

## Usefulness of 64 Multi-Slice Computed Tomography in Acute Myopericarditis

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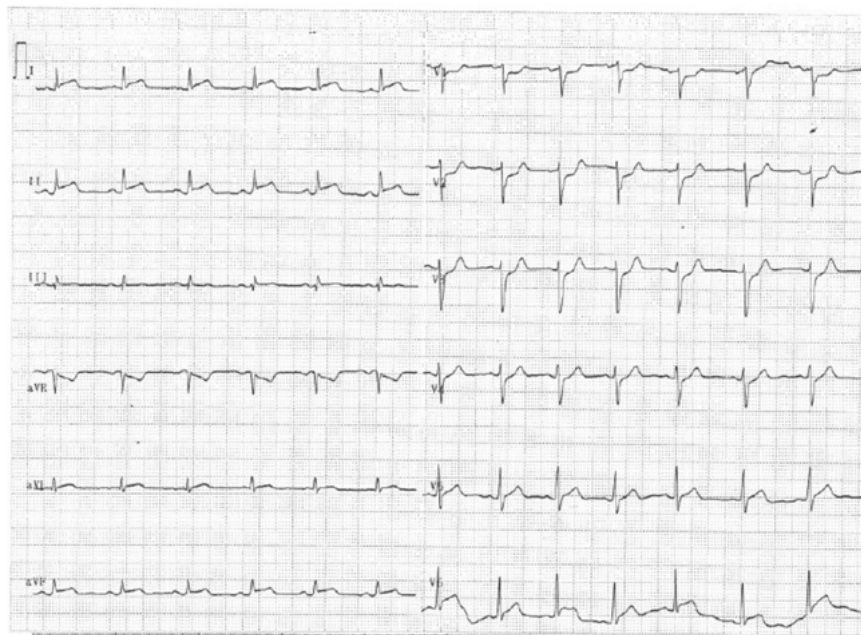
An inflammatory process involving the myocardium and pericardium may be defined as myopericarditis. There are many etiologic factors for myopericarditis, but by far the most common are viral and bacterial agents. We describe here a 36 year old man presenting with chest pain, elevation of the cardiac enzymes and troponin, and ST-T changes on the electrocardiogram mimicking acute myocardial infarction. The 64-slice computed tomography coronary angiography was very useful in the management of this patient who suffered from myopericarditis.

### Patient Description

A 36 year old man was admitted to our intensive cardiac care unit with severe chest pain irradiating to both shoulders. Two days before admission he suffered a bout of acute tonsillitis and was prescribed penicillin. The patient was not a smoker, did not suffer from diabetes, hypertension or hyperlipidemia, and there was no known incidence of coronary artery disease in his family.

The ECG performed in the emergency room was abnormal and a preliminary diagnosis of acute inferior-lateral myocardial infarction was made [Figure 1]. The patient's physical examination was normal; no murmurs or friction rub were heard, there was slight throat redness, and body temperature was 37.4°C. The echocardiogram showed mildly reduced global systolic left ventricular function, hypokinesia of the inferolateral wall, with minimal pericardial effusion.

Laboratory tests showed the following: troponin I – 33.6 ng/ml, erythrocyte sedimentation rate 75 mm/hour, creatine



**Figure 1.** ECG, performed in the emergency room, showing suspected acute inferolateral myocardial infarction. Note the S-T elevation in I, II, III, AVF, AVL, V5-V6 with reciprocal change in S-T from V1-V4.

phosphokinase 1207 U/L, aspartate aminotransferase 151 U/L, lactate dehydrogenase 583 U/L, white blood cells 8500, neutrophils 71%.

