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52 | Discrimination of Actinic Keratoses from Normal Skin with Reflectance Mode Confocal Microscopy

Horn M, Gerger A, Ahlgrimm-Siess, V, Weger W, Koller S, Kerl H, Samonigg H, Smolle J, Hoffman-Wellenhof R.; Dermatol Surg 2008; 34:620?625. DOI 10.1111/j.1524-4725.2007.34117.x

ABSTRACT

BACKGROUND: Recently, a wide range of new noninvasive therapies has been introduced for the treatment of actinic keratoses. As these treatment options do not provide tissue for histopathologic examination, in vivo confocal laser scanning microscopy may become an important method for obtaining a reliable diagnosis.

OBJECTIVE: The objective was to validate the diagnostic confocal examination of actinic keratoses.

METHODS: Thirty actinic keratoses and skin fields from the contralateral sides of the patients were consecutively sampled and examined using a confocal microscope. Stored images were rated by four independent observers.

RESULTS: Distinct diagnostic morphologic features could be visualized. Overall, sensitivity of 93.34% and specificity of 88.34% could be achieved by two clinical dermatooncologists (positive predictive value 88.94%, negative predictive value 93.15%). Assessment of distinct confocal microscopy features showed a moderate interobserver correlation (kappa= 0.4-0.6 in five of seven criteria). Classification and regression tree analysis yielded a one-step algorithm based on only one criterion (irregular keratinocyte cell borders), facilitating a correct classification in 86.67% of actinic keratoses and 85% of normal skin.

LIMITATIONS: Hyperkeratotic actinic keratoses were excluded from the study set.

CONCLUSIONS: This study provides a set of morphologic confocal microscopy criteria showing promise as a noninvasive monitoring tool in the treatment of actinic keratoses.