

## Dermoscopy of a Spark's nevus

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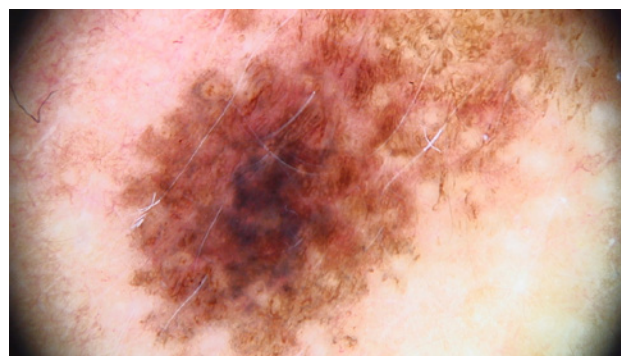
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**ABSTRACT** Spark's nevus is a particular type of melanocytic nevus that on histology shows features of both Spitz's and Clark's nevus. Clinically, it is an asymmetric, irregular, multicolored, pigmented lesion that is not clearly distinguishable from melanoma or dysplastic (Clark's) nevus. Dermoscopic features have not been described yet, and one could speculate that they are similar to those of Clark's nevi because the histopathologic architecture of Spark's nevus is similar to that of a Clark's nevus, resembling Spitz's nevi in the epithelioid morphology of melanocytes. We present a 32-year-old woman with a Spark's nevus, who upon dermoscopy showed a pronounced atypical network with accentuation of the blue veil and mostly peripheral dots.

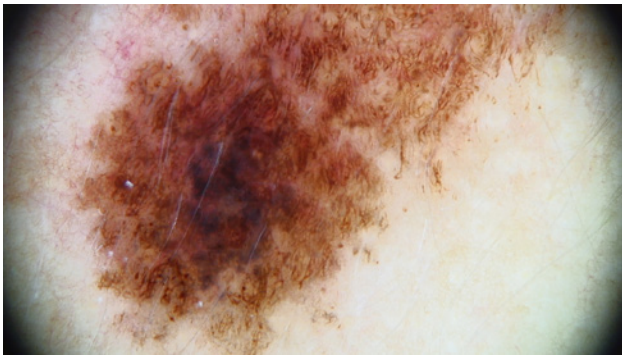
### Case Presentation

A 32-year-old woman with multiple Clark's nevi, a negative family history for melanoma, and skin phototype III presented for the first time in October 2016 for a routine mole assessment. An asymmetric, asymptomatic flat, 20 x 8 mm large pigmented lesion on her back was noted. Upon dermoscopy an atypical pigmented network with eccentric pigmentation and a small blue veil area were present (Figure 1).

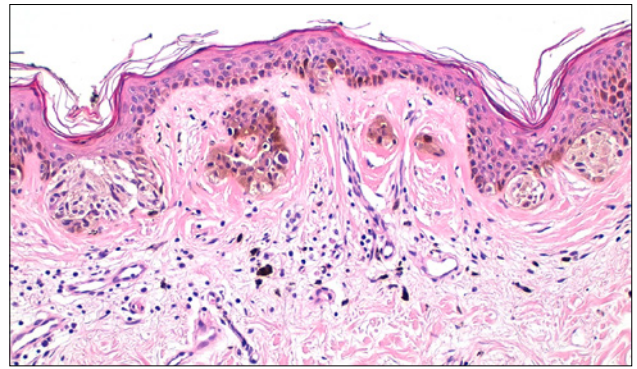
The patient could not report a precise medical history. At a 6-month digital dermoscopic follow-up, the lesion was not enlarged but had changed and presented a more pronounced atypical network with accentuation of the blue



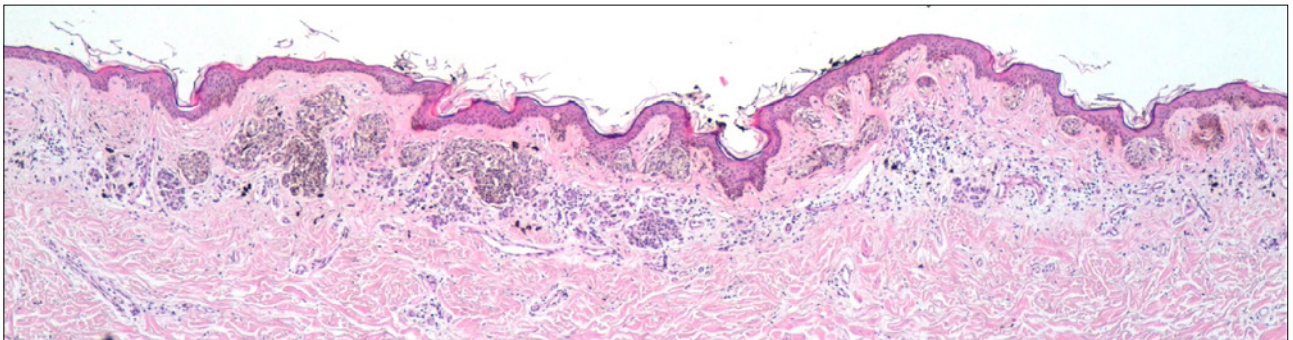
**Figure 1.** Dermoscopy at baseline: atypical pigmented network with eccentric pigmentation and a small blue veil area are present. [Copyright: ©2018 Biondo et al.]



**Figure 2.** Dermoscopy at 6-month follow-up. The lesion was not enlarged but changed, presenting a more pronounced atypical network with accentuation of the blue veil and peripheral dots appeared. [Copyright: ©2018 Biondo et al.]



