

## Extensive Myocardial Calcification in a Heart Transplant Patient

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A 33-year-old female patient underwent heart transplantation (Tx) for valvular heart disease, where the surgical procedure was uneventful. Post-Tx, she developed with acute graft dysfunction, acute renal failure (ARF) requiring dialysis and septic shock. Bloodstream infection confirmed by treatment for carbapenemase-producing *Klebsiella pneumoniae*. Non-contrast-enhanced computed tomography (CT) of the chest and abdomen was done for investigation of the infectious focus and distention of the abdomen and melena, with extensive left ventricular myocardial calcification (MC) not previously found in CT (Figures 1, 2 and 3).

A diagnosis of cytomegalovirus (CMV) infection was also confirmed by upper digestive endoscopy findings with diffuse gastroduodenal ulcers and quantitative detection of positive CMV DNA, and the patient received ganciclovir. The patient became refractory to treatment and died.

MC is a rare complication that occurs in critically ill patients. It has various etiologies, and its pathophysiology is not completely elucidated. MC may involve mechanisms of metastatic calcification and dystrophic calcification, as presented in Table 1. It can be the cause of heart failure, sudden death, abnormalities in ventricular wall movement, arrhythmias and restrictive disease.<sup>1</sup>

The case demonstrates a correlation with others described in the literature, showing extensive MC in a young patient with anemia, ARF, septic shock,<sup>2</sup> exposure to extracorporeal membrane oxygenation,<sup>3</sup> and high mortality, with the difference being an immunosuppressed post-heart transplant patient. The true meaning of this finding and its reversibility are unknown. However, it is believed to be related to disease severity and poor prognosis, and its identification in clinical practice is important.

### Keywords

Heart Transplantation/complications; Heart Valve Diseases/surgery; Renal Insufficiency/complications; Shock, Septic.

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Figure 1 – Coronary non-contrast-enhanced computed tomography scan of the chest with finding of extensive myocardial calcification in the left ventricle.



Figure 2 – Sagittal non-contrast-enhanced computed tomography scan of the chest with finding of extensive myocardial calcification in the left ventricle.

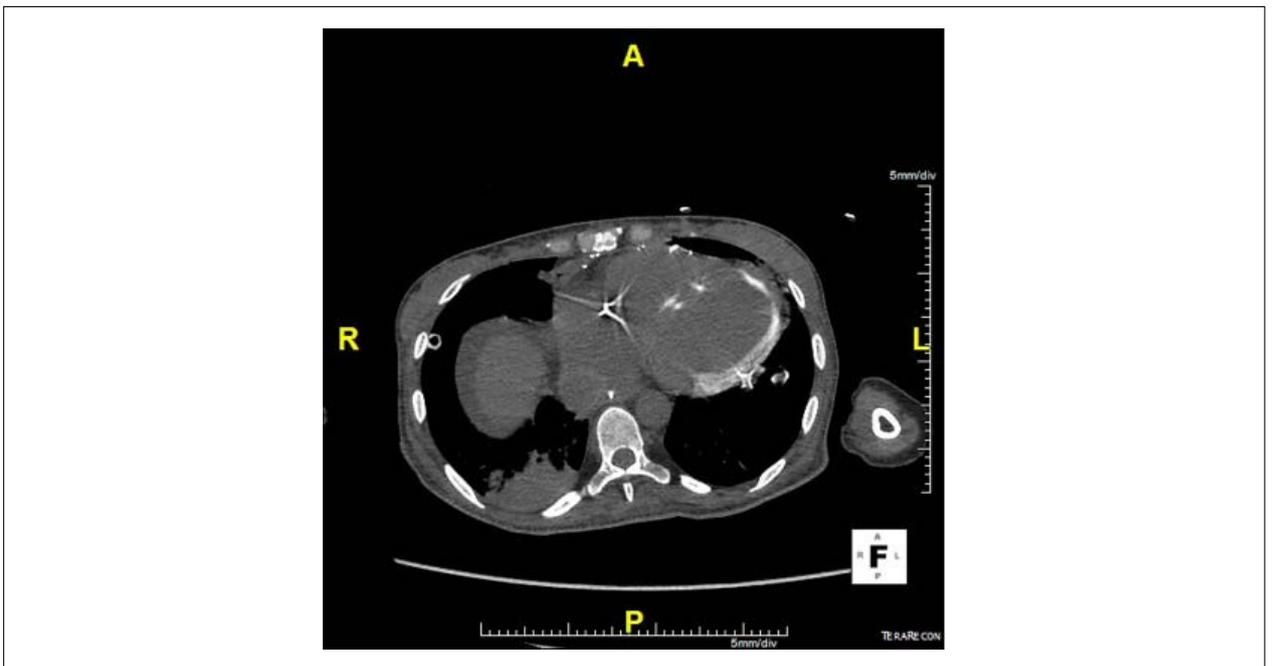


Figure 3 – Axial non-contrast-enhanced computed tomography scan of the chest with finding of extensive myocardial calcification in the left ventricle.

**Table 1 – Possible myocardial calcification etiologies**

<b>Metastatic calcification (Altered serum calcium level)</b>	<b>Dystrophic calcification (Calcium accumulation in necrotic tissues, without hypercalcemia)</b>
Chronic renal failure	Infections
Primary parathyroidism	Extracorporeal membrane oxygenation
Neoplasms	Inflammatory processes
Bone disturbances	Processes myocardial infarction
Medications	Myocarditis

### Author contributions

Acquisition of data: Montemor ML; Writing of the manuscript: Duarte SBPC; Critical revision of the manuscript for intellectual content: Mangini S, Avila MS, Bacal F.

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This study is not associated with any thesis or dissertation work.

### Ethics approval and consent to participate

This article does not contain any studies with human participants or animals performed by any of the authors.



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