

## Dermoscopic rainbow pattern in blue nevus

Tuğba K. Uzuncakmak<sup>1</sup>, Seyma Ozkanli<sup>2</sup>, Ayşe Serap Karadağ<sup>1</sup>

<sup>1</sup> Department of Dermatology, Istanbul Medeniyet University, Goztepe Research and Training Hospital, Istanbul, Turkey

<sup>2</sup> Department of Pathology, Istanbul Medeniyet University, Goztepe Research and Training Hospital, Istanbul, Turkey

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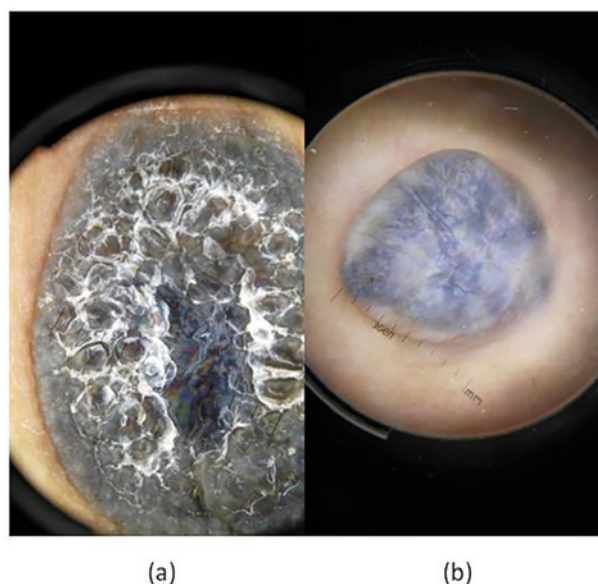
All authors have contributed significantly to this publication.

**Corresponding author:** Tugba Kevser Uzuncakmak, MD, Specialist, Department of Dermatology, Istanbul Medeniyet University, Goztepe Research and Training Hospital, Istanbul, Turkey. Tel. +90- (530) 6640226. E-mail: [drtugbakevser@gmail.com](mailto:drtugbakevser@gmail.com)

### Case Presentations

A 31-year-old HIV positive male presented with a two-year history of a slowly growing, 2 cm, asymptomatic, solitary blue-gray nodular lesion on dorsum of right foot (Figure 1a). Dermoscopic examination revealed a well-circumscribed lesion with homogenous blue-grayish globular pattern, scaly surface and striking color changes of yellow, green, purple and pink resembling the colors of a rainbow centrally in polarized dermoscopy (Figure 2a [Dermlite 4, 3Gen, San Juan Capistrano, CA]). The lesion was completely excised with 3 mm clear margins, and histopathological examination was consistent with blue nevus (Figures 3, 4).

A 59-year-old male presented with a five-year history of a 2 cm, black nevus on his right foot, which was disturbing while walking with no history of changing (Figure 1b). He was healthy and had no complaint from this lesion. Dermoscopic examination revealed a well-circumscribed blue-gray lesion and striking color changes of yellow, green, purple and pink resembling the colors of a rainbow centrally in polarized dermoscopy (Figure 2b). His lesion was completely excised, and histopathological examination revealed heavily pigmented melanocytes in dermis.



