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Erythematous asymptomatic nodule on the sole

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Abstract

A 75-year-old man presented to the dermatology clinic with an asymptomatic lesion on his right plantar surface. The lesion had progressively grown for two months. Physical examination revealed an erythematous and slightly scaly nodule measuring 10x10 mm. Dermoscopy examination showed central diffuse erythema with small red globules. A punch-biopsy revealed a proliferation of irregularly branched small vessels with collapsed lumen, extending in an infiltrative pattern in the superficial and deep dermis. Although this is a rare location, a diagnosis of microvenular hemangioma was made.

Keywords: vascular neoplasm; microvenular hemangioma, hemangioma

Introduction

Microvenular hemangioma is a rare, benign, acquired vascular tumor, which usually occurs as a solitary slowly enlarging, red, purple, or reddish-blue plaque or nodule of less than 30 mm in diameter. It is usually located on the extremities and trunk of young adults, more frequently women. Histologically, this neoplasm is characterized by a proliferation of small vessels in the superficial and deep dermis, with an infiltrative pattern but without mitotic activity, pleomorphism, or endothelial atypia. Immunohistochemical techniques showed positive staining for CD34, CD31, and Wilms tumor protein 1. Clinical features, histopathology, and immunohistochemical studies are required to confirm the diagnosis and to exclude well differentiated sarcomas and other vascular or adnexal tumors.

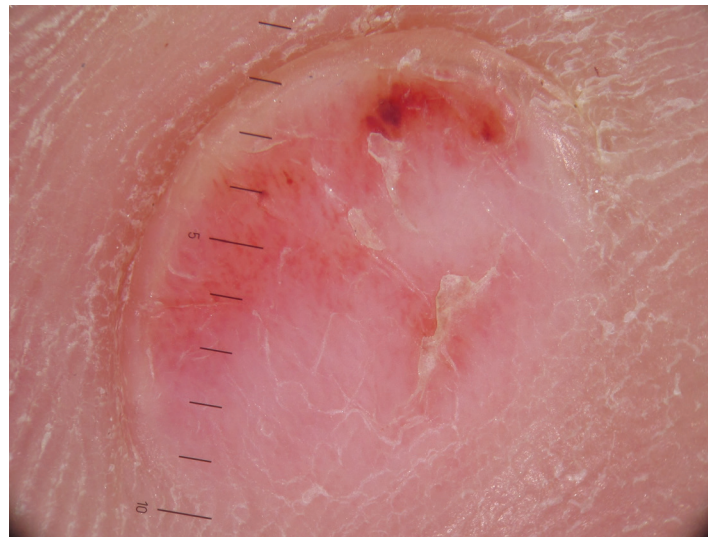


Figure 1. A) An erythematous nodule on the right foot sole measuring diameter of 10x10 mm. B) Dermoscopy showed a central diffuse erythema with small red globules and a hemorrhagic area.

Case Synopsis

A 75-year-old man presented with a two-month history of a right plantar nodule. He had no previous history of trauma, insect, or tick bite. The

