



## CASE REPORT

# A Case Report on the Dermoscopic Features of Spark's Nevus

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Spark's nevus is a compound word composed of Spitz nevus and Clark's nevus. It is one of the combined melanocytic nevi which is more common in female and usually presents as a sharp circumscribed hyperpigmented macule on the lower extremities. On histopathologic findings, both cytologic features of Spitz nevus characterized as large spindle or epithelioid melanocytes containing large nuclei with abundant cytoplasm, and architecture of Clark's nevus characterized as elongation of rete ridges, bridging of the nests, concentric and lamellar fibrosis can be seen. A 24-year-old female presented with an asymptomatic, solitary, dark-brown-colored papule surrounded by brownish patch that looked similar to dysplastic nevus or malignant melanoma on the buttock. On dermoscopic examination, it showed brown-to-black globules, diffuse homogenous pigmentation with blue-white structures, and a surrounding brownish reticular pattern that faded away. On histopathologic findings, overall asymmetrical structure, epithelioid large melanocytes containing large nuclei with abundant cytoplasm, and Kamino body were seen in the central portion. Also, lentiginous hyperplasia, bridging of the nests composed of melanocytes containing foamy cytoplasm, concentric and lamellar fibrosis along with the elongation of rete ridge, and perivascular lymphocytic infiltration were seen in the peripheral portion. The

diagnosis of Spark's nevus was made. Following its definition, this combined nevus is diagnosed histopathologically, but the clinicodermoscopic features have not been well described. Herein, we report a case of Spark's nevus in which dermoscopy was helpful for differentiating it from malignant melanoma. (**Ann Dermatol 32(3) 233~236, 2020**)

## -Keywords-

Combined nevus, Dermoscopy, Dysplastic nevus, Spark's nevus, Spitz nevus

## INTRODUCTION

Spark's nevus (Spark is a compound word of Spitz and Clark's) is one of the combined melanocytic nevi and is clinically characterized as a sharp, circumscribed, hyperpigmented macule, and it may not be easily distinguishable from Clark's nevus or melanoma<sup>1</sup>. The histopathologic findings of Spark's nevus show cytologic features of Spitz nevus and architectural characteristics of Clark's nevus. Dermoscopy is noninvasive, *in vivo*, surface microscopy that allows one to see surface and subsurface skin structures that are not easily detected by the naked eye. To our knowledge, the dermoscopic features of Spark's nevus have not been well described, and this article is the first case report in Asia focused on the dermoscopic features of Spark's nevus.

## CASE REPORT

A 24-year-old female presented with an asymptomatic, solitary, dark-brown-colored, 1 cm×1 cm papule on the right buttock. About five years ago, a solitary, dark-brown-colored, well-demarcated, flat macule was found, and this lesion gradually grew during the few months prior to

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presentation. On physical examination, there was a centrally-dark-brown-colored well-demarcated papule surrounded by brownish patches on the right buttock (Fig. 1A). The patient did not report any specific medical history, and there were no similar lesions elsewhere on her body. Dermoscopy revealed brown-to-black globules, diffuse homogenous pigmentation with blue-white structures, and a surrounding brownish reticular pattern that faded away. Additionally, brown dots and isolated eccentric hyperpigmentation were observed (Fig. 1B). According to the ABCD rule, the total dermoscopy score (TDS) was 5.3 points, which classified this nevus as a suspicious lesion for malignant melanoma. A total excisional biopsy was performed, and histopathologic findings showed an asymmetrical structure with junctional to dermal melanocytic proliferation, a scattered lymphocytic infiltration, hyperkeratosis, and a sharply-demarcated, central, dome-shaped lesion (Fig. 2A). On higher magnification, epithelioid large melanocytes containing large nuclei and abundant cytoplasm in a vertical arrangement were seen. In addition, a Kamino body, a dull pink extracellular globule, was found in the central portion (Fig. 2B). Elongation of the rete ridge with lentiginous hyperplasia, bridging of the nests composed of melanocytes containing foamy cytoplasm, concentric and lamellar fibrosis around the rete ridge, and a perivascular infiltration were also seen in the peripheral portion of the lesion (Fig. 2C). On the basis of these clinical and histopathologic findings, the diagnosis of Spark's nevus presenting cytologic morphology of Spitz nevus and architectural structures of Clark's nevus was made.

