

Blue nevus with a starburst pattern on dermoscopy

Takeo Shiga, M.D.¹, Kimiko Nakajima, M.D.¹, Masahito Tarutani, M.D.¹, Miki Izumi, M.D.²,
Masaru Tanaka, M.D.³, Shigetoshi Sano, M.D.¹

¹Department of Dermatology, Kochi Medical School, Kochi University, Kochi, Japan

²Department of Dermatology, Tokyo Women's Medical University Medical Center East, Tokyo, Japan

³Department of Medical Education, Tokyo Medical University, Tokyo, Japan

Key words: blue nevus, dermoscopy, starburst pattern, Spitz nevus, histopathology

Citation: Shiga T, Nakajima K, Tarutani M, Izumi M, Tanaka M, Sano S. Blue nevus with a starburst pattern on dermoscopy. *Dermatol Pract Conc.* 2012;2(4):7.

<http://dx.doi.org/10.5826/dpc.0204a07>.

Received: April 27, 2012; **Accepted:** August 14, 2012; **Published:** October 31, 2012

Copyright: ©2012 Shiga et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Funding: None.

Competing interests: The authors have no conflicts of interest to disclose.

All authors have contributed significantly to this publication.

Corresponding author: Takeo Shiga, M.D., Department of Dermatology, Kochi Medical School, Kochi University, Kohasu, Oko-cho, Nankoku, Kochi 783-8505, Japan. Tel. 81.88.880.2363; Fax. 81.88.880.2364. E-mail: shigat@kochi-u.ac.jp.

ABSTRACT An 11-year-old girl presented to our department with a blue-gray papule approximately 4 mm in diameter. We suspected that it was a blue nevus or a pigmented Reed/Spitz nevus. On dermoscopic observation, the lesion showed homogeneous black-bluish pigmentation. This dermoscopic feature was suggestive of a blue nevus. However, near-circumferential streaks and a global feature of a “starburst pattern” were also observed, as is often found in a Reed/Spitz nevus. The lesion was excised and histological examination revealed spindle cells with melanin pigments diffusely present in the upper dermis and around hair follicles in the mid-dermis, but not in the epidermis. The melanocytic cells were arranged in a symmetrical wedge-shaped configuration. In addition, there was a diffuse fibrosis. Finally, we made a diagnosis of a blue nevus based on these findings.

Case presentation

An 11-year-old Japanese girl presented to our department with a pigmented lesion on her right leg (Figure 1). It was a blue-gray papule approximately 4 mm in diameter with a 4-year history. We suspected that it was a blue nevus or a pigmented Reed/Spitz nevus. On dermoscopic observation, the lesion showed homogeneous black-bluish pigmentation, suggesting a substantial amount of melanin in the dermis.

This dermoscopic feature was suggestive of a blue nevus. However, near-circumferential streaks and a global feature of a “starburst pattern” were also observed, as is often found in a Reed/Spitz nevus (Figure 2). The lesion was excised under the diagnosis of a blue nevus. Histological examination revealed spindle cells with melanin pigments diffusely present in the upper dermis and around hair follicles in the mid-dermis, but not in the epidermis. The melanocytic cells were arranged in a symmetrical wedge-shaped configura-



Figure 1. A blue-gray papule on the right leg. [Copyright: ©2012 Shiga et al.]

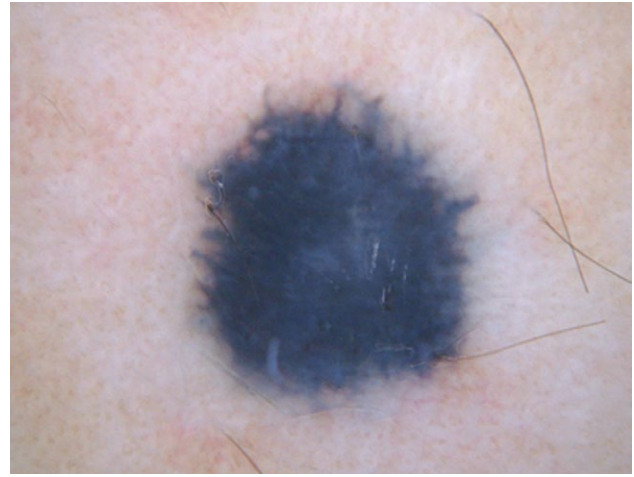


Figure 2. The lesion showed homogeneous blue pigmentation with many streaks, demonstrating a starburst pattern on dermoscopic observation. [Copyright: ©2012 Shiga et al.]

tion. In addition, there was a diffuse fibrosis (Figures 3 and 4). Finally, we made a diagnosis of a blue nevus based on these findings.

Conclusion

Blue nevi present as dark blue or blue-black, small macules or dome-shaped papules about 1-5 mm in diameter [1]. The histological characteristics of blue nevi are dermal melanocytes that appear as melanin-containing fibroblast-like cells grouped in irregular bundles admixed with melanin-containing macrophages, associated with excessive fibrous tissue in the middle or upper reticular dermis [2]. On dermoscopy, a blue nevus is characterized by a homogeneous, structureless pigmentation, which is often described as steel-blue coloration [3]. Blue globules and dots, and pigment network-like structures are also observed in some cases of blue nevus [4].

