Dermoscopy of Targetoid Hemosiderotic Hemangioma: A Morphological Study of 35 Cases

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Abstract

Background: Targetoid hemosiderotic hemangioma is an uncommon, vascular, benign solitary lesion of lymphatic origin that can be misdiagnosed as other tumors including melanomas. Objectives: To evaluate the dermoscopic features of a large series of targetoid hemosiderotic hemangiomas. Methods: Digital dermoscopic images of 35 histopathologically confirmed cases of targetoid hemosiderotic hemangiomas collected from 7 hospitals in Spain and Italy were evaluated for the presence of dermoscopic structures and patterns. Results: The results of our study reveal that the presence of central red and dark lacunae and a peripheral circular reddish-violaceous homogeneous area is the most common dermoscopic pattern in targetoid hemosiderotic hemangioma (71.4%). The targetoid hemosiderotic hemangiomas of our study were correctly diagnosed in 77% of cases. Conclusion: Dermoscopy is helpful in improving the diagnosis of targetoid hemosiderotic hemangioma. However, attention must be paid to those cases that dermoscopically may show nontargetoid patterns, which often mimic other lesions, including melanoma.

Key Words
Dermoscopy · Targetoid hemosiderotic hemangioma · Hobnail hemangioma

Introduction

Targetoid hemosiderotic hemangioma (THH), also called hobnail hemangioma or targetoid or superficial hemosiderotic lymphatic malformation, is an uncommon, vascular, benign solitary lesion of lymphatic origin generally confined to the dermis [1, 2]. THH affects young or middle-aged people, is slightly more frequent in males (1.36:1), and most commonly involves the limbs and trunk [1, 2]. The classic clinical presentation of THH is a single, annular, vascular lesion with a targetoid appearance, with a brown to violaceous central papule surrounded by a thin, pale area and a peripheral ecchymotic ring [1, 2]. Frequently, however, the clinical presentation of THH is nondistinctive, nontargetoid, or atypical, depending on the stage of its cyclical changes, and the differential diagnoses include infantile hemangioma, Kapo-
si sarcoma, insect bite reaction, dermatofibroma, melanocytic nevus, and melanoma [1–7]. Dermoscopy is a noninvasive technique that has greatly improved the accuracy of diagnoses of pigmented and nonpigmented skin tumors. To the best of our knowledge, apart from sporadic case reports [3–7], no studies evaluating the dermoscopy of THH have been published in the literature. We consider it worthwhile to communicate the dermoscopic features of a large series of THH in different stages that could improve its clinical diagnostic accuracy.

Material and Methods

Dermoscopic images of 35 histopathologically proven cases of THH collected at 7 Hospitals in Spain and Italy were evaluated for the presence of dermoscopic features. Clinical data including age, sex, and anatomical location were obtained for each patient. Dermoscopic images of each lesion were obtained using DermLite Foto (3Gen, LLC, Dana Point, Calif., USA) mounted on a digital camera at 20- to 50-fold magnification. No pressure was used to avoid collapse of the vessels in the lesions. All of the lesions in this study were evaluated for the presence of dermoscopic features by two of the authors (P.Z. and A.L.).

Results

A total of 35 cases of THH were collected for this study (table 1). The lesions were obtained from 22 women (62.8%) and 13 men (37.2%) ranging in age from 12 to 81 years (mean 39.2). Of the 35 lesions, 12 were located on the legs (34.4%), 11 on the back (31.4%), 6 on the trunk (17.2%), 4 on the arms (11.4%), 1 on the buttocks, and 1 on the foot (2.8% each).

