

Amelanotic Acral Melanoma Masquerading as Fibrous Histiocytic Tumours

Three Case Reports

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We report 3 cases of amelanotic melanoma developing on the finger, whose histology disclosed dermal invasion of histiocyte-like tumour cells. One of the 3 cases was subungual melanoma and the other 2 were on the volar surface of the finger tip. Because of the characteristic dense infiltration of large histiocyte-like tumour cells, including many multinucleated giant cells, we initially considered histiocytic tumours. However, there were some histiocyte-like cells that displayed inclusion-like intranuclear invagination of cytoplasm, and almost all tumour cells, including the giant cells, were positive for S-100 protein. In addition, ultrastructural demonstration of premelanosomes within the cytoplasm of the tumour cells established the diagnosis of amelanotic melanoma. These features were distinct histologically from other variants of vertical growth phase amelanotic malignant melanoma, including desmoplastic or neurotropic melanoma. Because we encountered cases 2 and 3 within just a year after the first case, we think that the misdiagnosis of amelanotic "histiocytic" melanoma can be avoided through enhanced clinical awareness and subsequent appropriate histopathologic studies. **Key words:** Subungual melanoma; S-100 protein; Inclusion-like intranuclear invagination.

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Acral regions of the extremities, including the nail bed, are predilection sites for malignant melanoma in Japanese as well as in blacks (1–3). Most melanomas occurring on such regions are classified as acral lentiginous melanoma (ALM), which represents a distinct entity with a characteristic intraepidermal growth phase (4, 5). However, there are unclassifiable cases and cases that cause diagnostic difficulties due to the anatomic and histologic peculiarities of the acral location (6, 7).

The vertical growth phase of primary cutaneous malignant melanoma may be characterized by a spectrum of morphologic tumour cells, including spindle cells, epithelioid (or histiocytic) or a mixture of these cell types. In desmoplastic malignant melanoma, all tumour cells are spindle-shaped, extending into the dermis from the dermo-epidermal junction with a background of fibrous stroma, resembling fibrous tumours (8, 9). We report 3 cases of amelanotic melanoma occurring subungually or on the finger-tip, whose cells were composed mainly of histiocyte-like cells together with multinucleated giant cells.

CASE REPORTS

Case 1

A 74-year-old Japanese woman visited us with a 4-month history of a rapidly growing tumour under the nail of her right middle finger. Except for schizophrenia her past history disclosed no specific diseases. On physical examination, there was an elevated, eroded, easily bleedable, hard tumour, 11 × 11 mm in size, covered partially by milky-white necrotic debris, occupying part of the nail bed. A histologic specimen from the centre of the tumour revealed lack of epidermis with a dense infiltration of "large" histiocytic cells containing multinucleated giant cells in the dermis (Fig. 1). Some of the "histiocytic" cells displayed inclusion-like intranuclear invagination of cytoplasm (Fig. 2). Almost all the "histiocytic" tumour cells were positive for S-100 protein. Melanocytic hyperplasia within the epidermis was observed within another portion of the excised specimens. Ultrastructurally, electron-dense premelanosomes were sparsely scattered in the cytoplasm of the tumour cells in the dermis (Fig. 3).

Case 2

A 61-year-old Japanese man suffering from a left hemiparesis due to cerebral infarction had noticed the presence of a skin-coloured nodule on the volar surface of his left second finger tip for the past 6 years. It gradually enlarged in response to his repeated trials of pricking with a needle. A biopsy specimen obtained by a local physician 1 month before his first visit to us was diagnosed as a malignant fibrous histiocytoma. An eroded area covered with bloody crusts was observed on the tip of the second finger of his left hand (Fig. 4). Histologic findings were similar to those in Case 1. Tumour cell infiltration was mainly composed of large histiocytic cells, interspersed with spindle cells. The tumour cells were positive for S-100 protein. The presence of premelanosomes was also ascertained ultrastructurally in the cytoplasm of the tumour cells.

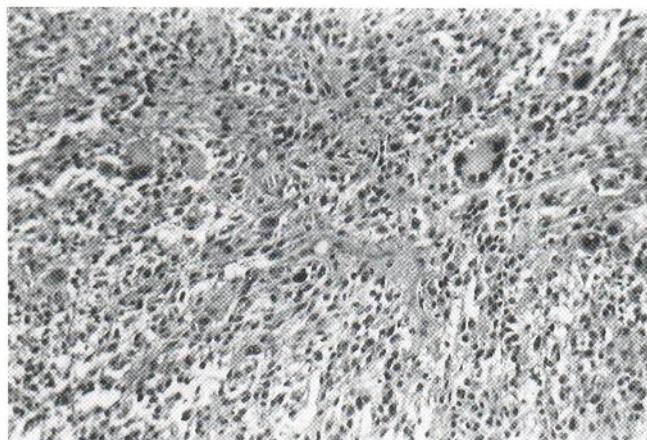


Fig. 1. Low-power magnification view of the infiltration of histiocytic tumour cells with some multinucleated giant cells in Case 1. (H & E, ×100.)

