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Detection of skin cancer margins in Mohs excisions with high-speed strip mosaicing confocal microscopy: a feasibility study.

Larson B, Abeytunge S, Seltzer E, Rajadhyaksha M, Nehal K., *Br J Dermatol.* 2013 Oct;169(4):922-6. doi: 10.1111/bjd.12444.

ABSTRACT

BACKGROUND: Fluorescence confocal mosaicing microscopy is an emerging technology for rapid imaging of nuclear and morphological detail directly in excised tissue, without the need for frozen or fixed section processing. Basal cell carcinomas (BCCs) can be detected with high sensitivity and specificity in Mohs excisions with this approach. For translation to clinical trials and towards potentially routine implementation, a new and faster approach called strip mosaicing confocal microscopy was recently developed.

OBJECTIVES: To perform a preliminary assessment of fluorescence strip mosaicing confocal microscopy for detecting skin cancer margins in Mohs excisions.

METHODS: Tissue samples from 17 Mohs cases were imaged in the form of strip mosaics. Each mosaic was divided into two halves (submosaics) and graded by a Mohs surgeon and a dermatologist who were blinded to the pathology. The 34 submosaics were compared with the corresponding Mohs pathology.

RESULTS: The overall image quality was excellent for resolution, contrast and stitching in the 34 submosaics. Components of normal skin including the epidermis, dermis, dermal appendages and subcutaneous tissue were easily visualized. The preliminary measures of sensitivity and specificity were both 94% for detecting skin cancer margins. **CONCLUSIONS:** The new strip mosaicing approach represents another advance in confocal microscopy for imaging of large areas of excised tissue. Strip mosaicing may enable rapid assessment of BCC margins in fresh excisions during Mohs surgery and may serve as an adjunct to frozen pathology.