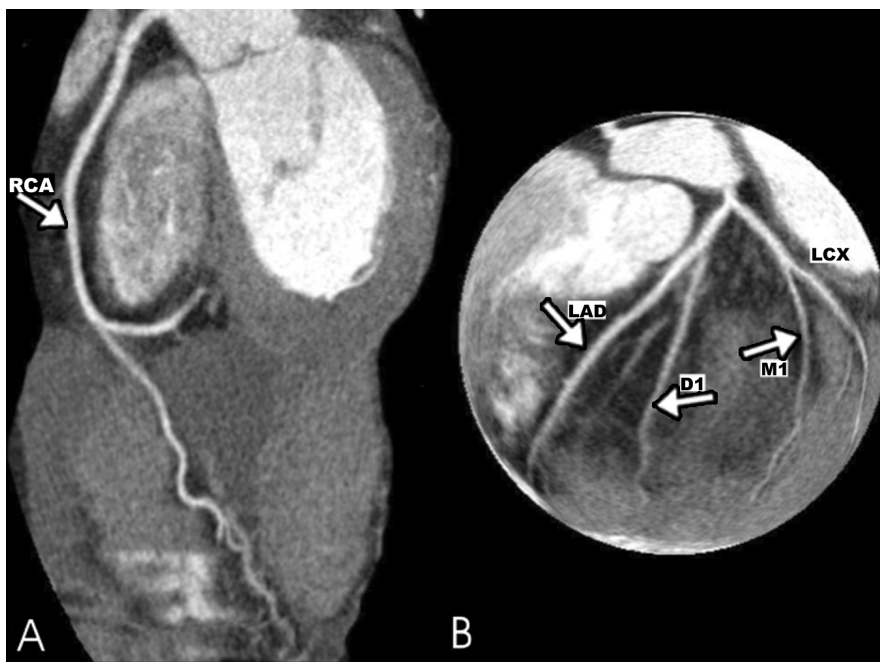
Due to fever accompanying tonsillitis and the clinical picture, myopericarditis was diagnosed. Therefore, thrombolytic therapy was not administered, nor was primary catheterization performed. We administered aspirin 2 g daily and broad-spectrum penicillin (Augmentin®). After 48 hours we performed a 64-slice CT angiography that showed patent coronary arteries and calcium score of zero [Figure 2]. No abnormalities in the left ventricular

wall were seen, or areas of hypodensity suggesting edema. In the follow-up examination, ECG and echography were normal. The patient's condition improved.

### Comment

Until recently, biopsy of the myocardium was the gold standard diagnostic procedure for myocarditis. However, the definitive diagnosis remains challenging since only 10–20% of the pericardial samples provide the pathological findings required to establish a diagnosis.

Today, imaging of the cardiovascular system, either by multi-slice detector CT



**Figure 2.** 64-slice CT. [A] Curved multiplanar reformatted image of the right coronary system. [B] Three-dimensional view of the left coronary system.

or contrast-enhanced magnetic resonance imaging, are playing a larger and more important role in the diagnosis of patients with myocarditis. Gadolinium-enhanced MRI is a very sensitive tool for diagnosing both segmental and diffuse myocardial damage. Those changes are more common in the lateral wall of the left ventricle [1,2].

The most common echocardiographic features of acute myocarditis are quite non-specific. Segmental wall motion abnormalities (hypokinesia, akinesia, dyskinesia) are common and may also suggest ischemic cardiomyopathy. Echocardiography is

important for detecting pericardial effusion, left ventricle thrombus, or transient left ventricle aneurysm and involvement of the right ventricle. Advances in tissue characterization have increased the role of echocardiography.

In nuclear medicine there are reports [1] of the use of gallium 67 imaging, but routine use has diminished over time, mainly because of lack of specificity. Indium 111 antimyosin antibody can detect myocyte necrosis using a monoclonal antibody directed against human cardiac myosin, but this technique is not used widely today in medical practice.

The use of 64-slice CT coronary angiography has shown a very high negative predictive value for excluding coronary artery disease [3-5]. This technique is now available in most hospitals in Israel. In our patient the examination excluded obstructive coronary artery disease and prevented the use of cardiac catheterization in the presence of myocarditis.

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## Capsule

### Neurogenesis and sense of smell

Active neurogenesis from neural progenitors continues throughout life in discrete regions of the central nervous system of most mammals. However, human adult neurogenesis is still a contentious issue. Signs of adult neurogenesis have been reported in the hippocampus, but a second neurogenic niche described in rodents has not been found in recent human stud-

ies. Using multiple techniques, Curtis et al. not only describe this missing rostral migratory stream in great detail but also show that it is organized around a tubular extension of the lateral ventricle that reaches into the olfactory bulb.

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