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CASE REPORT OPEN ACCESS

Melanonychia Striata: A Case Report

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Subungual melanoma has higher mortality than other skin melanomas caused by a late initial diagnosis of this disease, leading to a poor prognosis. Two-thirds of subungual melanoma symptoms begin with melanonychia striata, appearing as brown or black-pigmented lines of the nail plate. In this case report, we presented a case of melanonychia striata in a 30-year-old male. Longitudinal excision or partial avulsion was performed, followed by histopathology examination to exclude malignancy and determine further management for this case.

Keywords: Melanonychia striata, subungual melanoma

Introduction

The case of melanonychia striata (longitudinal melanonychia) is a condition in which the nail plate forms one or several brown or black-pigmented lines. This condition is caused by increased melanin production in the nail matrix, which is then stored in the nail plate. Proliferation and hyperplasia of melanocyte in the nail matrix can cause increased melanin production, besides bleeding or trauma (1). In Caucasian, the prevalence of melanonychia striata is 1.4%, most frequently occurred in the thumb, toes, and index fingers. While in Asian, the prevalence was found to be higher, reported as much as 20%-23% and 11.4% in the year 1933 and 1958, respectively (2).

Histopathology examination is needed since it is crucial to rule out the possibility of malignancy or melanoma in the case of melanonychia striata. In this case report, we presented a case of melanonychia striata in a 30-year-old male.

Case Presentation

A 30-year-old man was referred to the Surgical Oncology Clinic of Prima Medika Hospital with initial suspicion of subungual melanoma. The patient had discoloration of the first toenail of the left foot since six months ago (Figure 1). His nail was turning brownish-black, being darker over time, but painless. The patient was in good health and not taking any medication.

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There was no history of trauma and no similar complaints in his family. The patient also said that there was no family history of melanonychia striata, melanoma (or other diseases of the nail), other skin diseases such as psoriasis, atopic dermatitis, and others.

Figure 1. *Melanonychia striata* on the first left toenail

Figure 2. After partial avulsion procedure of the nail

We found a longitudinal brownish-black discoloration on first left toenail, 1 mm width, on physical examination of this patient. The nail was neither fragile nor split. His other nails were normal. There was no skin discoloration around the nail. Diagnosis of melanonychia striata (longitudinal melanonychia) was made based on the patient's age, physical examination, and histopathology results. The specimen was obtained from longitudinal excision (partial nail avulsion) of the nail plate and matrix, stained with hematoxylin-eosin. Histopathology results showed that there was no proliferation of melanocytes or malignant melanoma. In this case, longitudinal excision (partial nail avulsion) of the nail with melanonychia striata was done for diagnostic procedures and therapeutic management (Figure 2).

Discussion

Melanonychia striata is a condition where the nail plate forms one or several brown or black-pigmented lines (1). Increased nail pigmentation is caused by the activation of nail matrix melanocytes, which causes an increase in pigment production. Mechanism of activation of nail melanocytes is not fully understood but is believed to be caused by excessive expression of the α-melanocyte-stimulating hormone, adrenocorticotropic hormone, and ultraviolet. Melanonychia usually shows benign lesions on the nail matrix related to melanocytic nevus, lentigo, or increased benign melanocyte activity. However, a melanonychia can also represent pathological conditions such as bacterial or fungal infection, melanoma, and other malignancies (3).

About two-thirds of subungual melanoma cases appear with melanonychia striata as an early symptom. Some approaches can be taken to exclude malignancy i.e., "wait and see" and

longitudinal excision (which is chosen) (4,5). In malignant case, other nail surgery such as amputation or wide excision usually is performed, with the aim of removing local tumors on the nail, treating nail infections, reducing pain due to trauma, making the diagnosis by biopsy, or aesthetic purpose (6).

Nail plate surgery (nail avulsion) can be done either totally or partially. In this case, we performed partial nail avulsion for our patients. Compared with total nail avulsion, partial nail avulsion is preferred to reduce complications (bleeding, infection, pain in changing wound dressing, or during activities). Then, the main concern is to rule out the possibility of malignancy. In this patient, the histopathologic examination of longitudinal excision did not show any melanocyte proliferation (Figure 3).

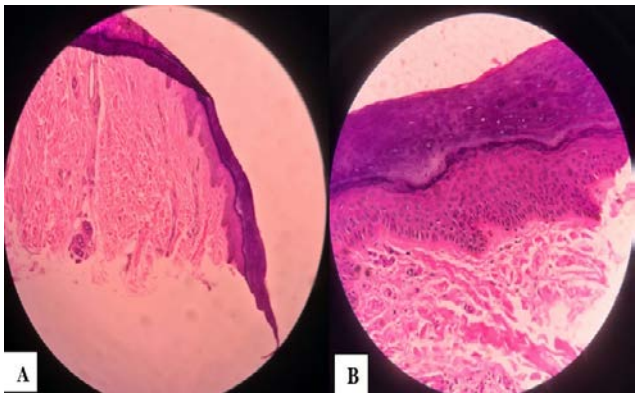

Figure 3. Microscopic examination of the histopathology of melanonychia striata
A: Mild increase in melanin pigment production in the basal layer (hematoxylin-eosin stain, 100x magnification).
B: No increase of melanocyte count (hematoxylin-eosin stain, 400x magnification)

Discoloration of the nail might have resulted from physiologically increased a melanocyte function rather than pathologically hyperplasia due to melanocytic nevus, or even malignant melanoma. In our case, no malignancy sign was found. There were no hyperpigmentation more than 6 mm and nail dystrophy (5). However, in some cases, a change from benign to the malignant lesion can still occur. Therefore, it is important to perform monitoring examinations annually (6).

Conclusion

Melanonychia striata is a change of nail pigment, recognized mostly as an early sign of a subungual melanoma. Histopathological examination after excision must be done to exclude the possibility of malignancy.

Ethical Statement

The Ethical Committee and Institutional Review Board where the present study was conducted, approved the study design. The patient has been consented that this case report will be submitted for publication.

Conflicts of Interest

The authors declared no conflict of interest

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