Careful dermoscopic examination of the lesions allowed observation of the following features (table 1): (1) the most common structure found in our THH was the presence of a homogeneous area, which was observed in 85.7% of cases. The color of this homogeneous area was reddish-violaceous or ecchymotic in 24 cases (80%) and brownish in 5 cases (16.7%), and we found both colors in 1 case (3.3%; fig. 1–4). (2) The second most common dermoscopic structure was the presence of lacunae, which were found in 74.3% of cases (fig. 1, 2, 4). These lacunae were red in 12 cases (46%), dark in 9 cases (34.6%), and both in 5 cases (19.4%). (3) Other dermoscopic structures were: white structures (including chrysalis) found in 15 cases (42.8%) (fig. 1–3), vascular structures in 14 cases (40%) (fig. 2, 3), and a delicate pigment network in 5 cases (14.3%; fig. 3, 4). In all of the THH included in this study, other specific criteria for melanocytic or nonmelanocytic tumors previously described in the literature were absent.

Regarding the patterns, the one most commonly observed among our THH was composed of lacunae located in the center and a homogeneous area on the periphery, found in 71.4% of cases (fig. 1, 2). In 13 of these cases (52%), we also found an intermediate skin-colored, yellow, or white circular homogeneous area. The second
most common pattern was composed of a reddish-violaceous or ecchymotic homogeneous area that occupied the whole lesion, found in 8 cases (22.8%; fig. 3). The 2 remaining cases showed a pattern composed of a total delicate pigment network (one of them with red lacunae).

### Table 1. Clinical and dermoscopic characteristics observed in 35 THH

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Letters in parentheses represent colors. RL = Red lacunae; DL = dark lacunae; DRL = red and dark lacunae; HA = homogeneous area; VS = vascular structures; WS = whitish structures; DPN = delicate pigment network; b = brown; r = red-violaceous; s = skin-colored; w = white; y = yellow; M = male; F = female.

### Discussion

The results of our study reveal that the presence of central red or dark lacunae and a peripheral circular reddish-violaceous homogeneous area is the most common dermoscopic pattern associated with THH. This pattern could be identified in 71.4% of our cases and it is also the
most common pattern found in the isolated cases published in the literature [3–7]. Lacunae are defined as multiple, clustered, well-demarcated, reddish to dark structures with a round to oval shape. The histopathological correlation of red lacunae is the presence of dilated, thin-walled vessels in the papillary dermis, and they are the hallmark of many vascular tumors, mainly hemangiomas. When these dilated dermal vessels are partially or completely thrombosed and/or are located deeper in the dermis, the color of the lacunae is dark violaceous, blue-black, or black, and they are called dark lacunae, which are very specific to solitary angiokeratomas [8]. Less dilated vessels located in the papillary dermis may be seen dermoscopically as vascular structures, which were ob-

Fig. 2. Variants of the most common pattern associated THH. a Dermoscopically, we found central red lacunae, an intermediate whitish circular homogeneous area, and a peripheral reddish homogeneous area. b In the dermoscopic view, we found central red and dark lacunae, an intermediate yellowish circular homogeneous area, and a peripheral reddish-violaceous homogeneous area. c We observed central red lacunae, an intermediate yellowish circular homogeneous area, and a peripheral reddish-violaceous homogeneous area. d Dermoscopically, we observed central red and dark lacunae with white structures, an ill-defined intermediate yellowish circular homogeneous area, and a peripheral reddish-violaceous homogeneous area with vascular structures (DermLite Foto; 3Gen, LLC; original magnification ×10). Colors refer to the online version only.

Fig. 3. Less common dermoscopic patterns associated with THH. a, b Dermoscopically, we observed an irregular reddish homogeneous area occupying the whole lesion with vascular and white structures. c In the dermoscopic view, we found an irregular reddish-brown homogeneous area with vascular structures (dotted and polymorphous-irregular vessels). d Dermoscopically, the lesion showed a delicate pigment network located on the whole lesion with vascular structures, mimicking a dermatofibroma. (DermLite Foto; 3Gen, LLC; original magnification ×10). Colors refer to the online version only.
served in 40% of our cases. The histopathologic correlation of the reddish-violaceous or reddish-brown homogeneous area, which was found in 85.7% of the cases, is the presence of the less dilated, slit-like and angulated vascular spaces, extravasated erythrocytes, and hemosiderin deposition in the mid and deep dermis. This reddish-violaceous or brownish homogeneous pigmentation was mostly present surrounding red or dark lacunae (71% of the cases) but could also be observed in the entire lesion in 22.8% of THH. Other dermoscopic structures observed in our THH were: white structures, including chrysalis (42.8%) and a delicate pigment network (14.3%). The histopathologic correlation of white structures (including chrysalis) could be the presence of dermal fibrosis, which was found in some cases, but mostly the changes in the orientation of collagen due to the pressure of large dilated vessels located in the papillary dermis [9]. The presence of a delicate pigment network may be due to hyperpigmentation at the basal layer, which has been described in older lesions.