**Figure 4.** The nests are regular, exclusively located at the dermoepidermal junction and present monomorphous round-to-oval epithelioid, pigmented melanocytes reminiscent of those of Spitz's nevus (H&E, 200x). [Copyright: ©2018 Biondo et al.]



**Figure 3.** Junctional and dermal melanocytic proliferation composed of nests predominating over single melanocytes, absence of pagetoid spread in the epidermis, and elongation of the rete ridges with lamellar fibrosis in the papillary dermis together with melanophages and inflammatory infiltrates (hematoxylin and eosin [H&E], 40x). [Copyright: ©2018 Biondo et al.]

veil and most peripheral dots had appeared. Because the modifications were recorded at digital follow-up, the lesion was excised (Figure 2).

Histopathology showed a junctional and dermal melanocytic proliferation composed of nests predominating over single melanocytes, absence of pagetoid spread in the epidermis, and elongation of the rete ridges with lamellar fibrosis in the papillary dermis together with melanophages and inflammatory infiltrates (Figure 3). The nests were regular. In the epidermis, they were exclusively located at the dermoepidermal junction, and there were monomorphous round-to-oval epithelioid pigmented melanocytes reminiscent of Spitz nevus (Figure 4). As a whole, on histopathology this lesion showed the architecture of a Clark's nevus, but the morphology of melanocytes are more typical of Spitz's nevus and the features are characteristic of a Spark's nevus, compound type.

## Conclusions

Spark's nevus is a particular type of melanocytic nevus with histology that shows features of both Spitz's and Clark's nevus. Clinically, it is an asymmetric, irregular, multicolored,

pigmented lesion, not clearly distinguishable from melanoma or dysplastic (Clark's) nevus.

The first description has been attributed "verbally" to Ackermann, but the eponym and morphological description of Spark's nevus (Spitz's and Clark's) was coined by Glusac in 2009 [1]. In 1991, Barnhill et al reported a series of 95 pigmented melanocytic spindle cell nevi (PSCN), 8 of which exhibited some overlap with dysplastic nevus called pigmented spindle cell nevus (PSCN) with dysplastic changes [2]. Toussaint and Kamino found 67 out of 2,164 dysplastic nevi showing features of Spitz's nevus [3]. Spark's nevus was reported more frequently on the trunk and lower extremities and in women with a mean age of 33 [1]. According to Glusac, histological features of Spark's nevus are: small size (<1 cm), flat/horizontal orientation, symmetric outline, uniform spitzoid cytology across the entire lesion, nest of similar size and shape when not bridged, and sharp circumscription [1].

The differential diagnosis includes Clark's (atypical, dysplastic) nevus, Spitz's nevus, and melanoma. Clark's nevi are melanocytic nevi characterized clinically by variable size, borders, and colors that are difficult to distinguish from melanoma [4–6]. Upon dermoscopy Clark's nevi show a variety

of reticular, globular and structureless patterns or mixed patterns with different areas of hyper- and hypopigmentation. Histologically Clark's nevus exhibits an increased number of single melanocytes and nests along the basal layer with elongation of rete ridges [4–7]. Nests are cohesive and may vary in size, or may fuse with adjacent rete ridges to produce bridging [4–7]. Nests predominate over single melanocytes. Morphologically, melanocytes may show a variable cytologic atypia with enlarged, hyperchromatic nuclei without involvement of the upper layers of the epidermis [4–7].

Clark's nevi can be junctional or compound, and in this case shows maturation of melanocytes in the dermis. In the papillary dermis the presence of fibroplasia may be observed—a variable lymphocytic infiltrate with or without melanophages.

The Spitz's and Reed's nevi are flat or papular/nodular pigmented or amelanotic melanocytic lesions. Different dermoscopic patterns have been recognized for pigmented (starburst: peripheral lines, peripheral globules, black-brown globules) or amelanotic (dotted vessels) Spitz's nevi [8]. On histopathology Spitz's nevi show a well-circumscribed, symmetric architecture with vertically oriented cohesive nests of melanocytes surrounded by clefts, epidermal hyperplasia with hypergranulosis, and Kamino bodies in the epidermis. Melanocytes are larger than those of Clark's nevi and show an epithelioid (Spitz's nevus) or pigmented spindled morphology (Reed's nevus) [9–11].

Melanoma is diagnosed with dermoscopy on the basis of specific criteria according to different algorithms [12–14]. A major risk factor for developing melanoma is a high number of atypical (Clark's, dysplastic) nevi. The aim for these patients is to detect early melanoma thereby reducing the number of unnecessary excisions. Two approaches are usually taken: the comparative approach and the digital follow-up. The former aims to recognize the signature nevus pattern, and the latter an asymmetric growth of suspicious lesions at digital follow-up, the typical behavior of melanoma [15].

Spark's nevus is a term mainly defining a histopathological more than a clinical entity that is underdiagnosed—or not always reported by most dermatopathologists though probably quite frequently present. The clinical appearance of Spark's nevi is similar to those of Clark's nevi. Dermoscopic features have not been described yet, and one could speculate that they are similar to those of Clark's nevi because the histopathological architecture of Spark's nevus is similar to that of a Clark's nevus, resembling Spitz nevi in the epithelioid morphology of melanocytes. In our case, the lesion did not show peripheral lines, peripheral globules or black-brown

globules that are typical features of pigmented Spitz's nevi on dermoscopy, but it showed a prominent pigmented network, a blue veil, and dots.

The collection and examination of a large series of cases is needed to define prevalent clinical and dermoscopic features of Spark's nevus.

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