Candida sepsis with intramyocardial abscesses mimicking left ventricular noncompaction

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Abstract

Left ventricular (LV) noncompaction is a rare abnormality characterized by more than three trabeculations protruding from the LV wall, distal to the papillary muscles and visible in one echocardiographic image plane. The intertrabecular spaces are perfused from the LV cavity, as visualized on color Doppler imaging. Differential diagnoses of LV noncompaction are intraventricular thrombi, false tendons, aberrant bands, intramyocardial hematoma, cardiac metastases and the apical type of hypertrophic cardiomyopathy. Intramyocardial abscesses have not been reported as a differential diagnosis of LV noncompaction. In the patient presented, cardiac microabscesses due to candida sepsis mimicked LV noncompaction and should be considered in the differential diagnosis of LV noncompaction.

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KEYWORDS

Candida; left ventricular noncompaction; dilative cardiomyopathy.

Case report

Left ventricular (LV) noncompaction/hypertrabe- culation is characterized by more than three LV trabeculations seen in one echocardiographic image plane distal to the papillary muscles. The intertrabecular spaces are perfused from the ventricular cavity seen on color Doppler flow images. LV noncompaction (LVN) is a rare abnormal-

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enlarged LV with an end-diastolic diameter of 70 mm and reduced fractional shortening of 7%. No pericardial effusion was present. In the apical region structures were seen, which suggested LVN (Fig. 1). Due to poor image quality and tachycardia, no differentiation between compacted and noncompacted layers of the myocardium was possible. A cardiac magnetic resonance imaging study also suggested LVN. Cardiotoxicity of the chemotherapy was suspected as the cause of the patient’s heart failure. Therapy with digitoxin, furosemide and enalapril was started. Atrial fibrillation was treated by electrical cardioversion 26 h after onset, but recurred 4 days later. Five days after initiation of chemotherapy, *Candida albicans* was found in urine culture. The patient’s cardiac condition did not improve and he remained in the NYHA class III. Despite intensive antibiotic therapy fever persisted and the clinical condition further deteriorated. Ten days later, *C. albicans* was found in his stool and in three blood cultures. Metronidazol and fluconazole were prescribed, but the patient died 5 days later. Autopsy revealed an enlarged heart with thickened walls without valvular abnormalities. On macroscopic inspection, the LV myocardium appeared normal and no LVN was found. On histological examination, surprisingly, multiple microabscesses with edema were found in the LV myocardium. Since abscesses were also found in the kidneys, lungs and brain, and candida was cultured from pulmonary abscesses after autopsy, the diagnosis of candida sepsis was established and regarded as the cause of the echocardiographic abnormalities and the patient’s death.

In this patient, cardiac microabscesses due to candida sepsis mimicked LVN. Candidiasis may lead to endocarditis with large valvular vegetations or myocardial abscesses. Arrhythmias and heart failure are frequent complications of cardiac candidiasis with abscesses. In 10% of cancer patients, cardiac candidiasis was found at autopsy. All affected patients in this study had myocardial abscesses, echocardiographic findings were not reported.

The etiology of LVN is unknown. One theory assumes that LVN is caused by an arrest or failure of the compaction process of the myocardium during embryonal development. LVN can be familial or can develop during lifetime, with or without cardiac malformations, in dilated as well as in normally sized hearts, commonly associated with heart failure and ECG abnormalities. LVN is frequently associated with neuromuscular disorders, but this was not the case in this patient.

Thrombi, which are most frequently located in akinetic areas or aneurysms, can be differentiated from LVN by echocardiography, having an

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**Figure 1** Apical four-chamber view, showing LV trabeculations in the LV apex and lateral wall (arrow).
echodensity different from that of the myocardium and do not move synchronously with the ventricular contractions. In this patient, however, the structures had the echodensity of the myocardium and moved synchronously. False tendons and aberrant bands were excluded by investigating the structures in different imaging planes and showing no communication of the structures with the myocardium on both sides. An intramyocardial hematoma, a rare complication of myocardial infarction, could not be excluded since no cardiac surgery was performed. Cardiac metastases were excluded by magnetic resonance imaging and by the lack of the typical heterogenous appearance of the myocardium. The apical type of hypertrophic cardiomyopathy, characterized by thickening of the apical myocardium with a smooth endocardial surface, was excluded in face of the trabeculations. Because of exclusion of all these differential diagnoses, the structures were interpreted as LVN. Surprisingly, autopsy revealed that the structures seen on echocardiography and being interpreted as LVN were intramyocardial abscesses and myocardial edema, leading to localized protrusion of the myocardium into the LV cavity.

This patient shows that intramyocardial abscesses due to candida sepsis can mimic LVN.

References