

Possible association between polycythemia and half and half nails

Dear Editor,

Half and half nail is a type of pseudoleukonychia characterized by proximal whitish areas that are sharply demarcated distally from red, pink, or brown areas.¹ It often occurs in patients with chronic renal disease.² However, the exact cause remains unclear, and cases of idiopathic half and half nails have been reported.³ This is the first case report describing the possible association between polycythemia and half and half nails.

A 70-year-old Japanese woman with hypertrophic cardiomyopathy-induced secondary polycythemia presented with a 6-month history of finger and toenail discoloration (Figure 1A,B). The proximal portion of the nail bed showed whitish discoloration; however, the distal portion appeared normal in color and appearance (Figure 1C). Dermoscopy revealed nail-fold bleeding and irregularly arranged nail-fold capillaries with slight dilatation (Figure 1D). The patient also presented with erythema and telangiectasias on her cheeks (Figure 1E). Dermoscopic examination of the lesion showed diffuse erythema and dilated capillaries (Figure 1F). The patient had no clinical symptoms suggestive of collagen disease, such as scleroderma, dermatomyositis, or systemic lupus erythematosus. Laboratory tests revealed elevated levels of red blood cells, hemoglobin, and hematocrit ($489 \times 10^4/\mu\text{L}$, 16.4 g/dL, and 49.0%, respectively). Her antinuclear antibody titer was slightly elevated (1:40). However, no other abnormalities were observed. No liver or renal dysfunction was observed. Based on the clinical features, the patient was followed up for a clinical diagnosis of half and half nails and facial telangiectasias.

Few reports have described the exact pathomechanism of half and half nails. The whitish discoloration in half and half nails is present in the nail bed, which can be confirmed by the fact that it is not affected by nail growth.¹ The change is attributed to reduced blood flow through peripheral tissues and vessels,⁴ although distal discoloration is variable. In polycythemia, decreased peripheral perfusion is caused by hyperviscosity of blood.⁵ In this patient, the whitish discoloration in the proximal portion could be attributed to ischemic changes secondary to reduced blood flow due to hyperviscosity of blood. In polycythemia, hemorrhage and capillary dilatation can also be observed secondary to hyperviscosity of blood and the local effects from increased numbers of red blood cells exerting pressure

on the capillary walls.⁵ In this patient, dermoscopy showed nail-fold bleeding, irregularly arranged nail-fold capillaries with slight dilatation, and dilated capillaries on the cheek. Further, dermoscopy was useful for evaluating blood flow changes in the capillary.

In conclusion, polycythemia may be associated with the development of half and half nails. A larger number of cases should be studied in the future to gain a better understanding of the underlying pathomechanisms of half and half nails.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

APPROVAL OF THE RESEARCH PROTOCOL

No human participant was involved in this study.

INFORMED CONSENT

The patient provided informed consent for the publication of the images submitted with this article. Registry and the Registration No.: N/A. Animal Studies: N/A.

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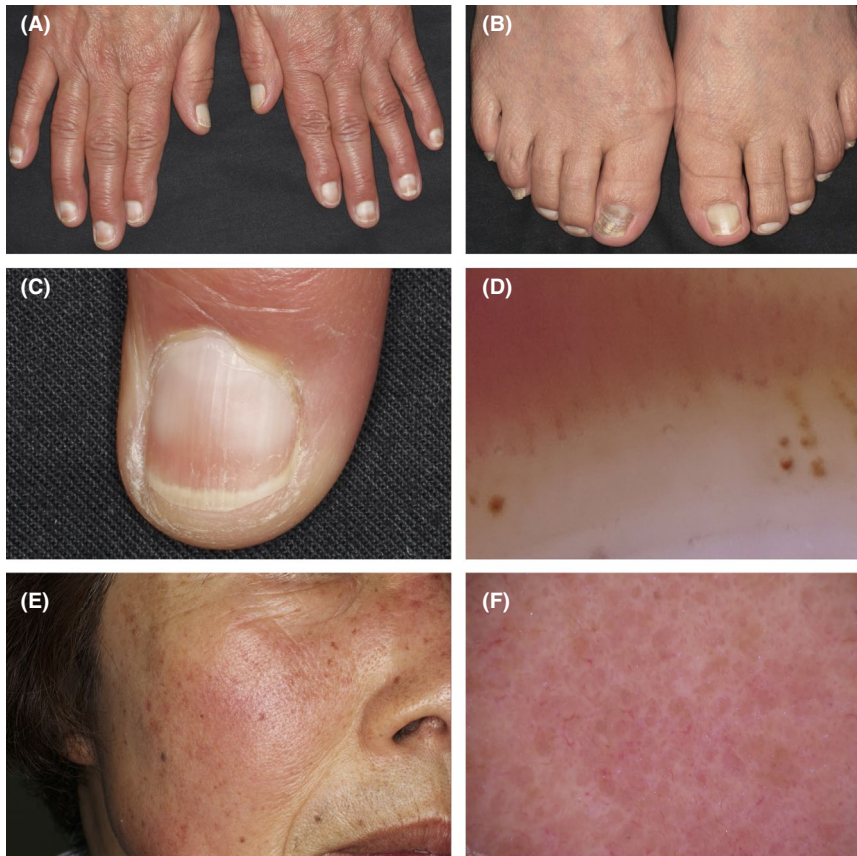


FIGURE 1 A, Clinical appearance of the nails on the fingers. B, Clinical appearance of the nails on the toes. C, Whitish discoloration in the proximal area of the fingernail. D, Dermoscopy showing nail-fold bleeding and irregularly arranged nail-fold capillaries with slight dilation. E, Erythema and telangiectasis on the cheek. F, Dermoscopy showing diffuse erythema and dilated capillaries

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