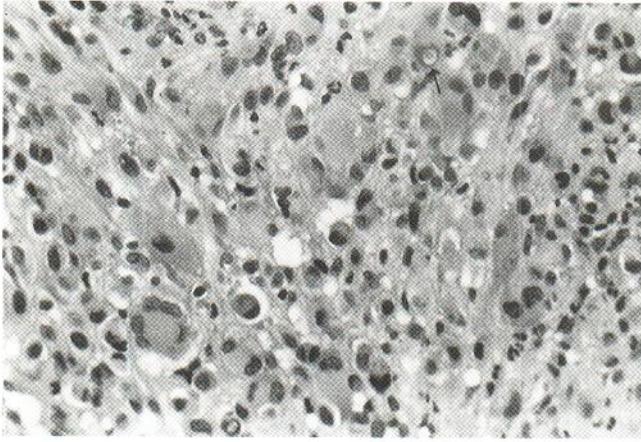


Fig. 2. Higher magnification shows tumour cells with abundant eosinophilic cytoplasm and inclusion-like intranuclear invagination of cytoplasm (arrow) (H & E, $\times 250$.)

Case 3

A 47-year-old Japanese man visited us with a 3-year history of a verrucous tumour on his right second finger tip just under the nail. The tumour gradually enlarged despite repeated applications of 50% salicylic acid-impregnated adhesive tape and abrasion by himself. He was referred to us after receiving simple excision of the tumour at another clinic. A firm, verrucous, skin-coloured tumour was found on the tip of the second finger of the right hand adjoining the nail. Histologic features of the primary lesions were closely similar to those of our first 2 cases. Immunohistological study disclosed that the tumour cells were positive for S-100 protein. Electron microscopic study had not been performed in this case.

DISCUSSION

The characteristic histologic feature of these 3 cases was the presence of histiocyte-like tumour cells together with multinucleated giant cells. Multinucleated giant cells are observed in some cases of malignant melanoma, including amelanotic melanoma, as well as in Spitz naevus (10). Thus, amelanotic melanoma constitutes one of the entities in the differential diagnosis of histiocytic tumours (11). However, the number of

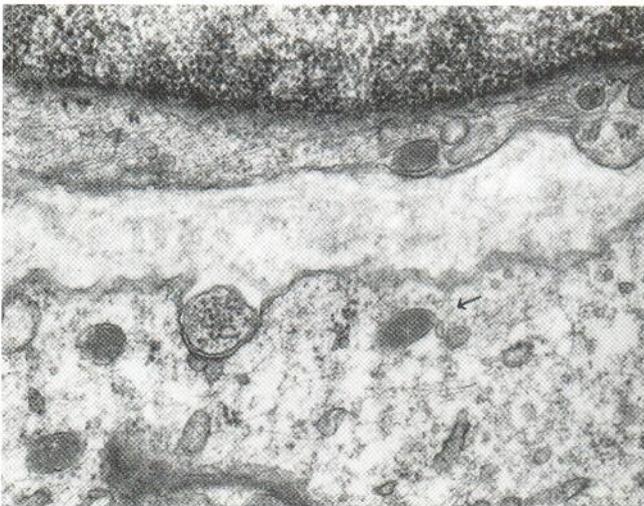


Fig. 3. Electron microscopic figure of a premelanosome (arrow) in the cytoplasm of the tumour cells in Case 1.



Fig. 4. Amelanotic acral melanoma with the appearance of an erosive lesion covered with thick bloody crusts on the tip of the left second finger of Case 2.

giant cells was much higher in our cases than in normal ones, and we first considered foreign body granuloma, atypical fibroxanthoma or malignant fibrous histiocytoma, although the tumour cells in atypical fibroxanthoma are typically much larger and multinucleate with pleomorphic nuclei (12). However, almost all the tumour cells, including giant cells, were found to be positive for S-100 protein, suggesting melanoma rather than fibro-histiocytic tumours. In addition, in the first case, a lentiginous type of proliferation of melanocytes, a helpful feature in diagnosing melanoma, was subsequently found within the remaining adjacent epidermis. Finally, the demonstration of premelanosomes confirmed the diagnosis of amelanotic melanoma.

Amelanotic melanomas may be difficult, at times, to differentiate from other types of malignant histiocytic neoplasms, as described above. However, the nesting quality of melanoma cells is usually obvious in amelanotic melanoma (13). Desmoplastic melanoma, one variant of amelanotic melanoma, is characterized by the fascicular aggregates of spindle cells embedded in dense fibrous tissue (8, 9). Our cases seem to represent another variant of amelanotic melanoma. They were all almost completely lacking in the nest formation of tumour cells usually observed in amelanotic melanoma but were composed mainly of histiocyte-like tumour cells with remarkable intermingling of multinucleated giant cells. The inclusion-like intranuclear invaginations of cytoplasm in some of the tumour cells observed in our cases are a helpful feature to distinguish melanocytes from histiocytes (14, 15).

Amelanotic melanoma is rare (16); we have experienced only 6 cases so far, and its incidence was 4% of the malignant melanomas seen during the past 20 years at the Department of Dermatology, Tohoku University (17). Out of these, 5 cases appeared on the nail bed or finger-tip, anatomical sites with

unique histologic features: they have the thickest epidermis, a high concentration of sweat glands and are hairless. They are often closely attached to an aponeurosis. Moreover, the dermis of the nail bed is firm and attached directly to the periosteum of the underlying phalanx. These anatomical peculiarities may in some way be related to the occurrence of desmoplastic or histiocytic melanoma (13).

Finally, we encountered our 2nd and 3rd case shortly after we had reached our final diagnosis in the first one. We think that many more cases may be discovered through enhanced clinical awareness and subsequent appropriate histopathologic studies.

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