area is present in order to avoid unnecessary aggressive treatments.

References

1. Coghill SB, Tyler X, Shaxted EJ. Benign mucinous metaplasia of the vulva. Histopathology. 1990;17:373-5.
2. Val-Bernal J, Hernández-Nieto E. Benign mucinous metaplasia of the penis. A lesion resembling extramammary Paget's disease. J Cutan Pathol. 2000;27:76-9.
3. Fang AW, Whittaker MA, Theaker JM. Mucinous metaplasia of the penis. Histopathology. 2002;40:177-9.
4. Ruiz-Genao DP, Daudén-Tello E, Adrados M, Fraga J, García-Díez A. Mucinous metaplasia of the glans penis. Histopathology. 2004;44:90-1.
5. Mathew M, Joshi A, Roy A. Mucinous metaplasia of the prepuce – a case report and review of the literature. Indian J Pathol Microbiol. 2006;49:263-4.

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Sinusoidal Hemangioma: Immunohistochemical Analysis with Glucose Transporter 1 (GLUT1) and Williams Tumor Protein 1 (WT1)

Hemangioma sinusoidal. estudio inmunohistoquímico con GLUT1 y WT1

To the Editor:

The appearance of Kaposi sarcoma associated with acquired immunodeficiency syndrome in the 1980s led to increased interest in vascular lesions. This in turn has brought about a radical change in the conception and classification of such lesions, with the appearance of as many as 17 new entities,[1] among them sinusoidal hemangioma.[2]

We describe the case of a 59-year-old man who consulted due to a nodule that had appeared 4 years earlier and that had gradually increased in size over the previous 6 months.

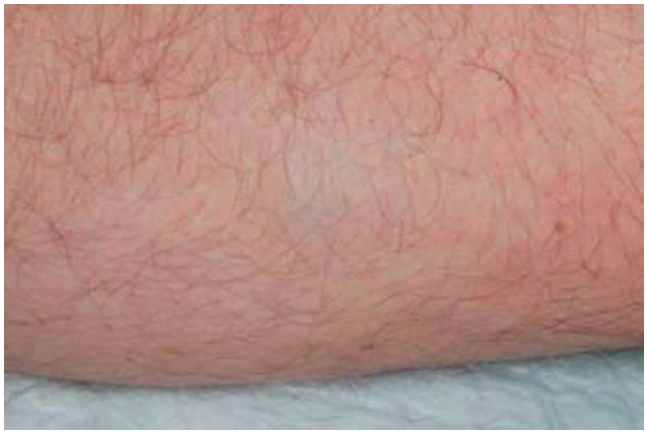

Figure 1 Clinical appearance of the lesion: a round well-defined bluish nodule.

The nodule, located on the anterolateral aspect of the upper third of the right thigh, was asymptomatic. Physical examination revealed a round well-defined bluish nodule, of firm to elastic consistency, that was not adherent to surrounding tissues (Figure 1). The histopathology study revealed a tumor with a vascular appearance that was sharply demarcated but not encapsulated and that replaced several fat lobules. It was composed of thin-walled vessels of different sizes formed by a single strand of endothelial cells arranged in various patterns (Figure 2): a) independent vessels separated by a collagenous stroma; b) tightly packed individual vascular spaces arranged in such a way that hardly any stroma could be seen between

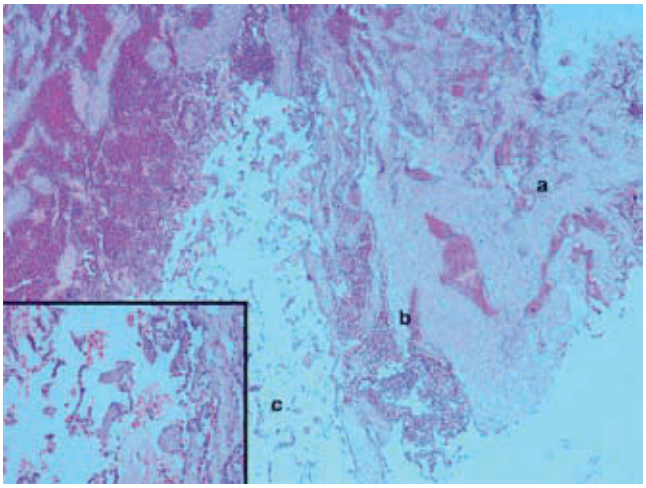

Figure 2 Tumor formed of vessels arranged in different patterns: a) independent vessels separated by a collagenous stroma; b) tightly packed individual vascular spaces arranged in such a way that hardly any stroma could be seen between them; c) large vascular spaces in which islands composed of a collagen core covered by endothelial cells appeared to float (hematoxylin-eosin, original magnification ×40; inset, hematoxylin-eosin, original magnification ×200).

