

## Hemosiderotic dermatofibroma\*

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**Abstract:** We report a rare clinical case of hemosiderotic dermatofibroma in a 36-year-old female patient. The main dermatoscopic finding was represented by homogeneous blue-gray pigmentation. The aim of this report is to demonstrate the rarity of the lesion and the dermatoscopic importance it assumes by sharing a blue-gray homogeneous pattern with other benign and malignant lesions.

**Keywords:** Benign fibrous histiocytoma; dermoscopy; differential diagnosis

### INTRODUCTION

Dermoscopy is a useful noninvasive technique, mainly used to aid in the diagnosis of pigmented, melanocytic, and non-melanocytic lesions, according to specific criteria.<sup>1</sup> Dermatofibroma (DF) is a benign skin tumor, usually diagnosed without much difficulty by clinical history and typical dermatoscopic findings. However, DFs have a wide range of clinical and dermatoscopic variants. Atypical or rare variants may mimic other skin tumors.<sup>2,4</sup>

We report a case of hemosiderotic DF with a homogeneous blue-gray pigmentation pattern, indistinguishable from other benign or malignant skin lesions. Such dermatoscopic finding makes differential diagnosis with melanoma necessary.

### CASE REPORT

We report the case of a 36-year-old female patient with a single plaque-like asymptomatic pigmented lesion on her right breast for 11 months. The lesion had progressively enlarged during the last three months. She had negative personal and family history of melanoma or other skin tumors. Dermatological examination revealed a blue-gray hard plaque with a hypochromic halo on the right breast (Figure 1).

Dermoscopic examination showed only a blue-gray homogeneous pattern (Figure 2). We performed a total excision of the lesion with a 2-mm margin. The material was sent for histopathological examination. Histological sections stained with hematoxy-

lin-eosin showed epidermis with acanthosis and dermis with proliferation of elongated cells showing brown pigmentation or involving thickened collagen fibers (Figures 3 and 4). Perls' staining technique revealed blueness in correspondence to the brown pigment, compatible with hemosiderin (Figure 5).

Considering the clinical characteristics and dermatoscopic and histopathological findings, the lesion was diagnosed as hemosiderotic DF.



**FIGURE 1:** Blue-gray hard plaque with a hypochromic halo on the right breast

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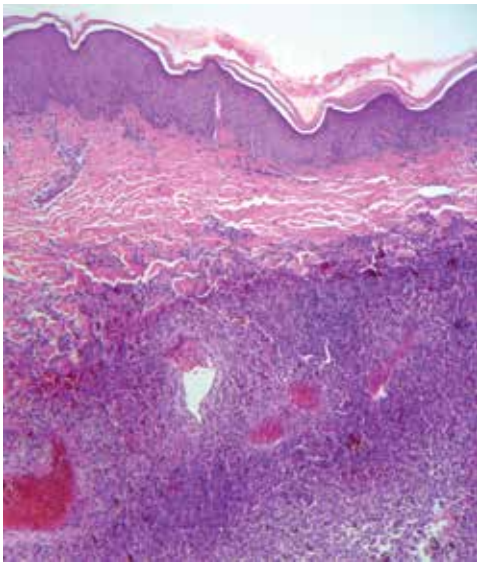
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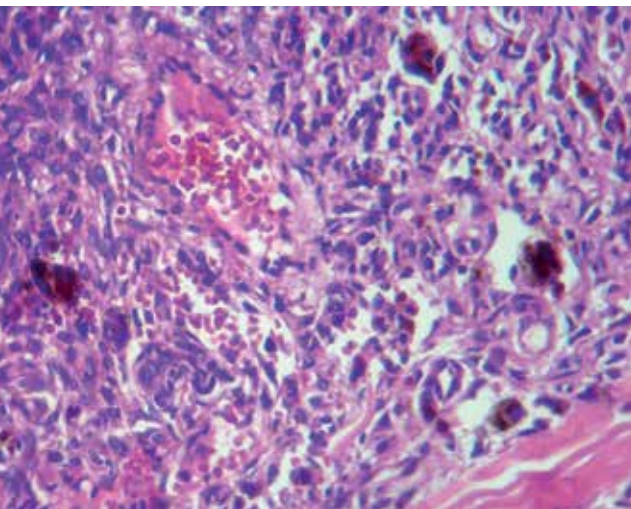
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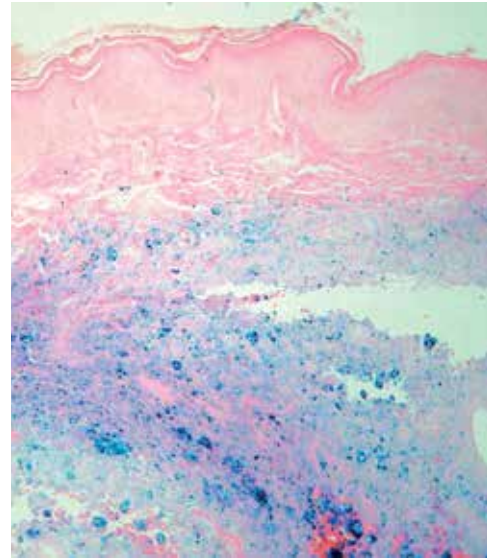
**FIGURE 2:** Dermatoscopic examination revealed a homogeneous blue-gray area and collision of freckles at the periphery of the lesion



