Digital dermoscopy in early diagnosis of melanoma and histopathology for high-risk patients

A importância da dermatoscopia digital no diagnóstico precoce do melanoma e no auxílio à histopatologia em paciente de alto risco

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ABSTRACT

The early detection of melanoma is crucial for improving survival rates. Dermoscopy improves the accuracy of clinical examination, enabling a diagnosis in the early stages. However it has limitations in the diagnosis of incipient melanomas. Full body mapping and digital dermoscopy help diagnose nonspecific lesions and allow the detection of new suspicious lesions. Patients at high risk of developing melanomas benefit the most from this approach. The authors report the case of a high-risk patient whose melanoma diagnosis was only possible with the help of dermoscopy-guided histopathological analysis.
Keywords: melanoma; dermoscopy; early diagnosis; risk factors; pathology.

RESUMO

A detecção precoce do melanoma é crucial para sobrevida maior. A dermatoscopia aumenta a acurácia do exame clínico, possibilitando o diagnóstico em fases iniciais, mas apresenta limitações no diagnóstico dos melanomas incipientes. O mapeamento corporal total e dermatoscopia digital auxiliam o diagnóstico de lesões incaracterísticas e permitem a detecção de lesões novas suspeitas. Os pacientes de alto risco para o desenvolvimento de melanoma são aqueles que mais se beneficiam dessa forma de seguimento. Relatamos caso de paciente de alto risco em que o diagnóstico de melanoma só foi possível através do auxílio da dermatoscopia na análise direcionada da histopatologia.
Palavras-chave: *melanoma; dermoscopia; diagnóstico precoce; fatores de risco; patologia.*

INTRODUCTION

The main risk factors for developing melanoma are a personal and family history of melanoma,in addition to the phenotype of atypical nevus syndrome. Other factors include fair skin, red hair, multiple ephelides, history of sunburn, and previous exposure to intense ultraviolet radiation, including artificial tanning.[1,2]

Early detection is key to a better prognosis. Dermoscopy is a noninvasive method that allows the assessment of morphological structures of the skin that are not accessible to the naked eye, increasing the accuracy of clinical examination from 60-90%.[1,3]

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Serial digital dermoscopy increases the probability of diagnosing melanomas in their initial stages and minimizes the dimensions of excision of benign lesions.[4] Total body mapping allows the detection of macroscopic changes in pre-existing lesions as well as the diagnosis of new suspicious lesions. The combination of those two techniques is deemed the best follow-up method for high-risk patients.[2]

Dermoscopy has also had a great impact on the development of the histopathology process over time; the combination of pathophysiology and dermoscopy has served as a driver for pathologistsin the analysis of more suspicious areas in melanocytic tumors.[5]

CASE REPORT

A Fitzpatrick skin type I, red-haired 44-year-old female patient with multiple freckles reported a history of sunburn in childhood and adolescence, in addition to artificial tanning (100 sessions, aged 12-32). She also reported a personal history of melanoma (thin tumor associated with a nevus in the abdomen), a family history of melanoma (brother and paternal uncle), and a family history of pancreatic cancer (maternal cousin). She began her clinical follow-up at the Núcleo de Câncer de Pele e Dermatologia (Center for Skin Cancer and Dermatology) of Hospital AC Camargo in São Paulo, Brazil, in August 2008 with the widening of the margins of her melanoma. The melanoma had initially been diagnosed at another clinic, and she was referred for total body mapping and digital dermoscopy at the Dermoscopy and Familial Melanoma ambulatory. A total of 27 melanocytic lesions, with no indication for excision, were observed at the first examination in November 2008. In the third examination (October 2009), a lesion on the right forearm presented a change in its appearance in the digital dermoscopy evaluation (Figure 1), therefore its removal was recommended. The histologic analysis verified the presence of a superficial spreading melanoma (Breslow depth scale= 0.57 mm), not associated with the nevus. The widening of the margins was carried out.

On the fifth dermoscopy evaluation, performed in July 2011 two years after the first, a new lesion was observed on the left side, presenting an irregular dermoscopic appearance and the presence of peripheral eccentric hyperpigmentation associated with an atypical network and brown spots, distributed irregularly (Figures 2 and 3). The lesion was excised, and the initial

Figure 1: Dermoscopic images (20x) of the lesion on the right forearm, which showed significant change in the dermoscopic appearance after six months of follow-up (diagnosis: thin melanoma)

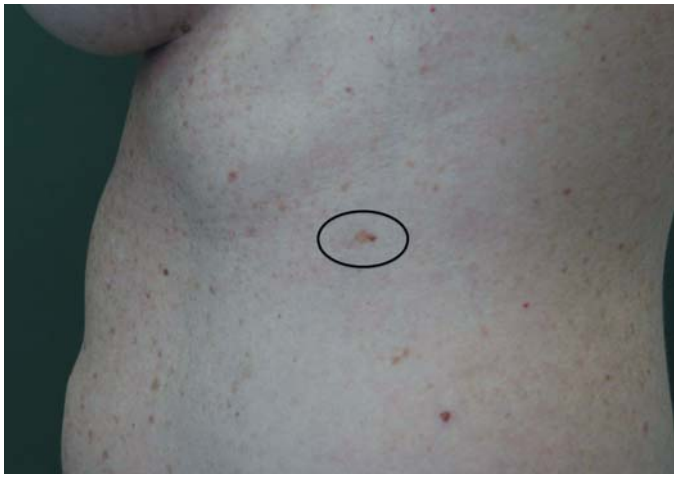

Figure 2: Macroscopic image of pigmented lesion onthe left side: new lesion detected after two years of follow-up in a high-risk patient

