



DERMOSCOPY AND SKIN IMAGING

IN VIVO AND NON-INVASIVE IMAGING OF THE SKIN AGING: NEW APPLICATIONS FOR THE LC-OCT TECHNOLOGY

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Introduction: Line-field Confocal Optical Coherence Tomography (LC-OCT) is an innovative imaging technique that combines the advantages of both Reflectance Confocal Microscopy (RCM) and OCT, thus providing optical biopsies of the skin down to the reticular dermis in real-time and non-invasively. With its high axial and lateral resolutions, LC-OCT can be applied to dermatological investigations of the structural properties of the dermis in order to assess skin health.

Objective: This pilot study using LC-OCT presents a standardized and quantitative approach to assess structural changes of the dermis, firstly in the context of aging.

Materials and Methods: Acquisitions were performed on the cheeks of 37 healthy Caucasian female volunteers divided into 5 age-groups. Following guided-segmentation, LC-OCT images allowed identification of the different skin layers up to the deep dermis. Quantitative parameters were automatically extracted. As a positive control, results were compared to RCM images quantified by a panel of experts according to their scoring scale.

Results: By revealing all the skin layers down to the reticular dermis, LC-OCT allowed the quantification of the thickness of the papillary dermis. An expected constant decrease in the papillary dermis thickness with age was observed. These results were validated using image analysis tools. For example, a reduction of 45% ($P = 0.0003$) was measured between the younger and the older age-groups. Moreover, correlation studies demonstrated that LC-OCT results are in agreement with RCM images, revealing a constant degradation of the dermal matrix across aging.

Conclusion: Altogether, these results demonstrated that this innovative approach enables an automatic and quantitative analysis of the dermis. Supplemented with an “en face” mode allowing 3D analysis of the skin, this approach could be used to follow the recovery of the skin after the application of dermo-cosmetic products fighting against skin diseases, such



ABSTRACT BOOK

ABSTRACTS



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