ABSTRACT

BACKGROUND: Dysplastic nevi are thought to be precursors of melanoma during a stepwise process. However, this concept is still controversial and precise correlation between clinical and histopathologic features is lacking. In vivo confocal microscopy represents a noninvasive imaging technique producing horizontal sections at nearly histopathologic resolution.

OBJECTIVE: We sought to determine whether specific histologic features in dysplastic nevi have reliable correlates on confocal microscopy and to develop an in vivo microscopic grading system.

METHODS: Sixty melanocytic lesions with equivocal dermatoscopic aspects, corresponding to 19 nondysplastic nevi, 27 dysplastic nevi, and 14 melanomas, were analyzed by confocal microscopy and histopathology, using the Duke grading criteria.

RESULTS: All architectural and cytologic features of the Duke grading score had significant reflectance confocal microscopy correlates. Confocally, dysplastic nevi were characterized by a ringed pattern, in association with a meshwork pattern in a large proportion of cases, along with atypical junctional cells in the center of the lesion, and irregular junctional nests with short interconnections. A simplified algorithm was developed to distinguish dysplastic nevi from melanoma and nondysplastic nevi. The contemporary presence of cytologic atypia and of atypical junctional nests (irregular, with short interconnections, and/or with nonhomogeneous cellularity) was suggestive of histologic dysplasia, whereas a widespread pagetoid infiltration, widespread cytologic atypia at the junction, and nonedged papillae suggested melanoma diagnosis.

LIMITATIONS: A small number of cases were evaluated because of the necessity to analyze numerous histopathologic and confocal features.

CONCLUSION: The possibility to detect dysplastic nevi in vivo may lead to an appropriate management