LETTER TO THE EDITOR

Proximal and Lateral Chromonychia with Capillary Proliferation on the Distal Nail Matrix

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To the editor

Chromonychia refers to an abnormality in color of the substance or the surface of the nail plate or subungual tissues. Chromonychia involves melanonychia, leukonychia, and erythronychia, which can be commonly seen. Other various color changes in the nail plate and subungual tissue can also be encountered¹. The causes of chromonychia are diverse, ranging from exogenous causes and dermatological conditions to infection and congenital diseases². We report a case of proximal and lateral brown to greenish brown chromonychia due to capillary proliferation on the distal nail matrix.

A 66-year-old man presented with asymptomatic color change on the right third finger nail that developed 6 weeks prior to the clinic visit. The patient was healthy otherwise. There was no occupational history or trauma history that may have placed the patient at risk for the development of nail color change. On physical examination, a greenish-brown colored pigmentation was seen on the proximal and lateral nail plate on the right middle finger (Fig. 1A). No fungal elements were observed on the KOH direct smear and fungus culture. Extraction of the nail plate and two 2-mm punch biopsies were performed on the proximal nail fold and distal nail matrix (Fig. 1B). Green to brown-colored pigmentation was observed on

the extracted nail plate (Fig. 1C). There was no growth on bacterial culture from the specimen obtained by nail extraction, ruling out *Pseudomonas* infection of the nail plate. Histopathologic findings of the proximal nail fold revealed no evidence of acute paronychia (Fig. 2A). Histopathologic findings of the distal nail matrix showed dilated capillary proliferation in the papillary dermis (Fig. 2B). The endothelial layer was positive for CD34 (Fig. 2C) and negative for podoplanin. Small granules were noted on Prussian blue stain performed for the clear observation of hemosiderin (Fig. 2D). No fungal or bacterial elements were noticed on periodic acid Schiff and Gram stains.

Fig. 1. (A) Greenish brown chromonychia was seen on the proximal and lateral nail plate on the right middle finger. (B) The nail plate was extracted and two 2 mm punch biopsies were performed on the proximal nail fold and distal nail matrix (arrow). (C) The extracted nail plate showed green to brown-colored pigmentation.

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Fig. 2. (A) Histopathologic findings of the proximal nail fold revealed no significant inflammation suggesting paronychia (Hematoxylin and eosin, $\times 40$). (B) The biopsy specimen from the distal nail matrix showed dilated capillary proliferation in the papillary dermis (Hematoxylin and eosin, $\times 40$). (C) The endothelial layer was positivity for CD34 (CD34, $\times 200$). (D) Small granules were positive for Prussian blue stain (Prussian blue, $\times 200$).

Based on the histopathologic examination, the cause of chromonychia in this case was considered to be hemorrhage from the capillary proliferation on the nail plate.

Yellow, brown, or green colored chromonychia on the proximal and lateral nail plate is commonly due to fungal and bacterial infection. In *Candida* and *Pseudomonas* infections of nail there is often a greenish discoloration at the lateral margin where there is onycholysis¹. Other reasons than infection for the occurrences of chromonychia are contact with occupationally derived agents and topical application of therapeutic agents^{1,3}. Our case had two unique features. First, the occurrence of proximal and lateral chromonychia limited to one fingernail without any underlying disease or preceding bacterial or fungal infec-

tion. Second, the presence of capillary proliferation in the distal nail matrix was observed and the hemosiderin was stained in the nail plate, which has not been previously reported.

Although there was no bacterial growth from the specimens obtained by nail extraction, the green color on the extracted nail plate was suspicious of *Pseudomonas* infection. However, the presence of hemosiderin on the nail plate and capillary proliferation on the nail bed was definitely considered as the cause of chromonychia. A case demonstrating proximal and lateral chromonychia limited to two fingernails has been previously reported⁴. These authors suggested asymptomatic mild hyperbilirubinemia as the cause, although histologic evidence was not presented. However, this is the first case of proximal and lateral chromonychia that was demonstrated by histological examination.

It has not been previously reported that the presence of benign capillary proliferation in the distal nail matrix and the composition of hemosiderin in the nail plate. In this case, we suggest that the chromonychia can be caused by the benign capillary proliferation.

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