

A Subungual Blue Naevus Showing Expansile Growth

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The term "blue naevus" was originally used by Jadassohn to describe dark blue lesions of the skin, and was introduced into the literature in 1906 by Max Tieche (1). Lever (2) referred to two histological appearances of blue naevi: a common type and a cellular type. Common blue naevi present as well-demarcated, slightly raised papules, often < 1 cm in diameter, ranging in colour from blue to black (3, 4). Most occur in the skin, commonly on the extremities and the face. Rare cases of common blue naevi have also been reported in extracutaneous locations, such as the subungual region, orbit and conjunctiva, oral cavity, sinonasal mucosa, bronchus, oesophagus, lymph nodes, vagina, uterine cervix, endometrium, penis, and prostate (5).

CASE REPORT

A 64-year-old woman presented with a 3-year history of brownish, longitudinal melanonychia on the left third fingernail with no associated symptoms. Physical examination revealed that approximately 25% of the nail plate was covered with scattered, brownish, longitudinal, pigmented streaks. There were no visible nail plate changes, and periungual pigmentation was not evident. Lymphadenopathy was not present. After nail avulsion, a 0.2 × 0.3 cm irregular pigmented macule and peripheral scattered tiny macules were observed (Fig. 1a). Routine laboratory investigations and physical examination were unremarkable. The punch biopsy demonstrated a poorly circumscribed, dermal spindle cell proliferation separated from the overlying epidermis by a Grenz zone. There were bipolar melanocytes with elongated dendritic processes, some containing cytoplasmic melanin, along with scattered melanophages (Fig. 2a). Mitotic figures were not present and there was no pleomorphism. The dendritic cells were positive for S-100, HMB 45, and MART-1. These findings were consistent with a common blue naevus, and regular follow-up of the lesion was recommended.

The size of the melanonychia increased over time, until approximately 80% of the nail plate was involved at a 3-year follow-up. The lesion remained asymptomatic. After repeated

nail avulsion, a 1 × 0.7 cm homogenous dark black macule was observed in the nail bed (Fig. 1b), which did not involve the periungual skin or proximal nail fold. We conducted a second biopsy under local anaesthesia. The specimen demonstrated an increased cellular infiltration of dermal dendritic cells (Fig. 2b), which extended into the mid-dermis, but did not involve the subcutaneous adipose tissue. There were no mitotic figures or atypical cells. These findings were also consistent with a common blue naevus. We recommended excising the lesion because of its enlargement, but the patient declined. Ten months later, the lesion involved the entire nail bed (Fig. 1c), although it had not spread to the periungual skin or proximal nail fold. A third punch biopsy was performed and demonstrated pigmented dendritic cells with scattered epithelioid cells with vesicular nuclei (Fig. 2c). These dendritic cells were vertically oriented and penetrated into the deep mid-dermis. Pigmented, round, epithelioid cells with variable melanophages were present. This sample demonstrated some biphasic pattern of dermal cells, but did not have the typical dumbbell pattern of a cellular blue naevus. There was no significant cytological atypia, and there were no mitotic figures. The lesional cells were positive for S-100, HMB 45 and MART-1, but negative for Ki-67. As the vertically-oriented dendritic cells were increasing in depth penetration over time, removal of the entire lesion was strongly recommended. The lesion was subsequently excised completely and the patient received a nail bed graft.

DISCUSSION

This case showed non-symmetrical black macules on the nail bed, and its size increased over time. The histological findings were consistent with a common blue naevus, although the depth of infiltration increased with time, and the lesion became more hypercellular and pigmented. In addition to a blue naevus, the differential diagnosis must include a malignant melanoma or atypical blue naevus. In atypical blue naevi, there is lesion asymmetry, hypercellular foci, focal cytological atypia, and occasional mitoses. In the current case, the specimen was examined after pigment removal to more clearly observe the nuclei; no malignant features were detected. Melanoma can generally be distinguished from blue naevi by the presence of a frankly malignant component. A high mitotic rate (> 2/mm²), atypical mitotic figures, cell crowding, expansile growth, and necrosis indicate melanoma (5). Subungual melanoma appears to metastasize earlier than cutaneous melanoma (6, 7). Therefore subungual melanoma must be distinguished quickly from other melanocytic lesions of the nail. Lent et al. (8) suggest an "ABC" rule for clinical detection of subungual melanoma. In this system, A = age (fifth to seventh decades of life), B = brown to black band breadth of 3 mm or more and variegated borders, C = change in



Fig. 1. Appearance of the nail plate and regrowing nail at different time periods. (a) 0.2 × 0.3 cm irregular black-coloured macule (first visit). (b) 1 × 0.7 cm black-coloured macule (second visit). (c) 1 × 1 cm black-coloured macule (third visit).

