

WALKING POSTER PRESENTATION

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The accuracy of cardiac MRI in differentiating between intra cardiac tumors and thrombi

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Background

Primary or metastatic cardiac tumors are rare.

Echocardiography is limited in differentiating different cardiac masses in particular tumors from thrombi. MRI offers incremental value; optimal tissue differentiation especially with Gadolinium contrast enhancement. The ability to differentiate a cardiac tumor from a cardiac thrombus is crucial for patient management. The purpose of this study was to evaluate the accuracy of CMR in differentiating between intra cardiac tumors and thrombi.

Methods

Retrospective analysis of a prospectively maintained database (2004-2013) was performed. This included all patients referred for the evaluation of intra-cardiac tumors versus thrombi. CMR sequences included: T2, gradient echo, T1 before and after Gadolinium (Gd) administration, first pass perfusion and delayed enhancement. CMR findings were compared to the definitive diagnosis of the intra cardiac - mass established either by pathology and /or clinical and echocardiographic follow up, when available. Accuracy, sensitivity and positive predictive volume (PPV) of CMR for differentiating between tumor and thrombus were calculated, accordingly.

Results

Of the 150 patients referred for CMR, intra cardiac masses were detected at in 111 patients. At CMR cardiac tumors were diagnosed in 72 patients, thrombi in 28 patients ; 11 masses were inconclusive. Definitive diagnosis was available in 66 patients including 49 tumors and 17 thrombi. CMR correctly diagnosed 48 out of 49 tumors ; sensitivity PPV and NPV were 97%,97% and 92%, respectively. Thrombi were correctly diagnosed at CMR in 14

out of 17 scans; sensitivity PPV and NPV were 82%,93% and 80%, respectively. The overall accuracy in differentiating intra-cardiac tumors from thrombi was 94%. Of the 11 inconclusive lesions detected, 5 were smaller than 1 cm.

Conclusions

The different CMR sequences allows reliable tissue characterization, thus enabling an accurate differentiation between intra cardiac tumors and thrombi. This high diagnostic potential is limited in lesion smaller than 1 cm.

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