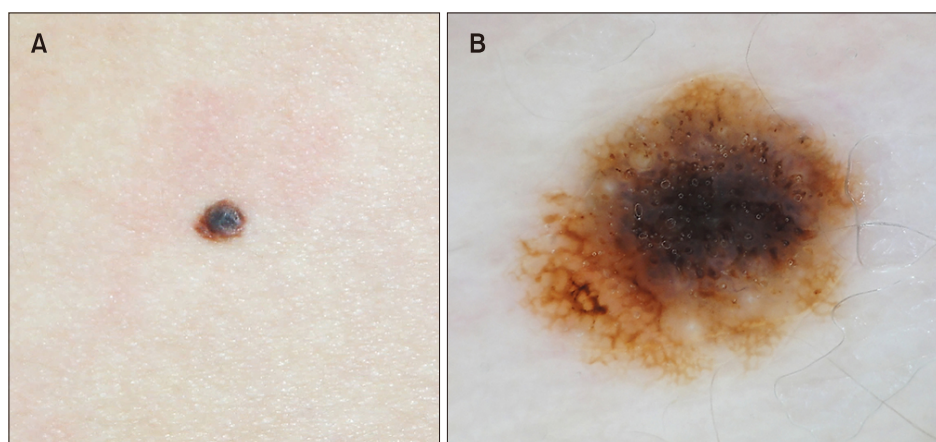
## DISCUSSION

Spark's nevus, may be frequently encountered in practice, but it has seldom been reported by experienced dermatologists. The synonyms of Spark's nevus include 'Spastic'

(Spitz/dysplastic), 'Ditz' (dysplastic/Spitz), dysplastic Spitz, and Spitzoid dysplastic nevus<sup>2,3</sup>. Although the eponym was made by Ko et al.<sup>1</sup> in 2009, the concept of Spark's nevus is not unfamiliar since it has been described as a combined nevus. In 1999, Toussaint and Kamino<sup>2</sup> found 67 cases of dysplastic nevi showing epidermal and dermal features of Spitz nevus. In another report from 2004, de Giorgi et al.<sup>4</sup> presented a dermoscopic picture of a Spitz nevus combined with a Clark's nevus and described it as one of the combined nevi.

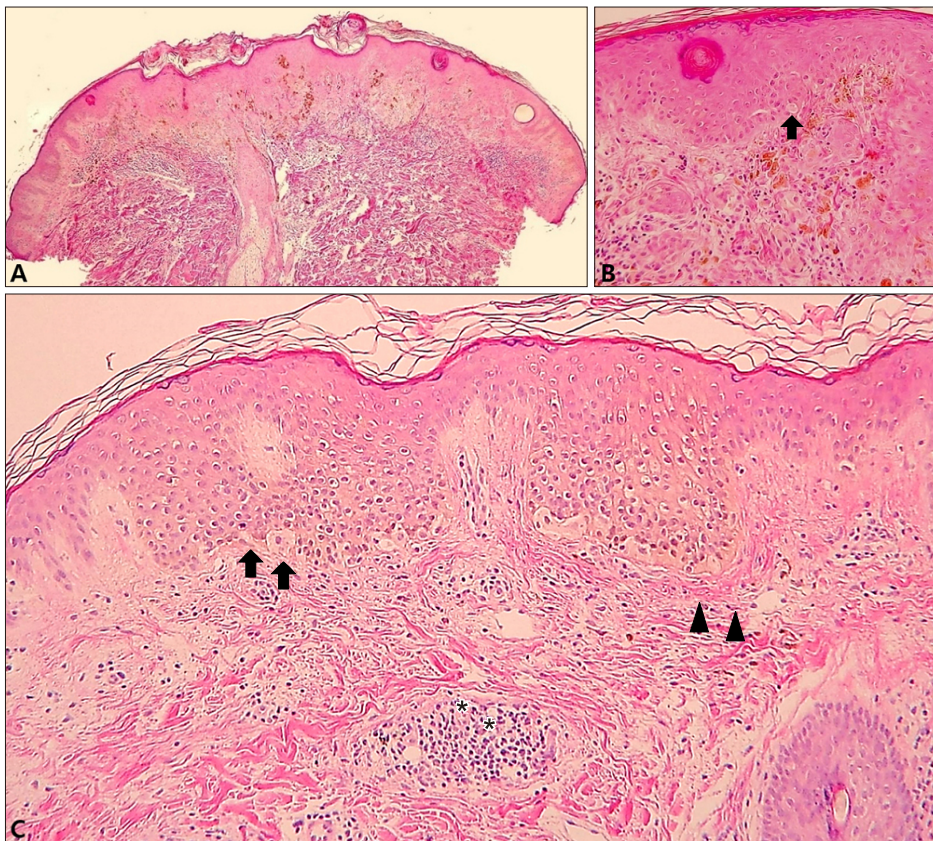
Clinically, Spark's nevus appears as an asymmetric, multi-colored, flat macule with an indistinct border. Histopathologically, it is composed of Spitzoid-appearing melanocytes with prominent nuclei and abundant cytoplasm. The cells are usually present in regularly-sized nests showing a parallel arrangement along the dermal-epidermal junctions. Kamino bodies, can be seen in the epidermis. The architectural features of the Spark's nevus include bridging of the nests between elongated rete ridges in a horizontal or plaque-like pattern, and the junctional component extends laterally, making a 'shoulder' in compound lesions. Concentric and lamellar fibrosis are present in the papillary dermis. Maturation of melanocytes is common, and mitoses are rare<sup>1,2,5</sup>.

