学 位 論 文 の 要 旨

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主論文の題名

Tumor blood flow and apparent diffusion coefficient histogram analysis for differentiating malignant salivary tumors from pleomorphic adenomas and Warthin's tumors

主論文の要旨

Objectives

We aimed to assess the combined diagnostic value of apparent diffusion coefficient (ADC) and tumor blood flow (TBF) obtained by pseudocontinuous arterial spin labeling (pCASL) for differentiating malignant tumors (MTs) in salivary glands　from pleomorphic adenomas (PAs) and Warthin's tumors (WTs).

Methods

We used pCASL imaging and ADC map to evaluate 65 patients, including 16 with MT, 30 with PA, and 19 with WT. We evaluated all tumors by histogram analyses and compared various characteristics by one-way analysis of variance followed by Tukey post-hoc tests. Diagnostic performance was evaluated by receiver operating characteristic (ROC) curve analysis.

Results

There were significant differences in the mean, 50th, 75th, and 90th percentiles of TBF among the tumor types, in the mean TBFs (mL/100 g/min) between MTs (57.47 ± 35.14) and PAs (29.88 ± 22.53, $p = 0.039$) and between MTs and WTs (119.31 ± 50.11, $p < 0.001$), as well as in the mean ADCs ($\times 10^{-3}$ mm2/s) between MTs (1.08 ± 0.28) and PAs (1.60 ± 0.34, $p < 0.001$), but not in　the mean ADCs between MTs and WTs (0.87 ± 0.23, $p = 0.117$). In the ROC curve analysis, the highest areas under the curves (AUCs) were achieved by the 10th and 25th percentiles of ADC (AUC = 0.885) for differentiating MTs from PAs and the 50th percentile of TBF (AUC = 0.855) for differentiating MTs from WTs. The AUCs of TBF, ADC, and combination of TBF and ADC were 0.850, 0.885, and 0.950 for MTs and PAs differentiation and 0.855, 0.814, and 0.905 for

MTs and WTs differentiation, respectively.

Conclusions

The combination of TBF and ADC evaluated by histogram analysis may help differentiate salivary gland MTs from PAs and WTs.