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Apical Dilemmas - The Value of CMR in Detection of Suspected Apical Disease

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Background: Frequently trans-thoracic echocardiography (TTE) provides only limited visualization of the apical region. Although usually not clinically relevant, occasionally this limitation deprives crucial information. Cardiac MRI (CMR) is known for its excellent ability to demonstrate the apex. Therefore we sought to investigate the impact of CMR on the final diagnosis in a small group of selected patients with suspected apical process in TTE study.
Methods: Patients with an apical process that was not well demonstrated in TTE were referred to CMR study. Patients with cardiac disease involving the apex that was satisfactorily demonstrated using TTE and patients with contraindications for CMR were excluded. Patient's baseline characteristics, TTE, CMR data and final diagnosis were recorded.
Results: From March 2009 to October 2009 eleven patients were referred to CMR. The average age was 60±8; there were 9 (82%) males and 2 (18%) females. The indication for CMR was suspected apical thrombus in 5 patients and suspected pseudoaneurysm in 3 patients. In 3 patients with severe left ventricular dysfunction due to ischemic heart disease CMR was performed to clarify apical morphology and viability prior to revascularization. CMR was able to rule out thrombus in all 5 patients (in 4/5 there was hypertrabeculation of the apex). All 3 cases of suspected pseudoaneurysm were found to be apical hypertrophy or concentric hypertrophy of the mid to distal ventricular wall and pseudoaneurysm was ruled out. Viability and no apical aneurysm were found in two patients who eventually underwent successful revascularization and transmural scar and aneurysm were found in one patient who was treated medically.
Conclusions: In a selected group of patients CMR provides robust diagnostic tool for resolving undetermined TTE results. In all of the patients the diagnosis made by the CMR guided further clinical conduct.