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Use of Ex Vivo Confocal Scanning Laser Microscopy during Mohs Surgery for Nonmelanoma Skin Cancers

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ABSTRACT

BACKGROUND: Ex vivo confocal scanning laser microscopy offers rapid optical reflectance imaging of excised tissue without conventional frozen histopathology that can potentially expedite Mohs surgery.

OBJECTIVE: The objective was to determine the feasibility of using ex vivo confocal scanning laser microscopy during Mohs surgery for detecting residual basal cell carcinoma and squamous cell carcinoma.

METHODS: One-hundred fifteen Stage I Mohs surgery excisions (92 basal cell carcinoma, 23 squamous cell carcinoma) were imaged with acetowhitening and confocal scanning laser microscopy and compared to conventional Mohs frozen histologic sections for normal and tumor features.

RESULTS: Large aggregates of residual tumor such as nodular basal cell carcinoma were easily detected by ex vivo confocal scanning laser microscopy, whereas smaller tumor foci were not consistently identified. Confocal morphology of tumor subtypes is described.

CONCLUSION: Ex vivo confocal scanning laser microscopy can potentially expedite Mohs surgery in rapidly detecting large nodular basal cell carcinomas without conventional frozen histopathology. Further improvements in instrumentation and image quality are necessary to allow broader application and acceptance of this novel technology in Mohs surgery.