Immunophenotyping of amelanotic melanoma. A case report

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SUMMARY

Amelanotic malignant melanoma (AMM) is a subtype of cutaneous melanoma with little or no pigment upon visual inspection. The lack of pigmentation is the reason for late diagnosis of lesions and a poor prognosis. We report a case of a 55-year-old female with an AMM diagnosed by immunophenotyping. Monoclonal antibodies S-100, HMB-45, and antibodies to cytokeratin were used. Our patient underwent a wide local excision (a 2 cm wide margin) 2 years ago. So far there are no signs of a recurrence. In doubtful cases, immunophenotyping with monoclonal antibodies HMB-45 and S-100 is important for confirming the correct diagnosis of AMM.

KEY WORDS

melanoma, amelanotic, immunophenotyping

Introduction

Amelanotic malignant melanoma (AMM) is a subtype of cutaneous melanoma with little or no pigment. True AMMs are rare: there may be some pigmentation at the periphery of the lesion. AMMs represent 2–8% of all malignant melanomas (1). The clinical diagnosis can be difficult because AMM may mimic different benign and malignant melanotic and nonmelanotic lesions. Because of the lack of pigmentation, amelanotic melanomas are often diagnosed in an advanced stage and have a poor prognosis.

Case report

We report the case of a 55-year-old female with a lightly erythematous, slightly infiltrated macula on her right shoulder. The patient was not able to state how long the lesion had been present or whether it had undergone any changes. She denied itching or bleeding, as well as a personal or family history of melanoma. There were no enlarged lymph nodes on examination, and routine laboratory investigations did not reveal abnormalities. The lactate dehydrogenase level was normal, and either Bowen's disease or basal cell carcinoma were suggested diagnoses.

A biopsy was taken, embedded in paraffin, and stained with hematoxylin-eosin. Immunophenotyping was done with immunoalkaline phosphatase, using the APAAP method. Monoclonal antibodies S-100, HMB-45, and antibodies to cytokeratin (DAKO) were used. The melanocyte cytoplasm was stained

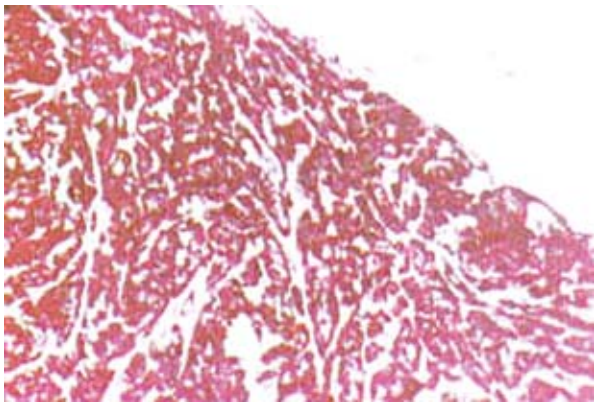

Figure 1. Tumor cells express HMB-45, (APAAP, 80x).

red with S-100 and HMB-45. Cytokeratin antibodies were used to exclude possible carcinoma.

Discussion

Due to the lack of pigment, AMM is often misdiagnosed as dermatitis, Spitz nevus, Bowen's disease, superficial basal cell carcinoma, squamous cell carcinoma, or a secondary inclusion in the skin (2).

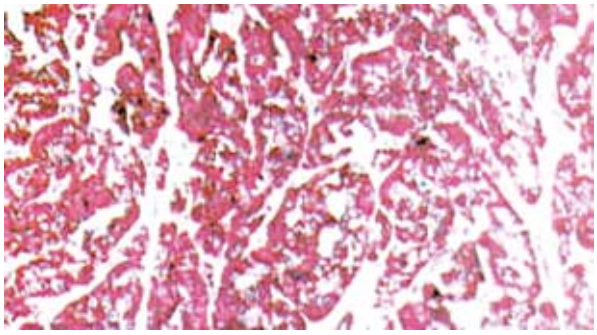

Figure 2. Tumor cells express S-100 (APAAP, 80x).

Clinical symptoms such as peripheral pigmentation, ulceration, and asymmetry are usually not helpful in diagnosis of AMM (1).

Any clinical subtype of cutaneous melanoma may be amelanotic, although it is more common in subungual tumors and desmoplastic melanoma (3). In our case, biopsy revealed superficial spreading melanoma invading the dermis (tumor thickness measured 1.2 mm).

HMB-45 can be important in the evaluation of neoplastic lesions suspected to be melanomas (4). Immunophenotyping in our case showed red deposits in the melanocyte cytoplasm when stained with HMB-45 (Figure 1) and S-100 (Figure 2). Negative staining for cytokeratin excluded the diagnosis of basal cell carcinoma. These findings supported the diagnosis of an amelanotic melanoma.

The lack of pigmentation in AMM is due to the rapid growth of the tumor and to the dedifferentiation of malignant melanocytes (2). The melanoma cells contain inactive tyrosinase, and thus the melanin synthesis is suppressed and the cells are amelanotic (5).

AMM has a similar natural history to pigmented malignant melanoma; the diagnosis is delayed and it is usually recognized in a more advanced stage (2). In our case, the localization of the lesion and the absence of symptoms prevented the patient from seeking medical advice sooner.

The prognosis of primary cutaneous AMM is similar to that of the pigmented lesion and is determined by tumor thickness, location, and patient age, as well as sex (6).

Metastatic melanoma not uncommonly presents as one or more amelanotic lesions even when the primary tumor was pigmented (4). Metastases may include both pigmented and non-pigmented lesions in a zosteriform pattern (7).

In doubtful cases, immunophenotyping with monoclonal antibodies HMB-45 and S-100 is important for revealing the diagnosis.

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