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The evolution of healthy skin to acne lesions: a longitudinal, in vivo evaluation with reflectance confocal microscopy and optical coherence tomography.

Manfredini M, Bettoli V, Sacripanti G, Farnetani F, Bigi L, Puviani M, Corazza M, Pellacani G. *J Eur Acad Dermatol Venereol.* 2019 Sep;33(9):1768-1774. doi: 10.1111/jdv.15641. Epub 2019 May 8.

ABSTRACT

BACKGROUND: Comedogenesis is defined as the process of the development of a new comedo, which is of great importance for the understanding of acne. **OBJECTIVE:** To evaluate the formation and evolution of acne lesions from clinically unaffected skin of patients with mild-moderate acne to characterize the morphological changes and natural resolution by means of in vivo reflectance confocal microscopy (RCM) and dynamic optical coherence tomography (D-OCT). **METHODS:** Ten patients with mild-moderate acne, not assuming any topical or systemic therapy, comprised between 12 and 30 years of age, were recruited. A target area of 4 × 4 mm of the face, without acne lesions at baseline, was selected. A set of standardized clinical pictures, RCM and D-OCT images were acquired weekly for 6 weeks and evaluated. **RESULTS:** Seventy full sets of clinical, RCM and D-OCT images were analysed. The appearance of acne lesion is preceded by an increase of large bright follicles in the area corresponding to infundibular keratinization, followed by increment of inflammation parameter, such as increased of small bright cells upon RCM and vascular network upon D-OCT, which return to normal after the resolution of acute inflammation. **CONCLUSION:** Acne skin dynamics is complex and seems characterized by the early increase in the number of dysmorphic pilosebaceous units and the hyperkeratinization of the acroinfundibulum of the pilosebaceous duct prior to the occurrence of inflammatory events around the follicle. The processes of hyperkeratinization and inflammatory phenomena may generate a pathologic vicious cycle, which characterizes acne through progressive worsening and a self-sustainment mechanism. © 2019 European Academy of Dermatology and Venereology. PMID:31025401 DOI:10.1111/jdv.15641