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New insights into nevogenesis: in vivo characterization and follow-up of melanocytic nevi by reflectance confocal microscopy

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ABSTRACT

BACKGROUND: Development of melanocytic nevi is a complex process.

OBJECTIVE: The aim of the study was to characterize the in vivo confocal microscopy patterns and histopathologic correlates of melanocytic nevi. In addition, for the first time, confocal follow-up of characteristic nevi was performed documenting histologic changes in nevi.

METHODS: For the correlation study, 33 melanocytic nevi showing characteristic dermatoscopic patterns were studied by confocal microscopy. For the follow-up study 20 nevi were monitored for 12 to 18 months.

RESULTS: Reticular nevi showed two different confocal patterns, ringed and meshwork, mostly corresponding to lentiginous and nested junctional patterns, respectively. Globular nevi presented large junctional clusters, whereas cobblestone nevi were constituted by dermal dense melanocytic clusters. Homogeneous nevi did not show distinctive confocal and histopathologic findings. Nevi with a rim of globules presented a meshwork pattern with junctional clusters at the periphery. At the confocal follow-up study all lesions showed limited dynamic changes resulting in stable dermatoscopic and confocal patterns, but 3 globular nevi with junctional nests at baseline evolved into reticular-meshwork pattern nevi with peripheral rim of globules-junctional nests.

LIMITATIONS: Longer confocal follow-up of more melanocytic nevi is required to confirm this theory and to validate our preliminary findings.

CONCLUSIONS: A model explaining the nevus classification and patterns of evolution of nevi observed in the study was proposed.