

Meeting abstract

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## 2064 Fragmented QRS complexes on 12-lead ECG as a marker of greater myocardial infiltration by cardiac magnetic resonance gadolinium-delayed enhancement images in patients with sarcoidosis

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### Background

In our study we demonstrate that presence of either Q-wave and or fQRS complexes on a 12-lead ECG in patients with suspected cardiac involvement of sarcoidosis may indicate the presence of greater infiltrative myocardial disease by cardiac magnetic resonance imaging. Fragmented QRS complexes (fQRS) on 12-lead ECG are a marker of greater myocardial scarring and were observed in some sarcoid patients (pts).

### Purpose

To evaluate the significance of presence of fQRS on 12-lead ECG compared to Gadolinium-delayed enhancement images (GDE) -Cardiac magnetic resonance (CMR) imaging.

### Methods

Retrospective analysis of pts with established diagnosis with sarcoidosis referred for CMR was done. CMR was performed on 1.5-T Siemens system. GDE images were obtained 10 minutes post contrast injection (0.1 mmol/kg dose). Bundle branch block, atrial-ventricular blocks, Q wave and fQRS were looked for on a 12-lead ECG. Q wave was considered present when it was  $\geq 0.04$  seconds in duration or deeper than one fourth of the R wave in amplitude. The fQRS on 12-lead ECG was defined by the presence of fragmented QRS, notched R or S wave, or RSR'

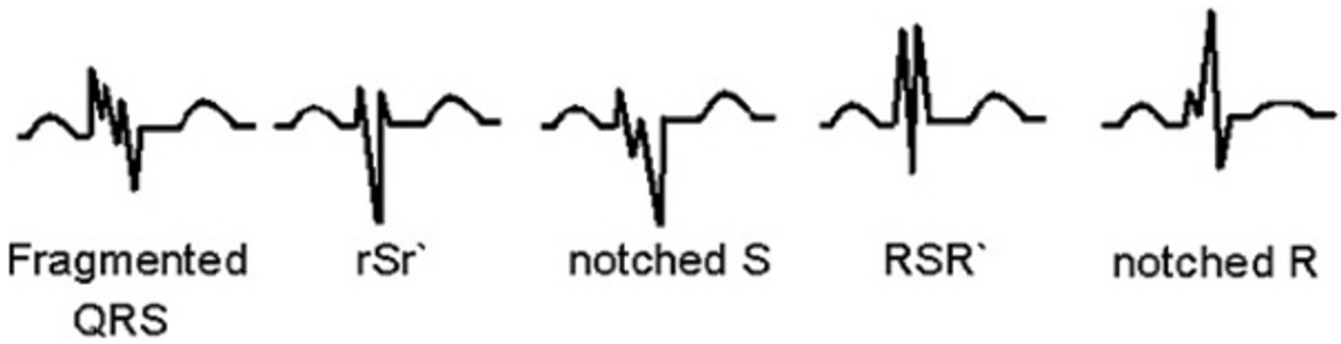
pattern in at least 2 contiguous leads in one of the major coronary artery territories (LAD: lead V1 to V6, LCx: lead I, aVL and V6, and RCA: lead II, III and aVF). Figure 1.

### Results

12 pts (mean age  $52 \pm 11$  year, 42% male) were studied. fQRS, Q wave and bundle branch block were present in 6 (50%), 2 (17%) and 1 (8%) pts, respectively. 5 (45%) pts had abnormal GDE in CMR suggestive of possible cardiac involvement of sarcoidosis. All pts had midwall GDE except one patient had midwall GDE as well as subnodocardial GDE which represented an old known myocardial infarction. 67% of pts (n = 4) with fQRS had abnormal GDE vs. 17% of pts (n = 1) without fQRS had abnormal GDE;  $p = 0.09$ . Whereas the abnormal GDE was found in 71% of pts (n = 5) with either Q wave or fQRS vs. none (0%) of pts without Q wave or fQRS;  $p = 0.008$ .

### Conclusion

The presence of either Q-wave and or fQRS complexes on a 12-lead ECG in patients with suspected cardiac involvement of sarcoidosis may indicate the presence of greater infiltrative myocardial disease by GDE-CMR imaging.



**Figure 1**  
Different morphologies of fQRS on 12-lead ECG.

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