Abstract:

To determine the diagnostic value of magnetic resonance (MR) first pass perfusion in the differentiation of benign and malignant cardiac tumours. 24 patients with cardiac tumours (11 malignant, histopathological correlation present in all cases) were examined using MRI. In addition to morphological sequences a saturation-recovery T1w-GRE technique was implemented for tumour perfusion. The maximum relative signal enhancement (RSE[\%]) and the slope of the RSE(t)-curve (slopeRSE[\%/s]) of tumour tissue were assessed. A t-test was used to identify significant differences between benign and malignant tumours. Sensitivities and specificities were calculated for detection of malignant lesions and were compared with the sensitivity and specificity based on solely morphological image assessment. The RSE and slopeRSE of malignant cardiac tumours were significantly higher compared with benign lesions (p < 0.001 and p < 0.001). The calculated sensitivities and specificities of RSE and slopeRSE for identification of malignant lesions were 100% and 84.6% and 100% and 92.3%, respectively with cut-off values of 80% and 6%/s. The sensitivity and specificity for identification of malignant lesions on the basis of morphological imaging alone were 90.9% and 69.2%. With first pass perfusion, malignant cardiac masses can be identified with higher sensitivity and specificity compared with...
Malignant cardiac tumours can usually be differentiated from benign masses by MRI. Combining morphologic imaging with dynamic first pass perfusion assists this differentiation. MR first pass perfusion contributes useful diagnostic information about cardiac tumours.

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