

Feasibility of Proton Chemical Shift Imaging with a Stereotactic Headframe

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Purpose: To prove feasibility of proton chemical shift imaging (1H CSI) during stereotactic procedure, authors performed 1H CSI in combination with a stereotactic headframe and selected targets according to local metabolic information, evaluated the pathologic results.

Methods: The 1H CSI directed stereotactic biopsy was performed in five patients. 1H CSI was performed before conventional stereotactic MRI with gadolinium enhancement for stereotactic coordinates. The metabolite images expressed as integral ratios, Cho/Cr and Lac/Cr, were displayed in different colors. The stereotactic target coordinates were correlated with the coordinates from the 1H CSI images.

Results: The final pathologic results obtained were concordant with the local metabolic information from 1H CSI. We believe that 1H CSI-directed stereotactic biopsy has the potential to significantly improve the accuracy of stereotactic biopsy targeting.

Conclusions: Metabolic signals derived from 1H CSI could give us more direct clues for stereotactic target selection during the subsequent conventional stereotactic MR imaging. 1H CSI was feasible with the stereotactic headframe in place. The final pathologic results obtained were concordant with the local metabolic information from 1H CSI.

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