Correlation between digital epiluminescence microscopy parameters and histopathological changes in lentigo maligna and solar lentigo: A dermoscopic index for the diagnosis of lentigo maligna

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Figures

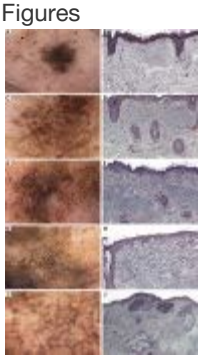

Fig 1

Digital epiluminescence microscopy histopathological correlation. Lentigo maligna (LM). **A**, Areas of light-brown (*black arrow*) and dark-brown (*black arrowhead*) pseudonetwork are simultaneously present in LM. **B**, Brown pseudonetwork is the result of an increased number of atypical melanocytes disposed as single units or small aggregates at the dermoepidermal junction and above it within a flat interfollicular epidermis. **C**, Small brown globules (*black arrows*) are

placed on a light-brown pseudonetwork. **D**, Medium to large, round to oval nests of atypical melanocytes at the base of an interfollicular epidermis devoid of rete ridges is the histologic correlate of brown globules. **E**, Pigment network with a characteristic “necklace” pattern (*black arrows*). **F**, Necklace aspect is a result of the presence of medium-size, round nests of atypical melanocytes positioned at the base of relatively equidistant, adjacent epidermal ridges. **G**, Pigment network with atypical features on a light-brown pseudonetwork (*black arrows*). **H**, Confluence of irregularly shaped nests of atypical melanocytes with fusion of adjoining epidermal ridges produces an atypical pigment network. **I**, Dark-brown/blue-gray linear or curved, thick ribbonlike structures in the interfollicular spaces (*black arrows*). Their intersection produces a rhomboidal and/or zig-zag pattern. **J**, Large nodular aggregates of melanophages that do not entirely fill the papillary dermis correspond to dark-brown/blue-gray ribbonlike structures. (**B**, **D**, **F**, **H**, and **J**, Hematoxylin-eosin stain.)

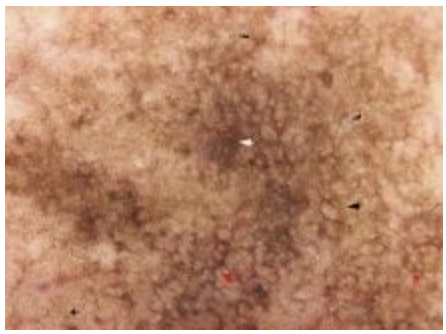

Fig 2

Lentigo maligna (LM): areas of thin brown pigment network (*black arrow*), “necklace” pigment network (*black arrowhead*), atypical pigment network (*red arrow*), blue-gray ribbonlike structures (*red arrowhead*), and blue-gray pseudonetwork (*white arrowhead*) are seen in LM.

Background

The clinical and dermoscopic differentiation between lentigo maligna (LM) and solar lentigo (SL)/initial seborrheic keratosis (SK) may be difficult.

Objective

Our aim was to identify digital epiluminescence microscopy (DELM)-specific criteria that can be helpful in distinguishing LM from SL/SK and to propose a new model of LM dermoscopic progression based on a study of DELM-histopathological correlation.

Methods

A total of 167 consecutive doubtful pigmented lesions of the head (105 LM and 62 SL/SK) were studied. DELM assessment was based on the presence or absence of 15 DELM parameters that were subsequently examined histologically. Statistical analysis was performed to determine which DELM parameters were most strongly associated with LM.

Results

The finding of at least 1 of 4 parameters (ie, brown globules, a “necklace” pigment network, an atypical pigment network, and dark-brown/blue-gray ribbonlike structures) showed to be an extremely sensitive (99%) and specific (83.9%) DELM criterion to discriminate between LM and SL/SK.

Limitations

Our findings were obtained by examining medium-high magnification DELM images.

Conclusions

The finding of 1 or more among the 4 above-mentioned DELM parameters allows for the correct identification of 99.0% of the LM lesions, and - when the score is 0 - the correct classification as non-LM, of 83.9% of the SL/SK lesions.

Key words:
dermoscopy, diagnostic index, digital epiluminescence microscopy, histology, lentigo maligna, sensitivity and specificity, solar lentigo/seborrheic keratosis