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Confocal laser scanning microscopy vs 3-dimensional histologic imaging in basal cell carcinoma.

Ziefle S, Schüle D, Breuninger H, Schippert W, Moehrle M.; *Arch Dermatol.* 2010 Aug;146(8):843-7.

ABSTRACT

OBJECTIVE: To compare ex vivo confocal laser scanning microscopy (CLSM), which offers rapid images without the need for tissue processing, vs 3-dimensional histologic imaging, the criterion standard treatment for basal cell carcinomas in high-risk areas of the face.

DESIGN: Single-center prospective trial.

SETTING: Dermatosurgical unit of a university hospital. Patients Seventy-two consecutive surgically removed basal cell carcinomas were examined using CLSM vs standard paraffin-embedded 3-dimensional histologic imaging. Interventions A total of 312 images, including 73 midsections, 196 lateral margins, 23 "muffins," and 20 "bread loaf sections," were obtained using CLSM. Immediately after surgery, the CLSM images were evaluated by the surgeon. The following day, the 3-dimensional histologic slides were evaluated and compared with the CLSM images.

MAIN OUTCOME MEASURES: Diagnostic accuracy of ex vivo CLSM to detect tumor strands of basal cell carcinomas and the practicality of using CLSM vs 3-dimensional histologic slides in micrographic surgery.

RESULTS: The sensitivity of CLSM reached 94.0% in midsections, 73.7% in lateral margins, 80.0% in muffins, and 80.0% in bread loaf sections. The CLSM images were evaluated by the surgeon within 7.5 minutes.

CONCLUSIONS: Confocal laser scanning microscopy lacks high sensitivity to detect small tumor strands of basal cell carcinomas. In the future, CLSM may represent a time-saving and less expensive alternative to cryostat histopathologic examination.