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Basal Cell Carcinoma Characterisation Using Fusion Ex Vivo Confocal Microscopy: A Promising Change In Conventional Skin Histopathology.

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ABSTRACT

BACKGROUND: Ex vivo confocal microscopy (CM) works under two modes, fluorescence and reflectance, allowing the visualization of different structures. Fluorescence CM (FCM) requires a contrast agent and has been used for the analysis of basal cell carcinomas (BCC) during Mohs surgery. Conversely, reflectance CM (RCM) is mostly used for in vivo diagnosis of equivocal skin tumours. Recently, a new, faster ex vivo confocal microscope has been developed which simultaneously uses both lasers (fusion mode). **OBJECTIVES:** To describe the BCC features identified on reflectance, fluorescence and fusion modes using this novel device. To determine the best mode to identify characteristic BCC features. To develop a new staining protocol to improve the visualization of BCC under the different modes.

METHODS: From September 2016 to June 2017, we prospectively included consecutive BCCs which were excised using Mohs surgery in our department. The lesions were evaluated using ex vivo CM after routine Mohs surgery. The specimens were first stained with acridine orange and then stained using both acetic acid and acridine orange. **RESULTS:** We included 78 BCCs (35 infiltrative, 25 nodular, 12 micronodular, 6 superficial). Most features were better visualized with the fusion mode using the double staining. We also identified new CM ex vivo features, dendritic and plump cells, which have not been previously reported.

CONCLUSIONS: Our results suggest that nuclei characteristics are better visualized in FCM but cytoplasm and surrounding stroma are better visualized in RCM. Thus, the simultaneous evaluation of reflectance and fluorescence seems to be beneficial due to its complementary effect. This article is protected by copyright. All rights reserved. **KEYWORDS:** Mohs surgery; basal cell carcinoma; ex vivo confocal microscopy; fluorescence confocal microscopy; fusion confocal microscopy; reflectance confocal microscopy; skin cancer PMID:31220341

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