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In vivo reflectance confocal microscopy of shave biopsy wounds: feasibility of intraoperative mapping of cancer margins.

Scope A, Mahmood U, Gareau DS, Kenkre M, Lieb JA, Nehal KS, Rajadhyaksha M.; *Br J Dermatol.* 2010 Dec;163(6):1218-28. doi: 10.1111/j.1365-2133.2010.10063.x.

ABSTRACT

BACKGROUND: Reflectance confocal microscopy (RCM) images skin at cellular resolution and has shown utility for the diagnosis of nonmelanoma skin cancer in vivo. Topical application of aluminium chloride (AlCl₃) enhances contrast in RCM images by brightening nuclei.

OBJECTIVES: To investigate feasibility of RCM imaging of shave biopsy wounds using AlCl₃ as a contrast agent.

METHODS: AlCl₃ staining was optimized, in terms of concentration vs. immersion time, on excised tissue ex vivo. RCM imaging protocol was tested in patients undergoing shave biopsies. The RCM images were retrospectively analysed and compared with the corresponding histopathology.

RESULTS: For 35% AlCl₃, routinely used for haemostasis in clinic, minimum immersion time was determined to be 1 min. We identified three consistent patterns of margins on RCM mosaic images by varying depth: epidermal margins, peripheral dermal margins, and deep dermal margins. Tumour islands of basal cell carcinoma were identified at peripheral or deep dermal margins, correlating on histopathology with aggregates of neoplastic basaloid cells. Atypical cobblestone or honeycomb patterns were identified at the epidermal margins in squamous cell carcinomas, correlating with a proliferation of atypical keratinocytes extending to biopsy margins.

CONCLUSIONS: RCM imaging of shave biopsy wounds is feasible and demonstrates the future possibility of intraoperative mapping in surgical wounds.