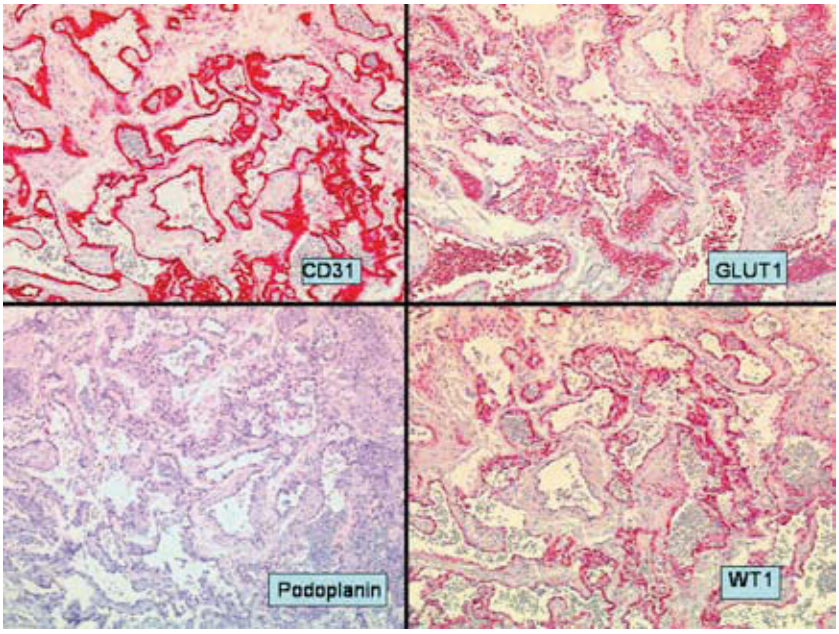

Figure 3 Immunohistochemistry analysis showing positivity for CD31 (original magnification ×100, upper left) and WT1 (original magnification ×100, lower right) and negativity for GLUT1 (original magnification ×100), with erythrocytes in red; endothelial cells were negative for podoplanin (original magnification ×100, lower left).

them; and c) large vascular spaces in which islands composed of a collagen core covered by endothelial cells appeared to float (Figure 2). The vessels were either empty or contained red blood cells. In some areas intraluminal thrombi were also present. There was no evidence of mitosis or atypia. The immunohistochemical analysis was negative for glucose transporter 1 (GLUT1) and podoplanin and positive for Wilms tumor protein 1(WT1) and CD31 (Figure 3).

In 1991 Calonje et al[2] described 12 patients with a vascular tumor that they considered to be an adult variant of cavernous hemangioma (now called juvenile hemangioma).[2-4] The tumor consisted of a single nodule of up to 3.5 cm in diameter that most frequently affected the upper limbs and was more prevalent in women. Histopathologically, the tumor was composed of a network of blood vessels with a sieve-like appearance located in the subcutaneous fat tissue. There were pseudopapillary structures within the tumor, with a tendency to thrombosis and calcification in the center of the lesion.[5]

This same histopathological pattern of interconnected blood vessels with the presence of pseudopapillae has been found, although focally, in other vascular tumors, such as spindle cell hemangioma and juvenile hemangioma.[6] Enjolras et al[7] described 4 cases of vascular lesions with histopathological features similar to those of sinusoidal hemangioma; however, they differed considerably from the cases described by Calonje et al. The lesions described by Enjolras et al were multilobular lesions that developed progressively in the orbital region. They were difficult to treat, as recurrences were frequent and the prognosis poor, due to the involvement of adjacent structures. Furthermore, in 3 of the 4 patients the lesions had been present from birth or childhood. Although the authors considered the lesions to be sinusoidal hemangiomas, they concluded that they were most probably the result of a vascular malformation. In our opinion, despite the histopathological similarities, the articles of Calonje et al and Enjolras et al describe different entities.

GLUT1 is a marker present in the epithelium of blood-tissue barriers, such as the placenta or in the central nervous system.[8,9] As juvenile hemangiomas are positive for GLUT1 at all stages, the fact that our patient was negative for this maker clearly differentiates sinusoidal hemangioma from juvenile hemangioma. The expression of WT1 has also been reported to be useful in distinguishing vascular malformations, which are negative for WT1, from vascular neoplasms, which are positive.[10] Positive WT1 expression and negative podoplanin expression would rule out a vascular malformation on the one hand and a lymphatic origin on the other.

In conclusion, we present a new case of sinusoidal hemangioma, a very rare vascular tumor. Immunohistochemical analyses with GLUT1 and WT1, never before carried out in this type of tumor, demonstrate that it is an independent entity with distinct clinical and histological features that is unrelated to juvenile hemangiomas (cavernous hemangioma).

References

1. Sangüeza OP, Requena L. Pathology of vascular skin lesions. Clinicopathologic correlations. 1st ed. Totowa: Human Press; 2003.

