

**Eosinophilic myocarditis in a 15 year-old: relationship between different modalities in assessment of the disease during the progress and resolution**

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Background: Eosinophilic myocarditis is rare. We present a 15 year old boy, in whom, despite normalization of peripheral blood markers of myocarditis, there was an extensive inflammation on biopsy and MRI. Assessment of inflammation with ECHO-strain and laser Doppler of tissue endothelium were performed.

Methods: Routine clinical, laboratory, ECHO, MRI and biopsy assessment were performed with findings of acute myocarditis. Inflammation assessment with laser doppler of the forearm and ECHO strain in the acute phase and after 6 weeks was done after informed consent and ethical approval.

Results: On initial presentation he had chest pain, raised levels of Troponin T, minimal ECG changes and normal routine echocardiography. Minimal ECG changes resolved within one week but chest pain recurred and Troponin T levels increased. MRI thorax revealed regional inflammation and a heart biopsy revealed eosinophilic infiltration and no viral agents were detected by nested PCR. No eosinophilia was found in peripheral blood. Laser Doppler imaging revealed signs of endothelial inflammation. Speckle tracking of the left ventricle revealed regional dyssynchrony coinciding with the same regions of inflammation and later scarring found on MRI.

A course of prednisolone was started at ½ mg/kg/day. CKMB levels declined to normal within three weeks but the Troponin T levels remained slightly elevated. A second MRI thorax after 8 weeks revealed progress of inflammation in extent and area and the dosage was increased to 1 mg/kg/day. Troponin levels decreased to normal. Biopsy after 3 month of therapy showed active inflammation but no eosinophilic infiltration. MRI revealed an unchanged area of inflammation and some scarring. The dosage of Prednisolone was reduced to ½ mg/kg/day and Azathioprine 1 mg/kg/day was added. MRI 6 months after presentation showed regress of inflammation and further scarring. Speckle tracking of the left ventricle revealed regional dyssynchrony coinciding with MRI. Laser Doppler imaging continued to show signs of mild inflammation.

Conclusion: In this case of eosinophilic myocarditis routine echocardiogram findings remained normal and ECG changes minimal. Laser Doppler and speckle tracking correlated better with MRI in revealing myocardial inflammation and damage.