Though KHE is rare, it is a tumour that plastic surgeons and dermatologists could well encounter in both children and adults. Frequently, the presentation of a vascular tumour poses no diagnostic or therapeutic problem, but a healthy index of suspicion is required with new, unusual or enlarging vascular tumours, and there should be a low threshold for biopsy of these lesions. Knowledge of KHE and its associated complications should lead to a prompt diagnosis and early initiation of treatment, which may reduce residual tumour and sequelae.[5]

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## References

1. Zukerberg LR, Nickoloff BJ, Weiss SW. Kaposiform hemangioendothelioma of infancy and childhood: an aggressive neoplasm associated with Kasabach-Merritt syndrome and lymphangiomatosis. Am J Surg Pathol 1993; 17: 321–8.
2. Lai FM-M, Allen PW, Yuen PM, Leung PC. Locally metastasizing vascular tumor: spindle cell, epithelioid, or unclassified hemangioendothelioma? Am J Clin Pathol 1991; 96: 660–3.
3. Sarkar M, Mulliken JB, Kozakewich HPW, Robertson RL, Burrows PE. Thrombocytopenic coagulopathy (Kasabach-Merritt phenomenon) is associated with kaposiform hemangioendothelioma and not with common infantile hemangioma. Plast Reconstr Surg 1997; 100: 1377–86.
4. Enjolras O, Wassef M, Mazoyer E, et al. Infants with Kasabach-Merritt syndrome do not have 'true' hemangiomas. J Pediatr 1997; 130: 631–40.
5. Enjolras O, Mulliken JB, Wassef M, et al. Residual lesions after Kasabach-Merritt phenomenon in 41 patients. J Am Acad Dermatol 2000; 42: 225–35.
6. Mentzel T, Mazzoleni G, Deitos AP, Fletcher CDM. Kaposiform hemangioendothelioma in adults: clinicopathologic and immunohistochemical analysis of three cases. Am J Clin Pathol 1997; 108: 450–5.
7. McPartlin DW, Ghufoor K, Patel SK, Jayaraj S. A rare case of cutaneous kaposiform haemangioendothelioma. Int J Clin Practice 1999; 53: 562–3.
8. Vin-Christian K, McCalmont TH, Frieden IJ. Kaposiform hemangioendothelioma: an aggressive, locally invasive vascular tumor that can mimic hemangioma of infancy. Arch Dermatol 1997; 133: 1573–8.
9. Beaubien ER, Ball NJ, Storwick GS. Kaposiform hemangioendothelioma: a locally aggressive vascular tumor. J Am Acad Dermatol 1998; 38: 799–802.
10. Kasabach HH, Merritt KK. Capillary hemangioma with extensive purpura: report of a case. Am J Dis Child 1940; 59: 1063–70.
11. Tsang WYW, Chan JKC. Kaposi-like infantile hemangioendothelioma: a distinctive vascular neoplasm of the retroperitoneum. Am J Surg Pathol 1991; 15: 982–9.
12. Fukunaga M, Ushigome S, Ishikawa E. Kaposiform haemangioendothelioma associated with Kasabach-Merritt syndrome. Histopathology 1996; 28: 281–4.
13. Zhang Y-M, Bachmann S, Hemmer C, et al. Vascular origin of Kaposi's sarcoma: expression of leukocyte adhesion molecule-1, thrombomodulin, and tissue factor. Am J Pathol 1994; 144: 51–9.

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# Subungual melanoma in situ: two independent streaks in one nail bed

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*SUMMARY.* We report an unusual case of two nail-bed streaks under one nail, revealing melanoma in situ affecting the nail bed and plate, but not the nail fold. This unusual mode of presentation together with the absence of any nail-fold involvement has not been reported previously. We highlight the need for early histological assessment of nail-bed lesions and discuss subungual melanoma. © 2002 The British Association of Plastic Surgeons

## Case report

We report an unusual case of two independent melanocytic streaks discovered under the left thumbnail of a 35-year-old Caucasian male. Both transpired to be melanoma in situ.

The patient presented with a history of two brown streaks running down the nail of his left thumb. He had noticed the first 3 years before, and it was joined by the second after about a year. Initially it was diagnosed by his General Practitioner as a fungal lesion and treated accordingly. The streaks gradually became increasingly pigmented, leading him to present to a dermatology clinic in some concern.

