

Overview

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Noninvasive diagnosis in dermatology.

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ABSTRACT

In addition to dermoscopy, there are other imaging and biophysical methods for the noninvasive diagnosis of skin lesions. Confocal laser microscopy allows for high-resolution imaging of the epidermis and upper dermis. It is particularly suitable in the differential diagnosis of melanocytic lesions. Optical coherence tomography (OCT) has a lower resolution compared to confocal laser microscopy but a greater depth of penetration. It is primarily used for imaging epithelial skin cancer, especially in the context of monitoring the effectiveness of nonsurgical therapies. Electrical impedance spectroscopy does not yield cutaneous images but rather provides a score based on the cellular irregularity of the skin. Multispectral analysis involves illumination of the skin with different wavelengths and likewise results in the computation of a score. Both methods are used in the differentiation of dysplastic nevi from melanoma. Other diagnostic imaging and biophysical methods are currently still in the developmental stages. By increasing the sensitivity and specificity of clinical and dermoscopic findings, the aforementioned methods bring about an improvement in noninvasive diagnosis. They allow for skin lesions to be monitored over time and therapeutic effects to be quantified. Finally, they facilitate early diagnosis of skin cancer, and help avoid unnecessary surgery of benign lesions. © 2017 Deutsche Dermatologische Gesellschaft (DDG). Published by John Wiley & Sons Ltd. PMID: 28976087 DOI: 10.1111/ddg.13347