

THE ADVANTAGES OF DIGITAL DERMOSCOPY

AVANTAJELE DERMATOSCOPIEI DIGITALE

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Abstract

Dermoscopy improves the diagnostic accuracy for melanoma compared with naked eye examination and has shown to increase the sensitivity in the clinical diagnosis of melanoma from 60 to 90%. Melanoma high-risk patients, including those with familial melanoma 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. We present the case of a 27 year old female patient with a family history of melanoma, who had a large number of melanocytic lesions. Digital dermoscopy and total body mapping were performed and 3 lesions with clinical and dermatoscopic atypia were identified and excised. Pathology revealed that all the lesions were dysplastic nevi. Digital dermoscopy and total body mapping follow-up improve the prognosis of the patient, because the most subtle changes can be detected with the aid of these digital methods, compared with simple dermoscopic examination.

Cuvinte-cheie:

Dermatoscopie digitală,
melanom, nevi displazici,
total body mapping.

Rezumat

Dermatoscopia îmbunătățește mult acuratețea diagnosticării melanomului comparativ cu examinarea cu ochiul liber a leziunilor. Sensitivitatea diagnosticului clinic al melanomului prin această metodă crește de la 60 la 90% comparativ cu examinarea cu ochiul liber. Pacienții aflați la risc înalt de melanom, inclusiv cei cu istoric familial de melanom au cel mai mare beneficiu în cazul combinării tehnicilor de total body mapping cu dermatoscopia digitală, datorită acurateții înalte pe care acestea le au în diagnosticarea melanomului în stadiile incipiente. Prezentăm cazul unei paciente în vârstă de 27 de ani cu istoric familial de melanom, la care examenul clinic a evidențiat un număr mare de leziuni melanocitare. S-au efectuat dermatoscopie digitală și total body mapping și s-au identificat 3 leziuni cu atipie clinică și dermatoscopică. Acestea au fost excizate, iar examenul histopatologic a relevat faptul că leziunile erau nevi displazici. Urmărirea pacientei pe viitor cu tehnici de dermatoscopie digitală și total body mapping îmbunătățesc semnificativ prognosticul bolii, deoarece aceste mijloace pot detecta cele mai subtile modificări ale nevilor, comparative cu dermatoscopia tradițională.

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Introduction

MoleMax (figure 1) is the first integrated system for digital epiluminescence microscopy and macro imaging in the world. The first units were released in May 1997 and soon after was introduced internationally in June 1997 at the Melanoma World Convention and the subsequent Dermatologists World Convention, and since then, MoleMax became the worldwide accepted clinical standard⁽¹⁾.

The system has three specially developed cameras for dermoscopy (Epiluminescence Microscopy) and macro imaging requirements. The cameras are optimized for instantaneous live video image and capture and employ patented light polarisation which enables top dermoscopy images without the need for immersion fluids⁽²⁾. They can reach an optical zoom of 100x and the digital camera is capable of high resolution images.

Its software includes a patient management system for clinical and dermoscopic image storage and monitoring. It is capable of real time overlay follow-up, automatic lesion count and image analysis functions that uses the clinically well-known ABCD Rule or Seven Point Checklist to support the classification of lesions being diagnosed. The scoring system of the lesions is performed comparing the features of the lesions being analyzed with lesions exhibiting similar features from the large image database that is preloaded into the software. It's digital dermoscopy capabilities combined with total-body mapping techniques, are particularly recommended in the follow-up of patients at high risk of developing melanomas⁽³⁾.

But atypical nevi and melanomas are not the only lesions that can be diagnosed with the aid of dermoscopy. Dermoscopy can facilitate the diagnosis of scabies due to the presence of the pathognomonic "jet with contrail" sign^(4,5,6). Other skin infections and infestations may be differentiated with increased confidence, including pediculosis, phthiriasis, tungiasis, Tinea nigra, and molluscum contagiosum⁽⁴⁾. Among the most common inflammatory skin disorders - psoriasis and lichen planus - the use of dermoscopy allows the visualization of specific submacroscopic features, such as the "red dots" pattern in psoriasis and the "whitish striae" pattern in lichen planus^(4,7-12).

Some studies show that more than 35 different inflammatory and infectious skin diseases can be diagnosed with the aid of dermoscopy^(4,13).

Case report

A 27-year-old woman presented to our Clinic with multiple melanocytic lesions located mostly on the torso and upper limbs. She had a Fitzpatrick 2 skin type and no history of blistering sunburn during childhood. Her family history revealed that she had an aunt diagnosed with melanoma. Her medical history was unremarkable. A physical examination showed multiple melanocytic lesions located on the anterior chest, back, lumbar region and upper limbs (Figure 2). Some of the lesions presented clinical atypia. None of the lesions had a



Figure 1. MoleMax 3 digital dermoscopy system

history of evolution during the last years, but the family history, the large number of lesions and the presence of some clinically atypical lesions were a clear indication for the use of digital dermoscopy for evaluation and follow-up purpose.

Total body mapping was performed and dermoscopy images of the clinically atypical lesions were acquired, using the MoleMax 3 Digital Dermoscopy System (CDPC Project/ SIMS code 112).

Dermoscopy revealed three lesions that had alarming features. One of the lesions was located on the right scapular region, the other one was located on the superior medial quadrant of the left breast and the third lesion was situated on the left lateral thoracic region.