2. Calonje E, Fletcher CDM. Sinusoidal hemangioma. A distinctive benign vascular neoplasm within the group of cavernous hemangiomas. Am J Surg Pathol. 1991;15:1130-5.
3. Prieto VG, Shea CR. Selected cutaneous vascular neoplasms. A review. Dermatol Clin. 1999;17:507-19.
4. Tsang WYW, Chan JKC, Fletcher CDM. Recently characterized vascular tumours of skin and soft tissues. Histopathology. 1991;19:489-501.
5. Nakamura M, Miyachi Y. Calcifying sinusoidal haemangioma on the back. Br J Dermatol. 1999;141:377-8.
6. Tomasini C, Aloi F, Soro E, Elia V. Spindle cell hemangioma. Dermatology. 1999;199:274-6.
7. Enjolras O, Wassef M, Brocheriou-Spelle I, Josset P, Tran Ba Huy P, Merland JJ. Hémangiome sinusoïdal. Ann Dermatol Venereol. 1998;125:575-80.
8. North PE, Waner M, Mizeracki A, Mihm MC. GLUT1: a newly discovered immunohistochemical marker for juvenile hemangiomas. Hum Pathol. 2000;31:11-22.
9. North PE, Waner M, Mizeracki A, Mrak RE, Nicholas R, Kincannon J, et al. A unique microvascular phenotype shared by juvenile hemangiomas and human placenta. Arch Dermatol. 2001;137:559-70.
10. Lawley LP, Cerimele F, Weiss SW, North P, Cohen C, Kozakewich PW, et al. Expression of Wilms tumor 1 gene distinguishes vascular malformations from proliferative endothelial lesions. Arch Dermatol. 2005;141:1297-300.

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Allergic Contact Dermatitis Due to Dimethyl Fumarate in Boots

Dermatitis alérgica de contacto por dimetilfumarato en botas

To the Editor:

Over the past 3 years there have been a number of case reports of allergic contact dermatitis due to dimethyl fumarate, particularly in relation to the use of sofas and footwear imported from China. In those cases, it appears that dimethyl fumarate was used as an antifungal agent[1] and was contained in small anti-humidity bags inside the footwear or inside the sofas.

We present the case of a 41-year-old woman with no relevant personal history of allergies or disease, who presented intense pruritus 48 hours after starting to wear new footwear (boots) and who then rapidly developed erythematous edematous lesions with a tendency to vesiculation on the distal part of both feet. The lesions were present on the backs of the toes, the instep, and the lateral surfaces of the feet. The patient also presented similar, though somewhat less edematous, lesions on the inside aspect of the ankles and the backs and lower parts of both legs (Figure 1). After treatment with Peitel ointment and Ebastel tablets and ceasing to use the boots, symptoms disappeared in approximately 2 weeks.

The patient stated that the boots contained small bags that, she had been informed, were used after manufacture to preserve the boots during subsequent shipment to Europe. She sent one of the boots to the Department of Industry and Commerce (Consumer Service) for analysis and the presence of volatile organic compounds, such as benzene, toluene, and dimethyl fumarate, was confirmed.

Skin prick testing was performed using a standard series (29 allergens) of the Spanish Skin Research and Allergy Group (GEIDAC) and the standard series for footwear (Chemotechnique Diagnostics, Malmoe, Sweden) (28 allergens) with negative results. Skin prick testing was then carried out using dimethyl fumarate, 0.01% in petroleum jelly (Marti Tor, Barcelona, Spain), with a clearly positive result (++) at 48 and 96 hours (Figure 2). Finally, controls were carried out using dimethyl fumarate, 0.01% in petroleum jelly, in 15 healthy patients, with negative results.

Reports were published in 2007 and 2008 of some cases in northern Europe caused by the use of sofas imported from China,[2-4] demonstrating the relationship with dimethyl fumarate[5]; cases have also recently been published in relation to footwear.[6,7]

Dimethyl fumarate is an ester of fumaric acid that has been used as oral treatment for psoriasis. It is an irritant and can also cause non-immunologic contact urticaria. It is classified as a moderate contact sensitizer in animal models.[8] Recent topical tests of esters of fumaric acid have led it to be considered as a potential cause of irritation and sensitization.[9]

In this case, we concluded that the lesions were consistent with an allergic, non-irritant etiology, as only

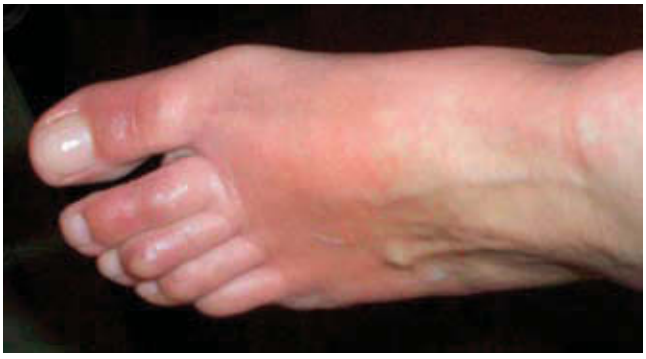

Figure 1 Eczema involving the toes, instep, ankle, and lower part of the leg.