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The Real-Time, Three-Dimensional Analyses of Benign and Malignant Skin Tumors by Confocal Laser Scanning Microscopy

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ABSTRACT

BACKGROUND: In obtain images of skin tumors non-invasively with real-time, confocal laser scanning microscope (CLSM) is introduced.

OBJECTIVE: Reconstructed images of given horizontal sections were converted into three-dimensions using the data set of a large number of tomograms in the horizontal directions.

METHODS: To develop the multiplaner reconstruction images of skin tumors in vertical directions and three-dimensionally reconstructed images of tumors will be obtained from the continuously collected horizontal image data sets.

RESULTS: Three-dimensional analyses of the skin tumors from reconstructed images of the CLSM scanning have provided the information as to their physiological characteristics as well as the extent of deep invasion in real-time with non-invasive manner. High performance three-dimensional conversion software was effective in displaying three-dimensional construction of skin tumors.

CONCLUSION: The CLSM scanning images followed by three-dimensional reconstruction using them can provide the real-time and non-invasive diagnoses of skin tumors and analyze the radial growth phase of tumors and the three-dimensional growth characteristics.