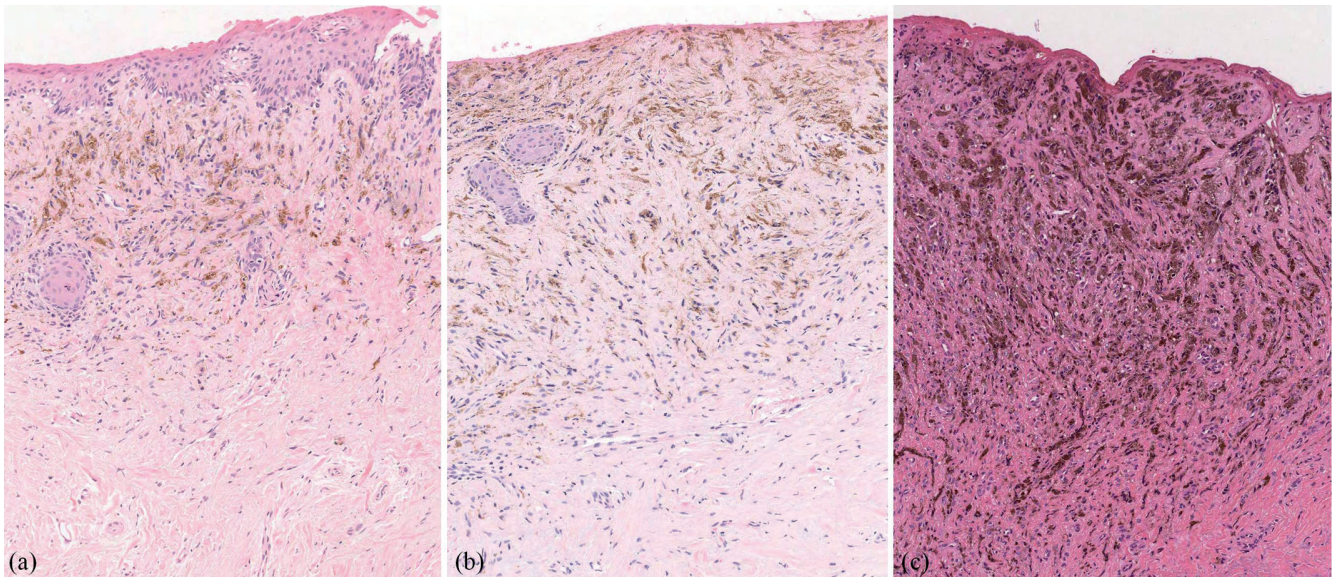


Fig. 2. Histopathology of the biopsies taken at each visit. (a) Scattered dendritic melanocytes in the reticular dermis (at first visit). (b) Dermal dendritic cells extending into the mid-dermis (at second visit). (c) Vertically-oriented dendritic cells with scattered, pigmented, epithelioid cells (at third visit). Haematoxylin and eosin $\times 100$.

the nail band or lack of change in nail morphology, D = the digit most commonly involved, E = extension of the pigment onto the proximal and/or lateral nail fold, and F = family or personal history of dysplastic naevi or melanoma. Our patient's clinical findings were positive for the A, B, C and D categories. There was no Hutchinson's sign, or family history. There are 11 reported cases of subungual blue naevus in the literature (9). Seven cases occurred under a finger nail and four under a toe nail. Three cases were congenital blue naevi, two were cellular blue naevi, and one was a combined blue naevus; the remaining cases were common blue naevi. Our patient's histological findings were consistent with a common blue naevus; however, more cellular features developed during the 46 months of follow-up. Malignant changes are rare, but should be considered in cases with sudden enlargement of the lesion, change in colour, or recurrence after excision. The patient experienced continuous growth of an expansile subungual blue naevus, and we recommend that the subungual blue naevi be excised immediately to reduce the possibility of malignant change and to produce a better cosmetic result.

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