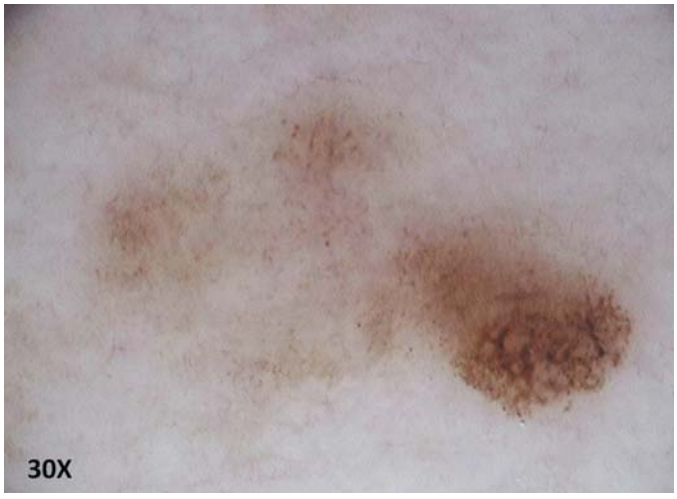

Figure 3: Dermoscopic image (30x) of the lesion onthe left side, featuring eccentric peripheral hyperpigmentation combined with an atypical network and irregularly distributed brown globules

histological results suggested an atypical compound nevus. However, due to the suspicious appearance in the dermoscopic evaluation and the fact that it was a new lesion in a high-risk patient, emphasis was placed on the hypothesis of melanoma. In a joint analysis with the pathologist, and after he reviewed the slide with new serial histological sections in six levels, the final diagnosis was a superficial spreading melanoma in situ (Figures 4 and 5). The patient was referred to the expansion of margins, with the long-term follow-up program carried out at the Dermoscopy and Familial Melanoma ambulatory.

DISCUSSION

Melanoma is a potentially severe illness in which the best prognosis depends on early diagnosis.Dermoscopy provides increased sensitivity for detecting initial lesions.[1]

Incipient melanomas might not be detected by dermoscopy in the initial visit, and often can only be identified through changes in their dermoscopic appearance during subsequent evaluations.[3,4] It is recommended that the first return visit takes place after three months to allow the detection of uncharacteristic and fast-growing melanomas; any change occurring in that interim would indicate exeresis.[5]

The second dermoscopic return visit should take place 6-12 months after the first examination in order to diagnose slow-growing melanomas and/or new melanomas or even the malignization of pre-existing nevi. The excision of the lesion should be considered when changes in the size, shape, or pigmentation are verified, or when there is regression or melanoma-specific dermoscopic structures.[2-4]

High-risk patients, including those with familial melanoma, multiple melanoma, and/or atypical nevus syndrome, benefit most from total body mapping combined with serial digital dermoscopy, due to the increased accuracy in the diagnosis of melanomas in their initial stages.[1,2]

In the present case study, dermoscopy was also valuable in assisting in the pathology analysis, given that the third melanoma's first diagnosis was that of an atypical nevus. Nevertheless, when evaluated in the next examination, it was regarded as a new lesion due to its heterogeneous dermoscopic pattern and the patient's high-risk classification. As a result,the melanoma hypothesis was confirmed after a more detailed examination of the lesion, when the interaction between the dermatologists and the pathologist played an important role. ●

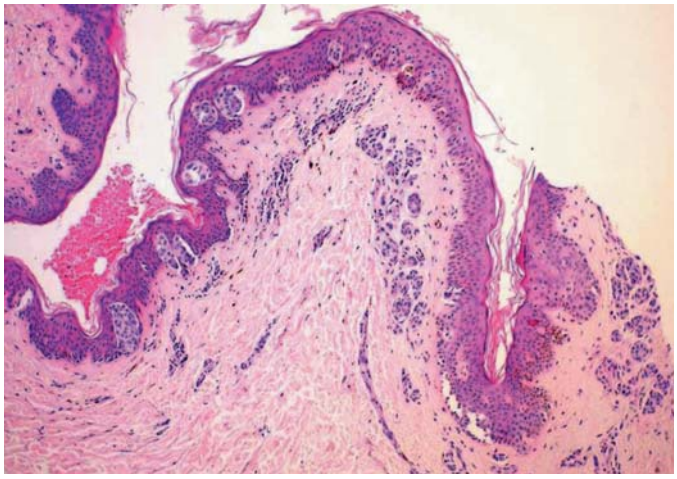

Figure 4: Histological section (100x) showing atypical compound nevus with junctional component that extends beyond the intradermal component (HE)

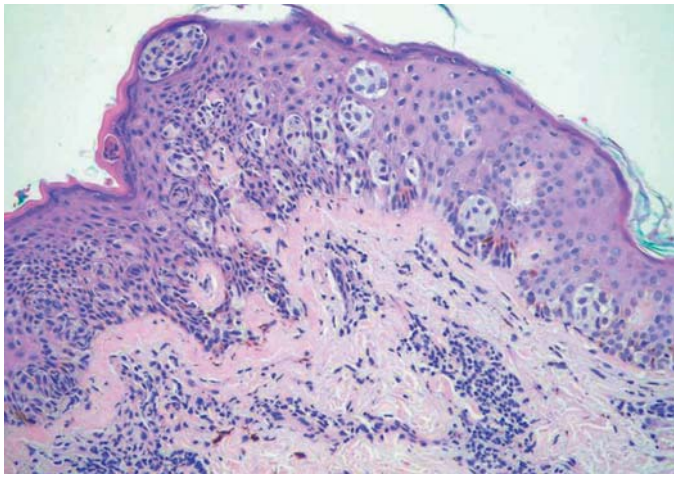

Figure 5: Histological section (200x) after serial cuts into six levels, showing *in situ* melanoma with pagetoid extension of melanocytes in the epidermis (HE)

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