The actinic dysplasia syndrome - diagnostic approaches defining a new concept in field carcinogenesis with multiple cSCC


ABSTRACT

Usually, SCC lesions are surrounded by a number of clinically visible and non-visible (subclinical) areas of actinically damaged skin containing cells with dysplasia, and thus may be designated actinic dysplasia syndrome. The epithelial damage is caused mainly by UV radiation, inducing mutations in keratinocytes that may confer growth advantages resulting in preneoplastic fields. The development of visible dysplastic lesions (actinic keratosis - AK) and subsequent progression to invasive SCC requires further mutations in cancer-associated genes, like tumour suppressor genes and cell cycle regulators. Reflectance confocal microscopy (RCM) and optical coherence tomography (OCT) represent a considerable advantage for the investigation of field cancerization. In addition, imaging allows the non-invasive monitoring of topical treatments for AKs. RCM provides in vivo horizontal skin sections with a high, 1-μm lateral resolution (similar to histopathology) but with a limited penetration (about 200 μm), which can hamper the visualization of important areas such as the dermal-epidermal junction. Conventional OCT has better penetration (1-2 mm) at the expense of a more limited resolution (much lower than histopathology). Line-field confocal OCT (LC-OCT) combines the high precision of RCM and the good penetration of OCT in a single device and therefore appears to be very useful in diagnosing/managing AKs. © 2019 European Academy of Dermatology and Venereology.

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