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Non-invasive in vivo detection and quantification of Demodex mites by confocal laser scanning microscopy.

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ABSTRACT

Background: In many Demodex-associated skin diseases Demodex mites are present in abundance and seem to be at least partially pathogenic. So far all diagnostic approaches such as scraping or standardized superficial skin biopsy are (semi-) invasive and may cause discomfort to the patient. Aim of this study was to see whether confocal laser scanning microscopy (CLSM) - a non-invasive method for the visualization of superficial skin layers - was able to detect and quantify Demodex folliculorum in facial skin of patients with rosacea.

Material and Methods: 25 patients (34-79 years of age) with facial rosacea and 25 age- and gender-matched normal controls were examined by CLSM. Mosaics of 8x8 mm and 5x5 mm were created by scanning horizontal layers of lesional skin and quantification of the mites per follicle and per area as well as of the follicles per area was performed.

Results: In all patients Demodex folliculorum could be detected by CLSM and presented as roundish or lengthy cone-shaped structures. CLSM allowed the quantification of Demodex mites and showed significant differences (p -value < 0.0001): The mean number of mites was 165.4 per 8x8 mm area and 94.2 per 5x5 mm area in the patients compared to 34.7 and 22.4, respectively, in the controls. The corresponding mean number of mites per follicle was 0.7 and 0.8, respectively, in the patients and 0.1 and 0.2, respectively, in the controls.

Conclusion: With the help of CLSM it is possible to non-invasively detect, image and quantify Demodex mites in facial skin of patients with rosacea.