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Confocal Scanning Laser Microscopy of Benign and Malignant Melanocytic Skin Lesions In Vivo

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ABSTRACT

BACKGROUND: The ability of physicians for early diagnosis of cutaneous melanomas is less than perfect, prompting research into noninvasive methods for diagnosis.

OBJECTIVE: Our purpose was to evaluate confocal scanning laser microscopy (CSLM) for noninvasive imaging of benign and malignant melanocytic lesions in vivo.

METHODS: Forty pigmented skin lesions (including adjacent normal skin as control) in vivo were imaged with near-infrared CSLM. The confocal images were correlated to histopathology.

RESULTS: Nuclear, cellular, and architectural detail in the epidermis and superficial dermis is imaged with high resolution and contrast. Melanin causes the cytoplasm of pigmented cells to appear bright. Melanocytic nevi had cohesive nests of uniformly circular cells and increased microvascular blood flow. Melanomas had a polymorphous cytologic structure, containing atypical, pleomorphic cells in disarray and irregular dendritic cells.

CONCLUSION: CSLM is capable of identifying distinct patterns and cytologic features of benign and malignant pigmented skin lesions in vivo. CSLM may be useful to noninvasively discriminate benign and malignant lesions in vivo.