Following its definition, this combined nevus is diagnosed histopathologically, and the clinicodermoscopic features have not been well described. Biondo et al.<sup>6</sup> speculated that the clinical and dermoscopic features of Spark's nevus might be similar to those of Clark's nevus because the histopathological architecture of Spark's nevus is similar to that of Clark's nevus. In our case, the lesion clinically presented as a brownish asymmetric patch with a 1 cm diameter at the periphery and a well-demarcated dome-shaped papule that was centrally situated. It could not be clearly distinguished from either Clark's nevus or a pigmented Spitz nevus.



**Fig. 1.** The clinical and dermoscopic features of Spark's nevus. (A) A centrally-dark-brown-colored well-demarcated papule surrounded by brownish patches on the right buttock. (B) Dermoscopic findings showed brown-to-black globules, diffuse homogenous pigmentation with blue-white structures, and a surrounding brownish reticular pattern that faded away. Also, brown dots and isolated eccentric hyperpigmentation were found.





**Fig. 2.** Histopathologic findings of Spark's nevus. (A) Overview of asymmetrical structure with junctional and dermal melanocytic proliferation. Hyperkeratosis, hypergranulosis, and a sharply-demarcated, central, dome-shaped lesion with scattered lymphocytic infiltration was noted (H&E,  $\times 40$ ). (B) On higher magnification, epithelioid large melanocytes containing large nuclei and abundant cytoplasm in a vertical arrangement were seen. A Kamino body (arrow), dull pink extracellular globule, was found in the central portion (H&E,  $\times 100$ ). (C) Elongation of the rete ridge with lentiginous hyperplasia, bridging of the nests of melanocytes containing foamy cytoplasm (arrows), concentric and lamellar fibrosis (arrowheads) around the rete ridge, and perivascular lymphocytic infiltration (asterisks) were seen in the peripheral portion of the lesion (H&E,  $\times 200$ ).

Dermoscopically, pigmented Spitz nevus displays several recognizable patterns, including vascular, globular, starburst, reticular, atypical, and homogenous patterns. A globular pattern, the most common form, presents with a brown-to-black or gray-blue pigmentation bordered by a peripheral rim of globules that may fuse with the central homogenous body, forming streaks and a starburst appearance. Other findings include heavy pigmentation, a regular superficial black network, and blue-white structures<sup>7,8</sup>. Dermoscopic findings of Clark's nevus commonly display reticular, globular, homogenous, and combination patterns. The reticular pattern appears as a prominent pigment network with thin lines and regular meshes throughout the lesion, and it fades out at the periphery. The globular pattern is composed of numerous dots and globules that are usually smaller than that of the Spitz nevus with a variable shape. A combination of the globular and reticular pattern presents as an annular arrangement of dots and globules at the rim of the lesion and typical reticulation with a brownish hue. Other patterns may have diffuse brown-to-black pigmentation with a spotted, globular and reticular component. Multifocal, eccentric and central hypo- or hyperpigmentation can be seen<sup>7,9</sup>. To date, Clark's nevus cannot be completely distinguishable from malignant melanoma with only the dermoscopic examination. However, it has

been suggested that calculation of a Clark's nevus' TDS can be helpful for excluding malignant melanoma and determining whether skin biopsy or excision is needed<sup>10</sup>. In the present case, the dermoscopic findings showed a central brown-to-black globular pattern with a diffuse homogenous pattern and blue-white structures with streaks. At the periphery, the dermoscopic findings revealed a surrounding brownish reticular pattern with dots and isolated eccentric hyperpigmentation. Those findings that faded away appeared more like Clark's nevus. Distinct patterns of Spitz nevus, including pseudopods, streaks, and starbursts, were not remarkable, but the central findings with globules left some clues for similarity to the Spitz nevus. The TDS was 5.3 points, classifying our case into the 'suspicious lesions' category and not the 'highly suspicious for a malignant melanoma' category. The diagnosis of Spark's nevus was confirmed through the excisional biopsy. Although the term 'dysplastic Spitz nevus' is a synonym of Spark's nevus, its etiology, whether the presence of two different melanocytic nevi components is a coincidence or dysplastic change arising from a Spitz nevus or vice-a-versa, is not clear. Further study would be needed to demonstrate the identity of this mysterious combined nevus. The usefulness of dermoscopy in the diagnosis of melanocytic lesions has been fully recognized in worldwide, but

the definite criteria for Spitz and Clark's nevi have not been established. Besides Spitz nevus and Clark's nevus, Spark's nevus is a combined melanocytic nevus that has features of both Spitz nevus and Clark's nevus in its clinical, dermoscopic, and histopathologic findings, and it should be considered as one of the differential diagnoses. To our knowledge, this is the first case report in Asia focused on the dermoscopic features of Spark's nevus. Careful dermoscopic examination can be helpful to rule out malignant melanoma and diagnose various melanocytic lesions.

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We thank the patient for granting permission to publish this information.

We received the patient's consent form about publishing all photographic materials and thank her for granting permission to publish this information.

### CONFLICTS OF INTEREST

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The authors have nothing to disclose.

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