

POSTER PRESENTATION

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# Quantitative tissue characterization of cardiac myxomas by CMR-Mapping techniques validated by histology

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## Background

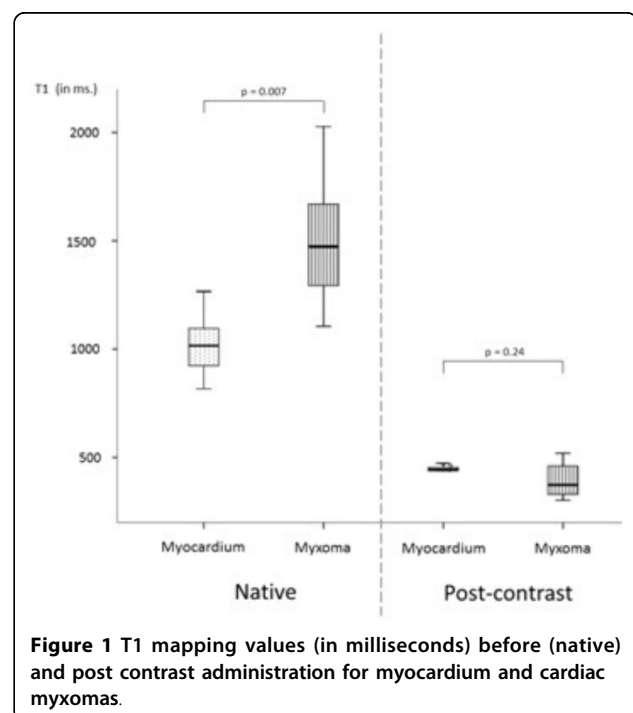
Non-invasive imaging modalities are crucial for the detection and diagnosis of cardiac myxomas. Newer cardiac magnetic resonance (CMR) techniques to assess, extra-cellular volume fraction (ECV) and T2 mapping provide quantitative evaluation of cardiac tissue. Our aim was to test their diagnostic value in the assessment of cardiac myxomas.

## Methods

10 patients with morphologically suspected cardiac myxomas on echocardiography and confirmed by post-operative histopathology were prospectively included. CMR was performed at 1.5 Tesla in all patients pre-operatively. Standard protocol for cardiac mass assessment included T1 mapping (pre and post contrast to calculate ECV) and T2 mapping. All data are reported as mean  $\pm$  standard deviation.

## Results

Cardiac myxomas demonstrated significantly higher native T1 values than the myocardium with a mean of 1489 ms  $\pm$  270 and 1024 ms  $\pm$  131 respectively ( $p = 0.007$ ). However, cardiac myxomas showed a non-significant trend to lower mean post contrast T1 value than the myocardium, 406 ms  $\pm$  81 and 444 ms  $\pm$  23 respectively ( $p = 0.24$ ) (see figure). The mean ECV for cardiac myxomas and myocardium was 45%  $\pm$  14% and 31%  $\pm$  5% respectively ( $p = 0.013$ ). Mean T2 values for cardiac myxomas were also significantly higher than for the myocardium 154 ms  $\pm$  32 and 58 ms  $\pm$  4 respectively ( $p = 0.028$ ).



**Figure 1** T1 mapping values (in milliseconds) before (native) and post contrast administration for myocardium and cardiac myxomas.

## Conclusions

Compared to myocardium, we observed significantly higher native T1 values and increased ECV reflecting the different tissue composition and a larger extracellular interstitial compartment in cardiac myxomas. In addition, high T2 mapping values may indicate a higher fluid content in cardiac myxomas. CMR-mapping techniques might help to quantitatively assess cardiac myxomas non-invasively.

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