Scoring was performed for all the three lesions with the aid of the digital dermatoscope's software, using the 7 point check list and the ABCD rule.

The highest scores were obtained for the lesion situated on the right scapular region (Figure 3). This lesion presented atypical pigment network with asymmetry in both axes, abrupt cutoff of the pigment in six segments, exhibited dark brown and light brown colors and had the following structural components: homogeneous areas, dots and globules, beside the asymmetrical pigment network. It scored 6.2 using the automated ABCD scoring provided by the software and 4 using the 7 point check list. Both scores predicted that the lesions was malignant. By score, the right scapular region lesion was followed by the one situated on the left thoracic region (Figure 4A), which exhibited asymmetry in both axis, abrupt cutoff of the pigment in 2 segments, presented dark brown, light brown and white colors and had dots and homogenous areas. It scored 5.8 with ABCD rule and 4 with 7 point check list. The lesion situated on the left breast (Figure 4B) had a symmetrical pigment network, but presented abrupt cutoff of the pigment in 7 segments, had dark brown, light brown



Figure 2. Multiple melanocytic lesions located on the back and lumbar region



Figure 3. The lesion situated on the right scapular region, with calculated ABCD score

and red colors, homogeneous areas, branched streaks and globules. It scored 4.2 with ABCD rule and 4 with 7 point check list. The suspect lesions were excised and pathology revealed that all three lesions were dysplastic nevi. Evolution after excision was good, with no complications or signs of recurrence.

The prognosis is good for the patient if regular follow-up is done. Again, digital dermoscopy will play an important role in the follow-up process as it did in establishing the diagnosis. With the aid of live overlay follow-up, the most subtle modifications of the lesions can be detected and thus prompt treatment can be employed.

Discussions

Meta-analyses performed on studies in a variety of clinical and experimental settings have shown that dermoscopy improves the diagnostic accuracy for melanoma compared with naked eye examination (14) and has shown to increase the sensitivity in the clinical diagnosis of melanoma from 60 to 90% with specificity as high as 95% (15).

Serial digital dermoscopy increases the probability of diagnosing melanomas in their initial stag-

es and minimizes the dimensions of excision of benign lesions (16,17). 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 (16,18).

Incipient melanomas can be missed by dermoscopy on first visit because they do not exhibit typical features from this early stage. In these cases, dermoscopic evaluation during subsequent visits will be able to detect the evolution of the lesion and the appearance of new features of malignancy. Digital dermoscopy is even better for these cases because it can store and compare images of the suspect lesion acquired during multiple visits.

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 (16,19).

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

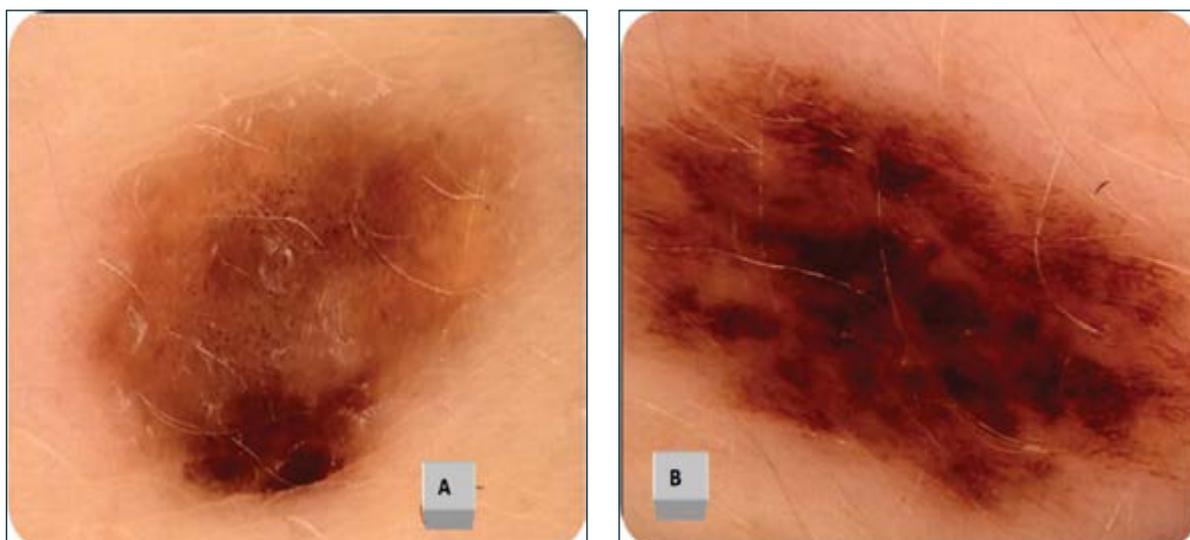


Figure 4. A – Lesion situated on the laterothoracic region. B – Lesion situated on the left breast

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^(16-18,20).

High-risk patients, including those with familial melanoma, patients with 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^(16-17,21). In the case of our patient, excision of the suspect lesions was performed giving the family history and the strong clinical and dermoscopic suggestion that those lesions were malignant. The pathologic examination showed no sign of malig-

nant dissemination. The patient can now benefit of future digital dermoscopy check-ups that will detect any possible malignant transformation in an early stage, thus giving the patient a very good prognosis.

Conflicts of interest

The authors declare no conflicts of interest for this paper.

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