Subungual blue nevus with combined phenotypic features

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Blue nail dyschromia may represent melanocytic, vascular, or other etiologies. A case of a subungual blue nodule is presented, with a pseudo-clubbed nail. On histopathologic examination, there was a combined subungual blue nevus, with features of a common blue nevus and a pigmented epithelioid melanocytoma. This unusual presentation is reviewed, with a discussion of blue nail dyschromia and subungual blue nevi. (J Am Acad Dermatol 2008;58:1021-4.)

We saw a 40-year-old white woman who presented with blue-gray pigmentation on the nail of her left fourth finger; the pigmentation had been present since childhood. The pigmented area had slowly increased in size at a rate in excess of her finger growth throughout childhood and had continued to slowly enlarge during the 5 years before presentation. She reported that her nail had become increasingly brittle and curved, but denied pain, throbbing, or bleeding. There was no personal or family history of melanoma or nail disease.

Physical examination of the left fourth fingernail showed a semicircular, dark blue dyschromia under the proximal nail plate, overlying the proximal nail bed and extending under the proximal nailfold (Fig 1). The nail plate demonstrated increased transverse and longitudinal curvature compared to the right fourth fingernail. This did not alter Lovibond's angle and was consistent with a pseudoclubbed nail (Fig 2). There was no pigmentation of the periungual tissues. The pigment did not blanch. The remaining fingernails and toenails appeared entirely normal. There was no epitrochlear or axillary lymphadenopathy. Surgical exploration with reflection of the proximal nailfold and proximal nail plate avulsion demonstrated a 0.9- × 0.7-cm black nodule, with a small oval region of hypopigmentation on the radial margin (Fig 3). The nodule was excised with narrow margins as a wedge at the level of periosteum (Fig 4).

Histopathologic examination revealed a heavily pigmented, melanocytic neoplasm arising from directly beneath the nail bed and matrix epithelium, forming an expansile nodule in the dermis (Fig 5, *A*). Multiple phenotypes of blue nevus cells were present, including small ovoid melanocytes containing minimal melanin (Fig 5, *B*), spindled and dendritic pigmented melanocytes within a sclerotic stroma (Fig 5, *C*), and heavily melanized larger epithelioid melanocytes with hyperchromatic nuclei and prominent nucleoli (Fig 5, *D*). Mitotic figures were not appreciated and there was no ulceration. Lesional cells were diffusely positive with Melan-A staining. Ki-67 (proliferation antigen) stained less than 1% of the blue nevus cells. The features were consistent with a combined blue nevus. Incidental nailbed hyperplasia with subungual inclusion cyst formation was also present.

The patient healed without incident after surgery, with a partial dorsal pterygium and has experienced no recurrence in the first 12 months of follow-up.

DISCUSSION

Blue nail dyschromia has a wide-ranging differential diagnosis, including vascular and melanocytic etiologies.[1] Other causes include argyria,[2-4] Wilson's disease, occupational exposure, drugs (notably chemotherapeutics, antimalarial agents, minocycline, and zidovudine),[1] as well as HIV infection (in the presence[5] and absence of zidovudine).[6] In this patient, findings of the history and examination suggested either a vascular or melanocytic etiology; surgical exploration confirmed the latter.

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Fig 1. Left fourth fingernail with semicircular dark blue discoloration of proximal nail bed and lunula.

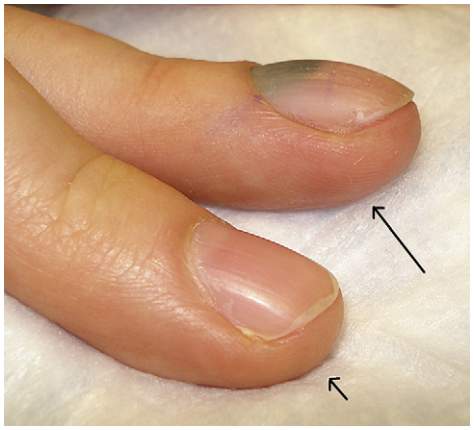

Fig 2. Left fourth fingernail (*long arrow*) shows dorsal-to-ventral enlargement, without alteration of Lovibond's angle, in a pseudoclubbing appearance, in contrast to normal fourth fingernail (*short arrow*).

Melanonychia can represent primary melanocytic etiologies, caused by increased activation (with a normal number) of melanocytes, a benign melanocytic proliferation or melanoma.[7] The benign proliferations may be as single cells representing a lentigo, as a nested growth representing a nevus, as a blue nevus, or as a spitzoid nevus variant. When matrix nevi present as melanonychia,[8] the pigment-producing nevus cells incorporate melanin into the nascent nail plate onychocytes, producing true brown nail plate discoloration. The nevus in this case was submatrical and intradermal, like most other blue nevi, and the nail dyschromia represented pigment transmission through a translucent nail plate rather than incorporation of pigment into the nail plate.

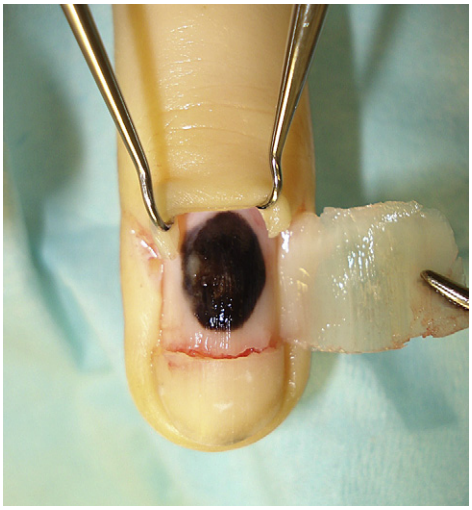

Fig 3. After proximal plate avulsion, the left fourth fingernail bed and distal matrix show an oval, black nodule, with hypopigmented region and irregular periphery on the radial margin.

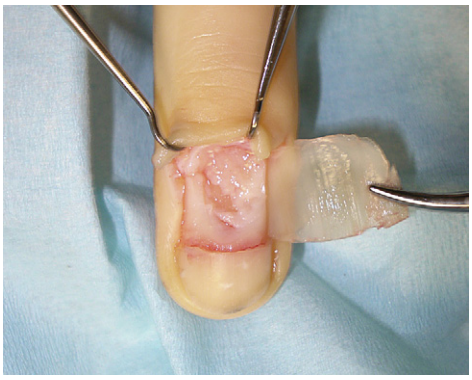

Fig 4. Appearance after wedge resection at level of periosteum.

The larger epithelioid melanocytes in the lesion bear a resemblance to those seen in a pigmented epithelioid melanocytoma[9]; however, in this case they make up only a small component of this infiltrate. In pigmented epithelioid melanocytoma, the nodules of large atypical epithelioid cells are expansive and destructive, may be a few millimeters in depth, and may sometimes ulcerate.[9] This diagnosis of subungual blue nevus with combined features is rendered because of the prominent mixed melanocyte phenotype present in our case. It is true that many cutaneous blue nevi are composed of a mixture of variably shaped melanocytes, including small round, ovoid, spindled, dendritic, and epithelioid types, rather than classic "pure" types. However, this pattern has not been demonstrated in nails because of the paucity of reported cases.