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Massive left ventricular calcification

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Images in Cardiovascular CT: Focus of the manuscript should be the high quality cardiovascular CT image, accompanied by two paragraphs. The first paragraph should contain the case information, focusing on the CT and its findings. The second paragraph should discuss the case, focusing on the utility of the CT in this particular situation. Word limit is strictly set at 250 words. No abstract is required. No more than 4 authors are permitted except under exceptional circumstances as approved by the Editor in Chief. No more than 4 references may be cited

To JCCT - Images in Cardiovascular CT

Massive Left Ventricular Calcification in a Patient with Normal Serum Calcium Level

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Keywords

Left ventricular calcification

Non-contrast cardiac computed tomography

Myocardial infarction

Case

94 years old male presented to the cardiology clinic for ~~regular-routine~~ follow-up. He has an extensive medical history remarkable for two episodes of myocardial infarction (MI); eight and thirteen years ago with stent revascularization, ischemic cardiomyopathy, [implantable cardioverter defibrillator](#), paroxysmal atrial fibrillation, hypertension, hyperlipidemia, diabetes and stroke. He was doing well without any recent chest pain and can walk a reasonable distance without shortness of breath. Lab investigation revealed normal kidney function and calcium levels. Echocardiography revealed a reduced left ventricular (LV) ejection fraction of 25%, diastolic dysfunction, severe anteroseptal hypokinesis, otherwise normal LV. A recent pharmacological stress myocardial single-photon emission computed tomography imaging (SPECT) showed a large fixed defect in mid to distal anterior wall, proximal to distal inferior wall and septum which corresponds with his previous MI history, while did not show stress induced ischemia. He underwent a ~~non-contrast~~ cardiac CT ~~that demonstrated image for coronary artery calcium scoring that demonstrated a high score. Also, there was~~ a massive calcification of the left ventricular in the anterior, apical and septal walls (Figure 1).

This case demonstrates a rare massive LV calcification visualized on non-contrast cardiac CT in a patient with history of MI. Localized or mild degree of myocardial calcification after MI is common; however diffuse extensive LV calcification is rare. Cardiac calcification can result from calcium deposition in dead tissues¹ (dystrophic calcification) which happens after MI, ventricular aneurysm, myocarditis or severe sepsis². However, calcification can happen in normal cardiac tissues due to high serum calcium or phosphorus levels (metastatic calcification)². The possible mechanism of dystrophic calcification is decreased production of carbon dioxide in slowly metabolizing tissue causing relative tissue alkalinity which reduces calcium solubility³. Cardiac CT is a good imaging modality to identify this incidental finding that was not detected by Echocardiography and cannot be visualized by SPECT. LV calcification may lead to restrictive cardiomyopathy which can be associated with worse outcome⁴.

References

1. Trump BF and Berezsky IK. Calcium-mediated cell injury and cell death. *FASEB journal : official publication of the Federation of American Societies for Experimental Biology*. 1995; 9: 219-28.
2. Gowda RM and Boxt LM. Calcifications of the heart. *Radiologic clinics of North America*. 2004; 42: 603-17, vi-vii.
3. Lasser A. Calcification of the myocardium. *Human pathology*. 1983; 14: 824-6.
4. Ammass NM, Seward JB, Bailey KR, Edwards WD and Tajik AJ. Clinical profile and outcome of idiopathic restrictive cardiomyopathy. *Circulation*. 2000; 101: 2490-6.

Figures Legends

Figure 1

Non-contrast computed tomography image showing extensive calcification of the left ventricular myocardium. A- Axial view. B- Axial view with maximal intensity projection. C- Oblique view. D- Oblique view with maximal intensity projection. LV= left ventricle; RV= right ventricle; ICD= [implantable cardioverter defibrillator](#) wires; LAD= left anterior descending artery; LCX= left circumflex artery.