**FIGURE 3:** Histopathology: dermal involvement represented by the proliferation of cells, some showing brown pigmentation and other involving thickened collagen fibers (Hematoxylin & eosin x100)



**FIGURE 4:** High magnification: detail of the brown pigment retention by proliferated stellate cells. Dilated vessels filled with red blood cells in between stellate cells (Hematoxylin & eosin x400)



**FIGURE 5:** Perls' staining revealing bluish intracellular iron storage in the form of hemosiderin (Hematoxylin & eosin x100)

## DISCUSSION

DF is a benign tumor of uncertain histogenesis, probably fibrohistiocytic, more commonly observed on the lower extremities of young adults, with a slight predilection for females. It manifests as a papule, plaque, or hardened nodule, which may exist with a variable degree of pigmentation, from light brown to blackish-brown. It is usually asymptomatic and may be solitary or multiple.<sup>1,2,5</sup> The classically described dermoscopic finding is a scarring plaque with central clearing surrounded by a thin, peripheral pigment network. This pattern is observed in 36%-80% of DFs, which enables a rapid and accurate diagnosis in most cases.<sup>1-4,6</sup> However, cases with atypical clinical presentations or histologic variants (aneurysmal, hemosiderotic, epithelioid, and atrophic DFs, or DF with sebaceous component) may raise doubts about the diagnosis.<sup>3,4</sup> Therefore, in such cases, the correlation between clinical findings, dermoscopy, and histopathology becomes essential.

The hemosiderotic variant represents approximately 2% of DFs.<sup>2,4</sup> Dermoscopic findings reveal an homogeneous area of blue or bluish-red pigmentation in the center of the lesion. This pigmentation is histopathologically correlated to proliferation of macrophages (multinucleated histiocytes) containing hemosiderin within the cytoplasm.<sup>2</sup> It is believed that erythrocytes extravasate from small vessels, with subsequent production of hemosiderin, which would be engulfed by the tumorous cells.<sup>2,7</sup>

Santa Cruz and Kyriakos postulated that the slow and continuous extravasation of blood from intratumoral capillaries would form some vascular spaces. That would lead to the loss of stromal support and the consequent increase in tumor internal pressure, causing cavity dilatation lacking an endothelial lining.<sup>2,8</sup> At this stage, aneurysmal DFs would be formed. Therefore, hemosiderotic DF would be the initial phase of aneurysmal DFs. The etiology of these aneurysmal cavities is unknown. For some authors, this phenomenon could occur in hypercellularity regions with poor reticulin network or as a result of traumas or repetitive microtraumas, which

would precipitate micro-haemorrhages as described before.<sup>2,8,9</sup>

In hemosiderotic or aneurysmal DFs, other dermoscopic structures can be observed in association with homogeneous blue or bluish-red areas, such as a fine peripheral pigmented network, bright white linear structures (chrysalis-like structures), and different vascular structures, determining a multicomponent pattern.<sup>2</sup>

The dermoscopic examination of this case only showed a homogeneous blue-gray area, which seems to be – as believed by other authors – due to the hemosiderin deposit contained in tumor cells. The blue-gray homogeneous pattern has been cited in the lit-

erature as a dermoscopic feature of rare variants of DF.<sup>2-4</sup> However, this pattern is nonspecific and can be seen in melanocytic lesions, including melanoma and blue nevus, as well as in non-melanocytic neoplasms such as vascular tumors, tumor of the appendages, and cysts.

Therefore, in such cases, biopsy and histopathological examination are mandatory to confirm the diagnosis. An exception to this rule is the blue nevus, whose diagnosis can be made by the association of the homogeneous blue pattern with medical history of long-term stability of the lesion. In such cases, tumor removal is not necessary.<sup>10</sup> □

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