

CARDIOVASCULAR IMAGES

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Delayed Myocardial Enhancement at MDCT in a Patient with Sarcoidosis and Internal Cardioverter Defibrillator (ICD)

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Clinical History

An elderly female with a histological diagnosis of extra-cardiac sarcoidosis presented two years ago with symptomatic third degree heart block. A cardiac MRI demonstrated imaging findings consistent with cardiac involvement by sarcoid. She subsequently underwent implantation of an ICD for treatment of arrhythmias. Serial echocardiographs demonstrated initially that her left ventricular ejection fraction (LVEF) was within normal range, but eventually her LVEF declined to 39%. Because of the presence of the ICD, a follow up MRI to evaluate for progression of cardiac sarcoidosis was not feasible and a cardiac CT with delayed enhancement was recommended.

Findings

Delayed enhanced Cardiac CT demonstrated patchy subepicardial and transmural foci of persistent abnormal delayed enhancement most prominent in the mid-inferolateral, mid-anterolateral, and apical lateral segments of the left ventricle; consistent with extensive myocardial sarcoidosis. These were not significantly changed from the initial MRI and there were no new sarcoid granulomata identified

Discussion

Sarcoid infiltration of the heart is seen in up to 27% of the patients with diagnosis of sarcoidosis.(1) It may be recognized clinically when patients with known systemic sarcoidosis present with arrhythmias, conduction disturbances, or cardiomyopathy. Its detection is critical for early initiation of corticosteroids, which can help prevent malignant arrhythmias and heart failure. Although cardiac MRI is often the imaging modality of choice in the evaluation of myocardial infiltrative processes, it is contraindicated in various clinical scenarios including patients with implantable cardiac devices such as this patient. Despite the relative lower contrast to noise ratio of CT images compared to MRI, contrast-enhanced CT can detect myocardial fibrosis in the majority of cases with delayed enhancement techniques(2, 3), and help define the extension and progression of disease in patients in whom MRI is contraindicated.

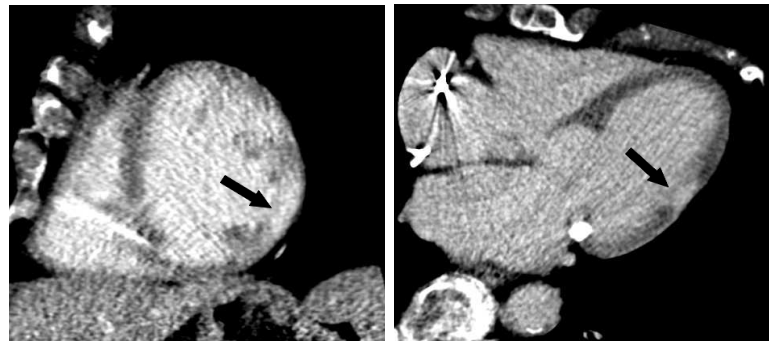


Figure 1A.

Figure 1B.

Figure 1(A,B). Delayed enhanced CT Short axis (A) and four chamber views (B) through LV show patchy focal area of mesocardial delayed hyperenhancement in infero-lateral mid ventricle, corresponding to Sarcoid granuloma. Note: metallic artifact in the RV from ICD leads.

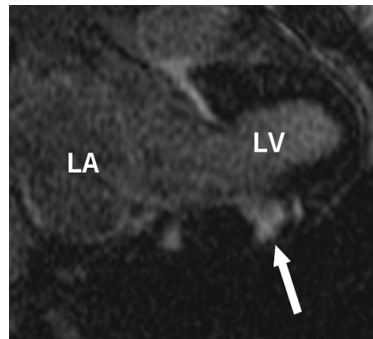


Figure 2.

Figure 2. Delayed enhanced MRI in LV long demonstrating a corresponding focus of abnormal delayed enhancement in the mid inferolateral LV wall.

REFERENCES

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