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In vivo confocal microscopy for the oral cavity: Current state of the field and future potential.

Maher NG, Collgros H, Uribe P, Ch'ng S, Rajadhyaksha M, Guitera P. Oral Oncol. 2016 Mar;54:28-35. doi: 10.1016/j.oraloncology.2016.01.003.

ABSTRACT

Confocal microscopy (CM) has been shown to correlate with oral mucosal histopathology in vivo. The purposes of this review are to summarize what we know so far about in vivo CM applications for oral mucosal pathologies, to highlight some current developments with CM devices relevant for oral applications, and to formulate where in vivo CM could hold further application for oral mucosal diagnosis and management. Ovid Medline® and/or Google® searches were performed using the terms 'microscopy, confocal', 'mouth neoplasms', 'mouth mucosa', 'leukoplakia, oral', 'oral lichen planus', 'gingiva', 'cheilitis', 'taste', 'inflammatory oral confocal', 'mucosal confocal' and 'confocal squamous cell oral'. In summary, inclusion criteria were in vivo use of any type of CM for the human oral mucosa and studies on normal or pathological oral mucosa. Experimental studies attempting to identify proteins of interest and microorganisms were excluded. In total 25 relevant articles were found, covering 8 main topics, including normal oral mucosal features (n=15), oral dysplasia or neoplasia (n=7), inflamed oral mucosa (n=3), taste impairment (n=3), oral autoimmune conditions (n=2), pigmented oral pathology/melanoma (n=1), delayed type hypersensitivity (n=1), and cheilitis glandularis (n=1). The evidence for using in vivo CM in these conditions is poor, as it is limited to mainly small descriptive studies. Current device developments for oral CM include improved probe design. The authors propose that future applications for in vivo oral CM may include burning mouth syndrome, intra-operative mapping for cancer surgery, and monitoring and targeted biopsies within field cancerization. Copyright © 2016 Elsevier Ltd. All rights reserved. Keywords: Confocal; Melanoma; Melanosis; Microscopy; Mouth mucosa; Mouth neoplasms PMID: 26786962