On examination, two distinct parallel pigmented streaks were observed, running the full length of the nail bed, extending

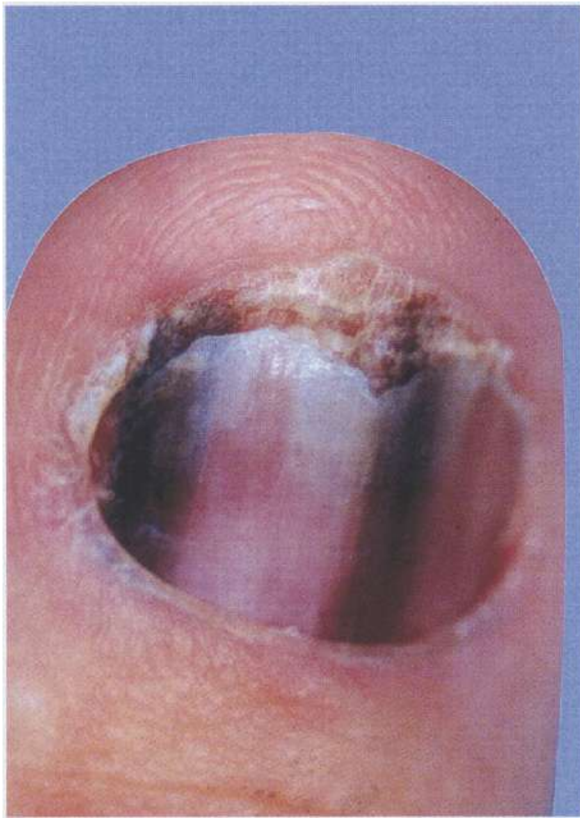


**Figure 1**—Two independent nail-bed streaks.

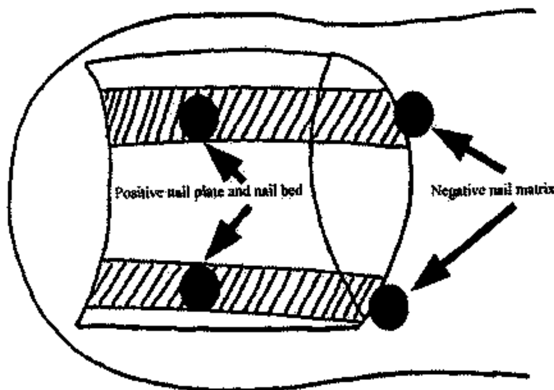



**Figure 2**—The biopsy sites from the nail bed and nail fold.

underneath the nail fold (Fig. 1). There were no associated cutaneous melanotic lesions on the nail fold or on the dorsal surface of the left thumb. Examination of local lymph node basins was negative. He had no previous history of malignant melanoma.

Biopsies were taken from the nail bed, the nail-plate streaks and their origins in the nail-bed matrix (Fig. 2). The histology revealed melanoma in situ from both streaks on the nail plate as well as in the nail bed. The nail-matrix biopsies were both negative, indicating that the pathology was in the nail bed.

The patient was referred to the Plastic Surgery unit at St George's Hospital, and further excision biopsy was performed. The nail bed was excised down to bone and reconstructed in a two-stage procedure using a reverse cross-finger flap from the middle finger at the level of the middle phalanx (Figs 3 and 4). Histopathological analysis confirmed clearance of the lesion, and the wound has now fully healed after division of the flap (Fig. 5).