Although THH usually presents clinically as a red, violaceous, or black papule surrounded by an ecchymotic circular area, its clinical presentation can be different and variable. Because of that, this lesion may be clinically confused with a hemangioma, an angiookeratoma, Kaposi’s sarcoma, a dermatofibroma, an insect bite reaction, a melanocytic nevus, or a melanoma. Dermoscopy can help in making the correct diagnosis. The most common dermoscopic pattern observed among our THH was composed of central red and/or dark lacunae and a peripheral reddish-brown homogeneous area, found in 71.4% of the cases. As far as we know, this pattern has only been described in solitary angiokeratomas and thrombosed hemangiomas [8, 10]. Moreover, in 52% of our THH with this pattern, we also found an intermediate skin-colored, yellow, or white circular homogeneous area (targetoid pattern) that has only been described in targetoid hemosiderotic nevi.

The second most common pattern was composed of a reddish-violaceous or reddish-brown homogeneous area that occupied the whole lesion, most often with vascular and white structures, found in 8 cases (22.8%). This pattern has also been described to be rarely associated with some vascular tumors (microvenular hemangioma [11] and retiform hemangioendothelioma [12], to name a few), aneurysmatic dermatofibromas [13], purpuric dermatosis [14], and some amelanotic melanomas [15, 16]. Menzies et al. [15] found that some of the most positive predictors of amelanotic or hypomelanotic melanomas were irregularly shaped depigmentation (white structures), the presence of more than one shade of pink (reddish homogeneous pigmentation), and peripheral light brown structureless areas (reddish-brown homogeneous areas), and therefore nontargetoid THH can be considered a mimic of melanoma [7, 15]. In 5 cases (14%), we found a delicate pigment network (peripheral in 3 cases and total in the remaining 2), a structure associated with dermatofibro-
Like some authors, we consider THH a hemosiderotic lymphatic malformation [1, 2] and all dermoscopic patterns as different evolutive phases of THH formation [3, 6, 17]. In the initial stages, a precipitating factor (traumas or hormonal factors [1, 2] have been postulated) could lead to the development or expansion of micro-shunts in which the pressure of the capillaries would cause filling of the lymph spaces of the lesion with erythrocytes and contribute to the formation of aneurysmal microstructures. Dermoscopically, at this stage we can see the pattern composed of central red and/or dark lacunae and a peripheral red-violaceous homogeneous area, with or without vascular structures. In older lesions, the ectatic vascular channels in the papillary dermis disappear, leaving collapsed vascular channels with increased hemosiderin deposition and fibrosis in the dermis. This stage may dermoscopically correspond to the patterns composed of a total reddish-violaceous or brownish homogeneous area and white structures. In some cases, the accompanying inflammatory process leads to the accumulation of melanin in basal keratinocytes, producing the dermoscopic image of a delicate pigment network. However, although we observed this phenomenon in some of our cases (fig. 4), a longitudinal series documenting these changes or the evolution of dermoscopic features may be needed to confirm this hypothesis.

In conclusion, the pattern composed of central red and/or dark lacunae and a peripheral red-brownish homogeneous area is the most common dermoscopic pattern associated with THH (71.4%). Attention must be paid to THH that clinically and dermoscopically may show nontargetoid patterns often mimicking other lesions, including amelanotic or hypomelanotic melanoma; thus, histopathologic evaluation remains the gold standard for diagnosis.

Statement of Ethics

The authors have no ethical conflicts to disclose.

Disclosure Statement

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References