On the other hand, Spitz nevi usually present as solitary lesions on the lower extremities or the face. Clinically, a

Spitz nevus is a rapidly growing pink-red or reddish-brown dome-shaped papule or nodule, because of the scarcity of melanin. Less often, the lesions are brown or even black-colored [5]. Melanocytic cells in a Spitz nevus are often large, and the overall distribution of cells in the dermis is wedge-shaped, with narrowing of the wedge toward the subcutaneous fat [2]. On dermoscopy, most of the Spitz nevus has a typical starburst pattern with symmetrical, brown or black pigmentation. Some Spitz nevi show globular or atypical patterns [5].

The present case showed the characteristic histological features of a blue nevus, such as the intradermal proliferation of spindle cells with melanin pigments, the presence of abundant fibrous tissue and the absence of epidermal change. However, this case also showed the unique wedge-shaped distribution of melanocytic cells often observed in a Spitz nevus. In addition, dermoscopic observation revealed two typical features with a combination of “homogeneous steel-blue pigmentation” and “starburst pattern” that suggest a diagnosis

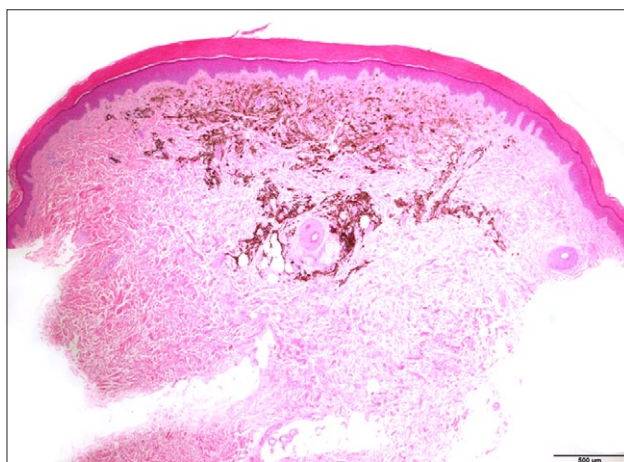


Figure 3. Melanocytic cells showed a wedge-shaped distribution in the dermis with diffuse fibrosis (H&E, x20). [Copyright: ©2012 Shiga et al.]

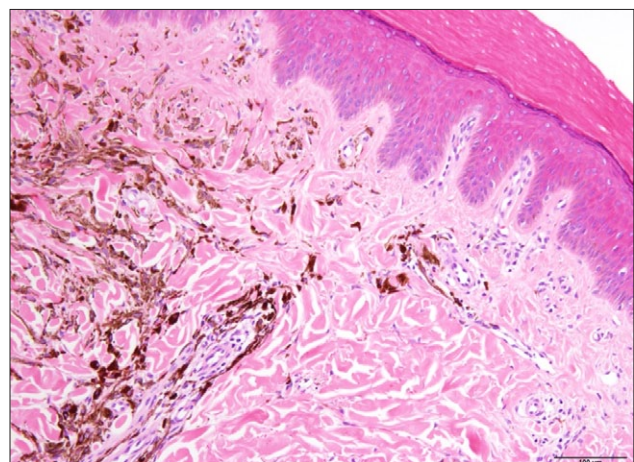


Figure 4. Spindle cells with melanin pigments proliferated between collagen bundles at the periphery of the lesion (H&E, x100). [Copyright: ©2012 Shiga et al.]

of blue nevus or Spitz nevus, respectively. When there are numbers of dermoscopic findings that indicate distinct diseases, the predominant feature is given priority. In this case, the homogeneous steel-blue pigmentation was the most decisive feature to make the diagnosis of a blue nevus. Thus, this case was diagnosed as a blue nevus with a starburst pattern based upon histological and dermoscopic findings.

Di Cesare et al analyzed global and local features in 95 dermoscopic images of blue nevi, and reported that streaks were found in 4.2% of blue nevi and regularly distributed streaks at the peripheries of the lesions could not be distinguished from those observed in Spitz/Reed nevi [6]. In our case, it seemed that dermal melanocytic cells grew between the proliferative collagen bundles and formed streaks in the lesion. Furthermore, the wedge-shaped distribution of dermal melanocytic cells, which is often observed in a Spitz nevus, may be associated with the starburst pattern in a blue nevus. We consider that our case of the blue nevus is due to the coexisting dermal fibrosis, which may confine the distri-

bution of nevus cells in the upper dermis, resulting in the rare configuration of a starburst pattern.

References

1. Zembowicz A, Phadke PA. Blue nevi and variants: an update. *Arch Pathol Lab Med.* 2011;135(3):327-36.
2. Wolff K, Goldsmith LA, Katz SI, et al (eds). *Fitzpatrick's Dermatology in General Medicine.* 7th ed. McGraw-Hill, 2007:1099-121.
3. Braun RP, Rabinovitz HS, Oliviero M, Kopf AW, Saurat JH. Dermoscopy of pigmented skin lesions. *J Am Acad Dermatol.* 2005;52(1):109-21.
4. Tsunemi Y, Saeki H, Tamaki K. Blue naevus with pigment network-like structure on dermoscopy. *Acta Derm Venereol.* 2008;88(4):412-3.
5. Ferrara G, Argenziano G, Soyer HP, et al. The spectrum of Spitz nevi: a clinicopathologic study of 83 cases. *Arch Dermatol.* 2005;141(11):1381-7.
6. Di Cesare A, Sera F, Gulia A, et al. The spectrum of dermoscopic patterns in blue nevi. *J Am Acad Dermatol.* 2012;67(2):199-205.