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In Vivo Real-Time Confocal Reflectance Microscopy: a Noninvasive Guide for Mohs Micrographic Surgery Facilitated by Aluminum Chloride, an Excellent Contrast Enhancer

Tannous Z, Torres A, González S.; Dermatol Surg. Aug 2003; 29(8):839-46.

ABSTRACT

BACKGROUND: Mohs micrographic surgery (MMS) is based on microscopically controlled excision of cutaneous neoplasms and offers the highest cure rates with maximum tissue preservation. In vivo confocal microscopy (CM) allows noninvasive optical imaging of thin sections of living skin, in its native state, in real time, with high resolution and contrast.

OBJECTIVE: To evaluate the feasibility of the use of in vivo CM as a surgical guide in MMS.

METHODS: Five patients with a biopsy-proven basal cell carcinoma (BCC) were imaged by in vivo CM on one or two sites from the clinically visible skin cancer. The first Mohs layer was then excised, and the fresh-frozen sections were correlated with the CM findings. Aluminum chloride (AlCl) 20% was applied on the Mohs defect followed by in vivo CM on one site from each lesion. A second Mohs layer was subsequently excised, and fresh-frozen sections were correlated with CM findings.

RESULTS: The findings of in vivo CM were confirmed by hematoxylin and eosin-stained frozen sections after excisions of the first and second Mohs layers. AlCl was found to provide an excellent contrast between BCC cells and the surrounding tissue, detected readily with both in vivo and ex vivo CM. The tumor cells with AlCl exhibited intensely bright nuclei with an excellent contrast as compared with the low-contrast dark nuclei without AlCl application.

CONCLUSION: In vivo CM is a potential surgical guide for MMS, and AlCl provides an excellent exogenous agent to enhance tumor contrast for CM.