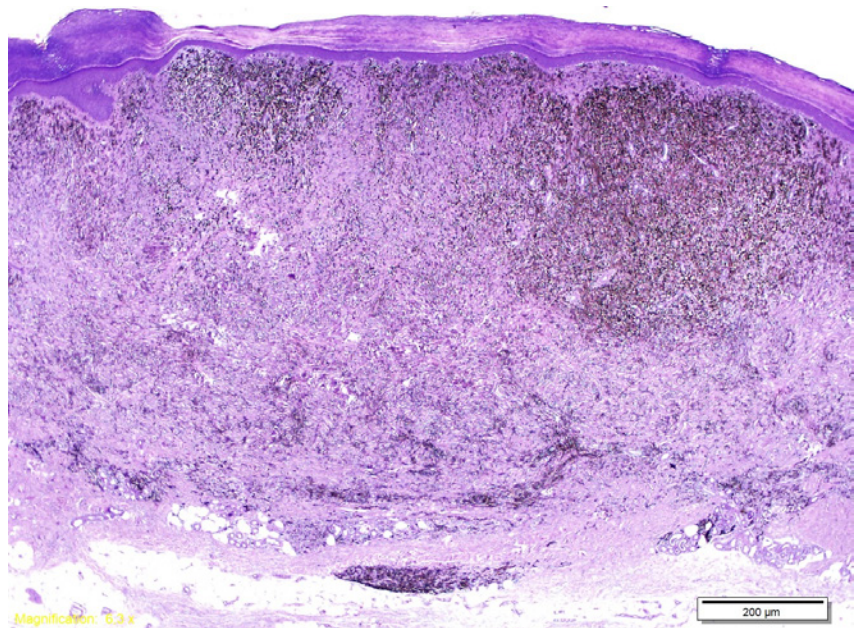
**Figure 1.** (a) A 2 cm, asymptomatic, solitary blue-grayish nodule on dorsum of right foot. (b) A 2 cm, solitary blue-gray nodule on dorsum of left foot. [Copyright: ©2017 Uzuncakmak et al.]



**Figure 2.** (a) Dermoscopically homogenous blue-grayish globular pattern, scaly surface and striking color changes of yellow, green, purple and pink resembling the colors of a rainbow centrally. (b) Homogenous blue-grayish pattern without any vascular structures and yellow, green, purple and pink circles all over the lesion. [Copyright: ©2017 Uzuncakmak et al.]



**Figure 3.** Complete excision of tumoral lesion. [Copyright: ©2017 Uzuncakmak et al.]



**Figure 4.** Heavily pigmented melanocytes with dendritic processes the reticular dermis between collagen bundles (H&E x4). [Copyright: ©2017 Uzuncakmak et al.]

## Discussion

Blue nevi are benign, congenital or acquired, dermal dendritic melanocytic proliferations that present as solitary or multiple, firm blue, blue-gray, or blue brown colored papules, nodules, or plaques [1]. Dermoscopic appearance is commonly characterized by global patterns such as homogeneous bluish or steel-blue grayish pigmentation without any other dermoscopic pattern being reported [1]. Vascular structures are not commonly seen in blue nevi, but in some case series vascular structures such as polymorphic, dotted, comma, linear irregular, and arborizing vessels have been reported with significant association with the multichromatic global pattern [1]. In our patient we did not observe any vascular structures in dermoscopic examination.

Rainbow pattern is a metaphoric term, which was first described by Hu et al as a multicolored dermoscopic feature in which all or part of a lesion contains areas of various colors simulating colors of the rainbow that correspond to polychromatic lines dermoscopically and does not have a distinct histological correlation [2,3]. Varying absorption and reflection of light seems to result in polychromatic appearance. Early on this pattern was thought to be a specific diagnostic pattern for Kaposi sarcoma; however, it was reported in non-Kaposi sarcoma lesions such as melanoma, basal cell carcinoma, atypical fibroxanthoma, angiokeratoma, scar tissue, stasis dermatitis and lichen planus [4-6].

The rainbow pattern was previously reported to be associated with the vascular structure of a lesion, due to presence of this pattern in different types of skin lesions with increased vascularization, such as Kaposi sarcoma with a specificity of 100%, pyogenic granuloma and scars [2,6]. Indeed, the rainbow pattern is accepted as a more complex physical phenomenon in which polarized light interacts with various elements in different skin structures as it passes through tissue not only vascular structures in the skin. While Cheng et al claimed that the light beam is diffracted as it penetrates the dermis, Vázquez-López et al highlighted the term of dichroism in which light in different states of polarization

reaches variable degrees of absorbance and retardance and it interacts with the components of the tissue leading to different colors, as seen in our patient [3,4,6].

Dermoscopic rainbow pattern in blue nevus is another sample of the interaction of light with different structures in the skin except for vascular lesions. With the common use of polarized dermoscopy, dermoscopic rainbow pattern will be observed in various skin lesions.

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