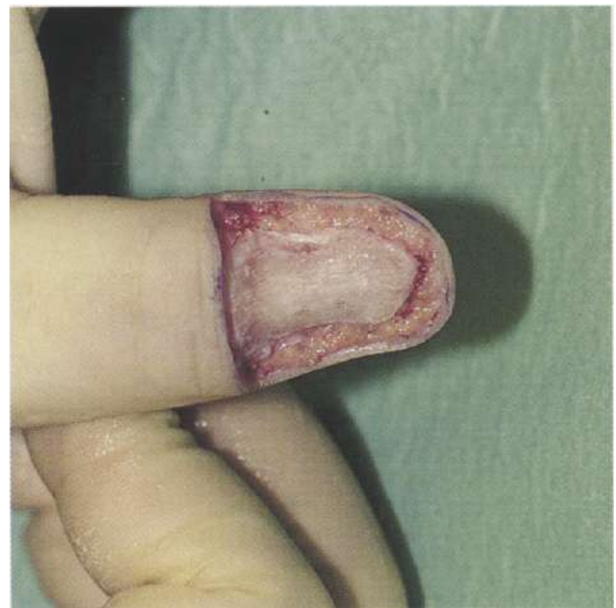


**Figure 3**—The nail bed was excised down to bone.

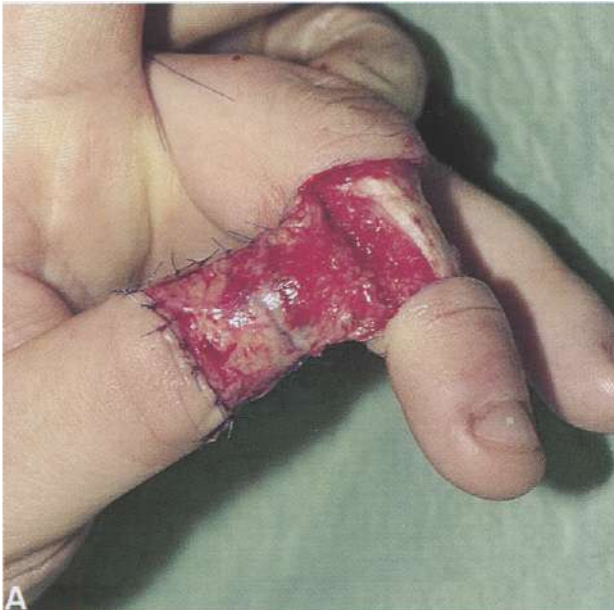
## Discussion

Malignant melanoma in the nail bed is uncommon, reported at a rate of 2.6% of all malignant melanomas.[1] This incidence is strikingly raised in the Japanese population, and has been reported to be as high as 27% (seven out of 24 cases)[2] including melanoma in situ. In a retrospective analysis of 93 patients with melanoma, American Afro-Caribbeans were found to have 12% of the subungual melanomas, compared with only 1% of the total cutaneous melanomas in other regions,[3] suggesting subungual melanoma to be 12 times more common than cutaneous melanoma in this population.

The discovery of a pigmented nail streak in association with melanoma in situ is described in a series of four cases.[2] The authors described rapid growth and diffuse melanosis of the nail, in sharp contrast to our own case of two distinct well-defined streaks.

We would like to stress the unusual occurrence of two independent melanotic streaks appearing under one nail bed, and point out that there is usually only one continuous streak. To our knowledge, no previous case has been reported involving this mode of presentation. It is also highly unusual for melanoma in situ to affect the nail plate but not the nail-bed matrix, from where it arises. Lesions of this nature nearly always arise from the nail-bed matrix. The diagnosis is characteristically delayed as the cause is presumed to be traumatic; indeed, local trauma is frequently seen in association, possibly drawing the attention of the patient to the lesion.[1]

It is well known that the incidence of malignant melanoma is rising, and that the prognosis in advanced disease is poor. Subungual melanoma is rare; it is frequently misdiagnosed or the diagnosis is delayed.[1,3] One published analysis of risk factors suggests (in addition to clinical staging and Clark's levels) that Afro-Caribbean race and the presence of ulceration are associated with a poor prognosis in this condition.[3] This analysis also



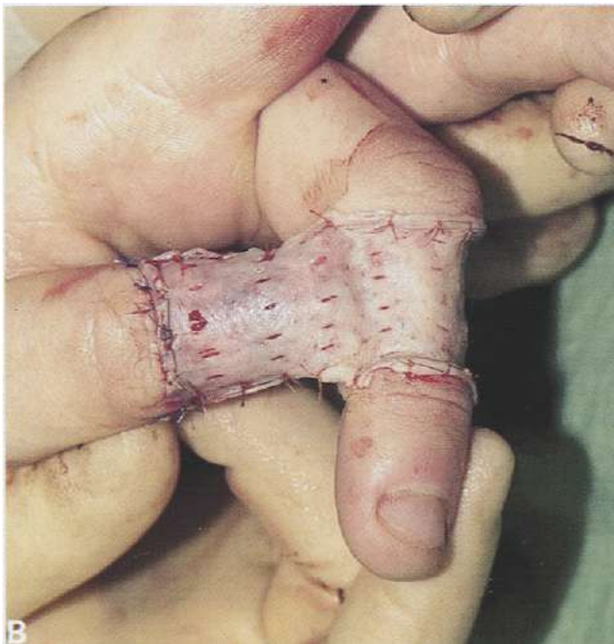




**Figure 4**—(A,B) A reverse cross-finger flap from the middle finger was used for the reconstruction.

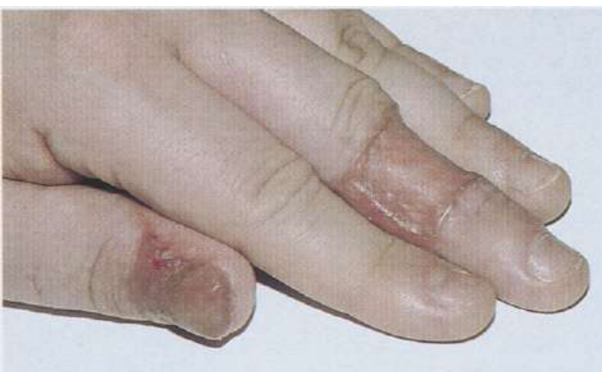


**Figure 5**—Fully healed wound after division of the flap.

failed to show any significant prognostic contribution of Breslow level, site, histological type or gender.

This unusual presentation highlights the need for early biopsy of suspicious subungual lesions.

## References


1. Shukla VK, Hughes LE. Differential diagnosis of subungual melanoma from a surgical point of view. Br J Surg 1989; 76: 1156–60.
2. Kato T, Usuba Y, Takematsu H, et al. A rapidly growing pigmented nail streak resulting in diffuse melanosis of the nail: a possible sign of subungual melanoma in situ. Cancer 1989; 64: 2191–7.
3. O'Leary JA, Berend KR, Johnson JL, Levin LS, Seigler HF. Subungual melanoma: a review of 93 cases with identification of prognostic variables. Clin Orthop 2000; 378: 206–12.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