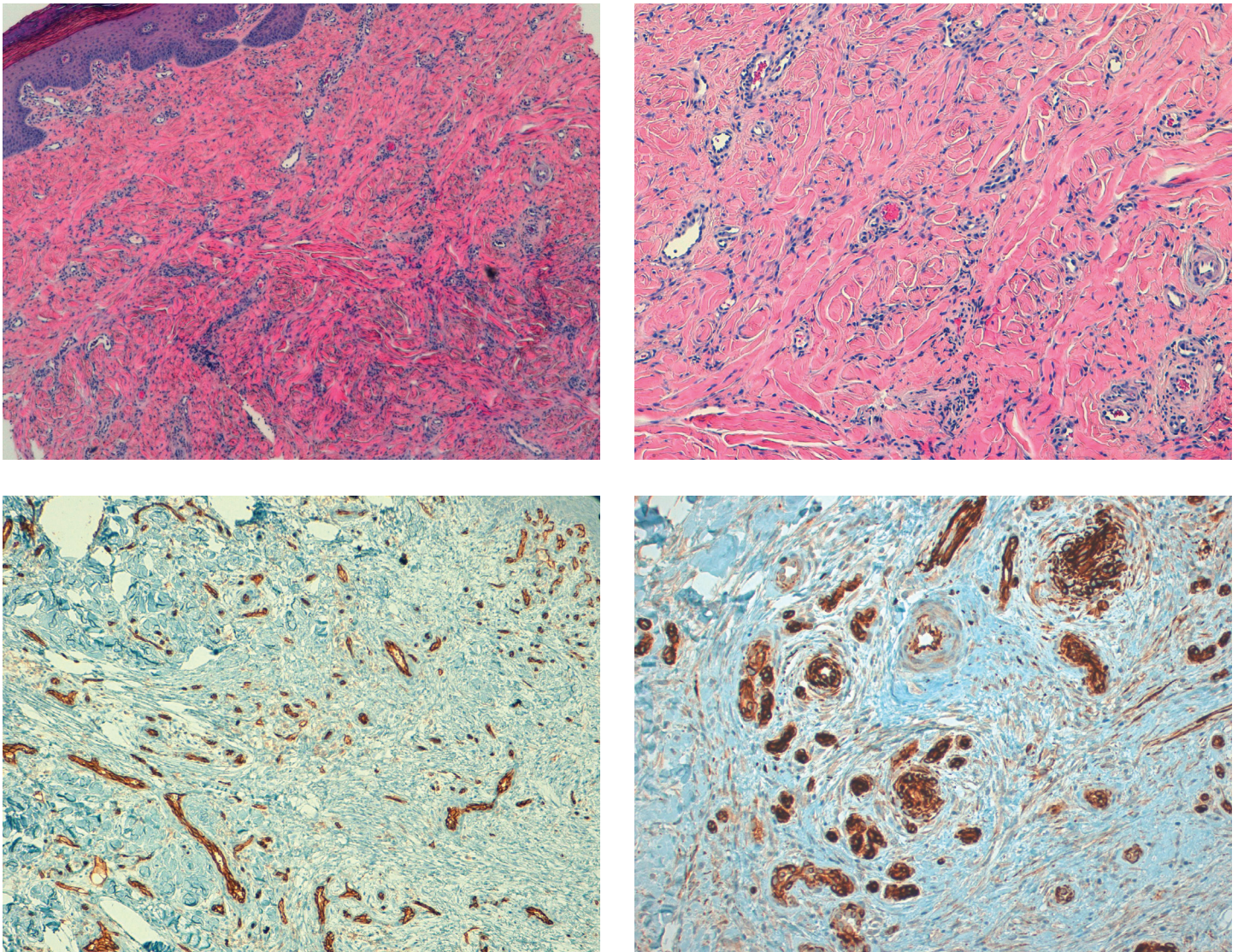


Figure 2. A) Low power view showing a vascular proliferation. (H&E, 10%). B) Proliferation of irregularly non-branched, round-to-oval, thin-walled blood vessels in the dermis. (H&E, 40%). C) Immunohistochemical stain positive for CD31, 40%. D) Immunohistochemical stain positive for WT1, 40%.

lesion consisted of an asymptomatic progressively growing erythematous and slightly scaly nodule, which measured 10x10 mm and was located on the region of the hallux metatarsophalangeal joint of his right plantar foot (**Figure 1, top**). Dermoscopy examination showed central diffuse erythema with small red globules (**Figure 1, bottom**). Physical examination was otherwise unremarkable.

A punch-biopsy revealed a proliferation of irregularly branched small vessels with collapsed lumen, with an infiltrative pattern in the superficial and deep dermis (**Figure 2, top**). Endothelial cells did not display mitotic activity, pleomorphism, or cellular atypia. No hobnail endothelium, no cannonball tufted vessels, and no hyaline globules were seen.

Immunohistochemical techniques showed positive staining for CD31, and Wilms tumor protein 1 (WT1), (**Figure 2, bottom**). Antibodies against smooth muscle actin labeled pericytes around the neoplastic vessels. D2-40 and Human herpes virus 8 (HHV8) were negative. The diagnosis of microvenular hemangioma (MH) on plantar foot was made.

Case Discussion

Microvenular hemangioma is an uncommon, acquired benign vascular neoplasm of unknown etiology. It is defined as a poorly confined neoplasm, integrated by small irregularly branched, thin-walled blood vessels involving the papillary and reticular dermis [1]. Bantel and colleagues described this entity in 1989 as micropapillary hemangioma and in 1991, Hunt et al.

reported similar cases using the current terminology [1,2]. Since then, around 60 cases have been reported in the literature. Microvenular hemangioma typically presents as a slowly enlarging, purple to red, or reddish-blue plaque or nodule of less than 30 mm diameter [3]. It is usually located on the extremities, particularly the forearms, of young to middle-aged adults [2]. To our knowledge, the first report of this entity located on the plantar surface. There is a slight female predominance (male:female ratio 1:1.3). The growth is mostly solitary and asymptomatic [3]. However, some pediatric cases and multiple lesions in the same patient have also been described [3].

Dermoscopic features reported to date include a diffuse light erythema with multiple well-demarcated small red globules, peripheral pigmented reticula, and mild scale. These findings, despite their low specificity, may be an auxiliary tool for the diagnosis [3]. Some of the clinical suspected diagnoses include other vascular and inflammatory lesions, soft tissue tumors including Kaposi sarcoma, adnexal tumors, and even melanocytic neoplasms. The final diagnosis is established by histopathology and immunohistochemical study [7]. Microvenular hemangioma has a typical branching arrangement of small blood vessels among the collagen fibers, with no atypical features. The luminae are usually inconspicuous and collapsed with only a few erythrocytes. The endothelial cells express CD31, CD34, factor VIII, and WT1 but lack expression of D2-40 and GLUT-1 [7]. The histopathological differential diagnosis includes both benign and malignant cutaneous entities; the most important of these are early patch stage Kaposi sarcoma and well-differentiated angiosarcoma. Other entities, such as kaposiform hemangioendothelioma, lobular capillary hemangioma, acquired tufted angioma, and targetoid hemosiderotic hemangioma have also to be ruled out [2,3].

Conclusion

Microvenular hemangioma is a benign uncommon acquired vascular neoplasm that can potentially be mistaken for malignancy such as Kaposi sarcoma or angiosarcoma.

Microvenular hemangioma can only be diagnosed by histopathology and immunohistochemical study,

but dermoscopy may be an auxiliary tool for the diagnosis.

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