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In vivo confocal microscopy as a novel and reliable tool for the diagnosis of Demodex eyelid infestation.

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ABSTRACT

AIMS: Demodex mites are implicated in several ocular surface diseases such as blepharitis, ocular rosacea and dry eye syndrome. Demodex eyelid infestation is classically diagnosed by analysing depilated eyelashes under the light microscope. The use of in vivo confocal microscopy (IVCM) could be an easy way to improve its diagnosis. The ability of IVCM to identify Demodex was evaluated and compared with the classic depilation method. **METHODS:** Eight healthy subjects, 22 patients with dry eye syndrome without anterior blepharitis and 18 patients with anterior blepharitis were examined using lower eyelid IVCM (lash follicles and meibomian glands (MGs)). Twenty-five of the 48 subjects underwent both an IVCM examination and classic depilation to compare the two methods. Ex vivo Demodex obtained from lash depilation were also analysed using the confocal microscope.

RESULTS: IVCM found 100% of the mite infestations among patients with anterior blepharitis, 60% among dry eye patients without blepharitis and 12% in healthy subjects, whereas the depilation technique found 100%, 50% and 0%, respectively. Demodex brevis and Demodex larvae inside the lash follicles were better detected by IVCM. In symptomatic patients, the Demodex infestation was often associated with MG dysfunction, which was better characterised using IVCM in symptomatic patients (60% and 40% of meibomianitis and gland fibrosis, respectively). **CONCLUSIONS:** IVCM is an efficient and reliable tool for the diagnosis of eyelid mite infestation and may also provide an evaluation of MGs.