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9 | Fluorescence Confocal Microscopy for Ex Vivo Diagnosis of Conjunctival Tumors: A Pilot Study.

ABSTRACT

PURPOSE: To evaluate the potential use of fluorescence confocal microscopy (FCM) for ex vivo diagnosis and excision margin assessment of conjunctival neoplasms. DESIGN: Validity study. METHODS: setting: Single institution. PARTICIPANTS: Consecutive patients with clinically suspicious conjunctival lesions. INTERVENTION: Conjunctival lesions were excised in toto using a standard "no-touch technique" by a single surgeon (A.I.). Collected specimens were examined with a commercially available laser scanning fluorescence confocal microscope after immersion in a 0.6 mM solution of acridine orange dye for 10-20 seconds. Specimens were subsequently processed with standard histologic analysis. MAIN OUTCOME MEASURES: FCM diagnosis of the nature and extension of conjunctival lesions. RESULTS: Sixteen consecutive patients were included in the study (11 male, 5 female; mean age 58.1 ± 26.1 years, range 10-90 years). The median time needed to process and analyze a sample with FCM was 15 minutes. Eleven of 16 lesions were identified by FCM as squamous (2 benign papillomas, 2 grade 2 conjunctival intraepithelial neoplasias, 7 in situ squamous carcinomas) and 5 as nonsquamous (1 pingueculum, 1 dermolipoma, 2 melanocytic nevi, 1 melanoma). In all cases FCM was able to detect horizontal and vertical extension of the lesion. All FCM findings were confirmed by corresponding subsequent histologic examination. CONCLUSIONS: FCM provides a fast ex vivo preliminary diagnosis of suspicious conjunctival lesions with good histologic details and margin assessment, and may represent a novel tool for intraoperative and postsurgical management of conjunctival tumors. This is the first study to investigate ex vivo FCM application in ophthalmology. Copyright © 2016 Elsevier Inc. All rights reserved. PMID:27296488 DOI:10.1016/j.ajo.2016.06.001