blue to brown (Figure 1).³ They grow slowly and generally are less than 3 cm in diameter at the time of excision



Figure 1. Subepidermal nodule on the medial aspect of the right heel.

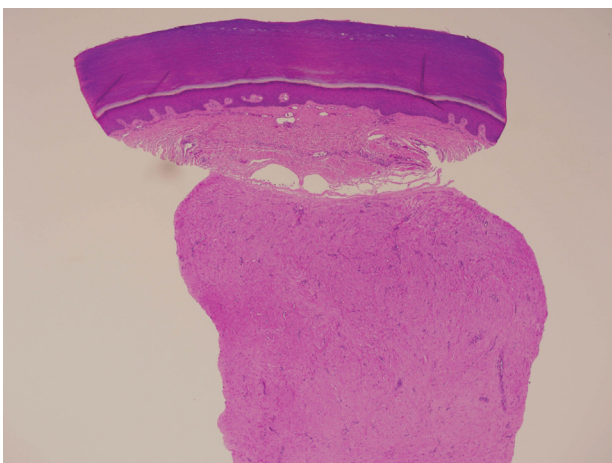


Figure 2. Encapsulated dermal nodule (H&E, original magnification $\times 20$).

but have been reported to be as large as 7 cm.⁴ Most angioleiomyomas are located on the lower extremities but also may occur elsewhere, including the upper extremities, trunk, face, nasal and oral cavities, and nail beds.^{5,6} Angioleiomyomas often are associated with sharp paroxysmal pain that may be spontaneous or elicited by light touch, wind, or cold. The pain may increase during pregnancy.^{3,5} Theories about the cause of pain include compression of small interstitial nerve fibers within angioleiomyomas⁷ and ischemia.³ Although the exact etiology of angioleiomyomas is uncertain, they are commonly attributed to traumas, infections, hormones, genetic factors, and vascular malformations.^{3,8} They may be more common among East Africans⁸ and most frequently occur in individuals between 30 and 50 years of age.³ In a large study, there was a female-male ratio of 1.7:1.⁵

Histopathologically, angioleiomyomas are encapsulated dermal or subcutaneous nodules (Figure 2). Within the nodules are variable-sized veins with muscular walls surrounded by smooth muscle bundles extending tangentially from the periphery of the vessels (Figure 3). Between the muscle bundles is an inconspicuous, delicate, collagenous stroma.⁴ Foci of calcification, lymphocytic infiltration, and myxoid and hyaline changes may be present. Rarely, small groups of mature fat cells may be seen. Thrombi may occupy the vascular lumen.⁵ Ultrastructurally, angioleiomyomas are composed of typical smooth muscle cells.⁹ Immunohistochemically, these cells are positive for vimentin, desmin, and smooth muscle actin.¹⁰

In a review of 562 cases by Hachisuga et al,⁵ angioleiomyomas were divided into 3 histologic subtypes: solid, venous, and cavernous. The solid subtype, with small slitlike vascular channels, represented 67% of angioleiomyomas. The venous subtype, with vascular channels with thick muscular walls that are distinct from the surrounding intervascular smooth muscle, occurred in 23% of cases. The cavernous subtype, with dilated vascular channels in which the blood vessel wall blends imperceptibly with the smooth muscle proliferation, was present in 11% of cases.⁵

The differential diagnosis of an angioleiomyoma includes neurofibroma, glomus tumor, hemangioma, eccrine spiradenoma, angiolipoma, dermatofibroma, epidermal inclusion cyst, foreign body granuloma, ganglion cyst, xanthoma, gouty tophus, nodular amyloidosis, subcutaneous

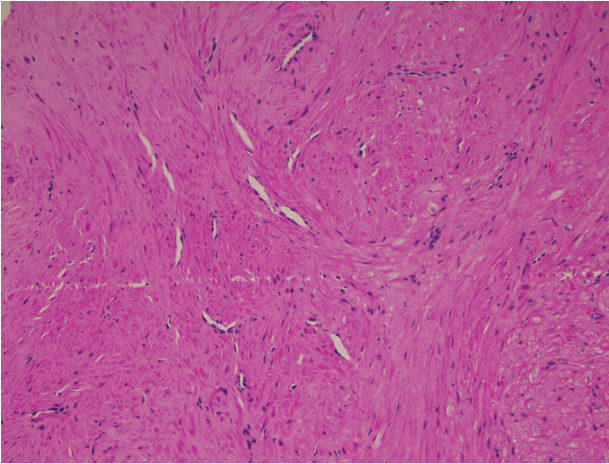


Figure 3. Veins surrounded by smooth muscle bundles (H&E, original magnification $\times 100$).

nodular sarcoidosis, leiomyosarcoma, lymphoma, and cutaneous metastatic nodule.

The treatment of choice is complete excision. Recurrence is rare.¹¹ Compression of adjacent bone may cause osseous erosion.¹² Two reports have suggested the possibility of malignant transformation. One report depicted a leiomyosarcoma that developed in association with a long-standing angioleiomyoma.⁸ The other report described a malignant recurrence after excision.¹³

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