Juvenile Melanoma—A Case Report and Histogenetic Investigation

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Summary. A case of juvenile melanoma which appeared to be completely intradermal was studied by optical and electron microscopy. The histological dopa reaction was negative and melanin granules could not be detected with Fontana-Masson stain, but detailed electron microscopic examination revealed melanosomes very similar to those found in intradermal nevus cells. The tumor was therefore thought to be composed exclusively of melanogenic nevus cells, and participation of schwannian nevoblasts could be excluded. This view would support the concept of the unitary origin of such nevus cells.


Introduction

Opinion regarding the essential histogenetic make-up of juvenile melanoma (JM) is not yet unanimous. Winkelmann [14] concludes from results of positive non-specific cholinesterase activity and negative tyrosinase activity and dopa reaction that JM comprises the neural component of intradermal nevus. On the other hand, Steigleder [13] and Kawamura [2] have reported a positive dopa reaction in the parenchyma cells of JM. In this report, a case of JM is studied by electron microscopy, concentrating on the ultrastructure of the tumor parenchyma cells.

Materials and Methods

Case. A Japanese girl aged 15 months was referred for examination of a discrete growth which had been present for at least 3 months in the center of the left eyebrow. The slightly pinkish, convex, elastic,
Fig. 1. The tumor is above normal skin level (arrows). The parenchyma extends from the upper part of the cutis (c) to the subcutaneous tissues (s). Asterisk. crust. Hematoxylin eosin stain. × 6

soft skin lesion measured about 14 × 9 mm. The surface was glossy, unevenly granulated, and bore some of the eyebrows. The lesions was a miliary, pinkish papule when first noticed 3 months previously but had grown rapidly and a blood-crust about 5 mm in diameter had been present on top of the lesion for a week. The clinical diagnosis was benign juvenile melanoma and the tumor was completely excised.

Histopathological Methods. Paraffin-embedded tissue was cut by serial section and stained with hematoxylin-eosin, van Gieson’s method and a combination of this with the Fontana-Masson technique. Laidrow’s dopa reaction was performed with non-fixed cryostat sections.

Electron Microscopy Specimen. Specimens were prepared by a routine method [3]. The sections were cut in an LKB ultramicrotome and double-stained with uranyl acetate and Reynold’s lead citrate. The stained sections were observed in a JEM-100B electron microscope with an accelerating voltage of 80 kV.

Results

Light Microscopy

The tumor was mostly above normal skin level. The epidermis showed slight papillomatosis as well as irregular acanthosis, but serial sections did not reveal any junctional activity (Fig. 1). Thus a thin clear zone of connective tissue stroma separated the epidermis and the tumor parenchyma. The tumor parenchyma extended from the upper part of the cutis to the deep dermis and partly into the subcutaneous tissue. The tumor parenchyma arranged in groups or strings from the upper part of the cutis to the deep dermis and partly into the subcutaneous tissue. Apparent three patterns similar to A-, B-, and C-type nevus cells was not present. Dopa reaction was negative and granules stainable by Fontana-Masson’s technique were not detected in the parenchyma cells. The two control specimens gave positive results. The connective tissue stroma was somewhat loose and contained many blood capillaries and