

Porcelain Heart and Lung

Prashanth Panduranga

القلب والرئة الخزفيين

براشانث باندورانجا

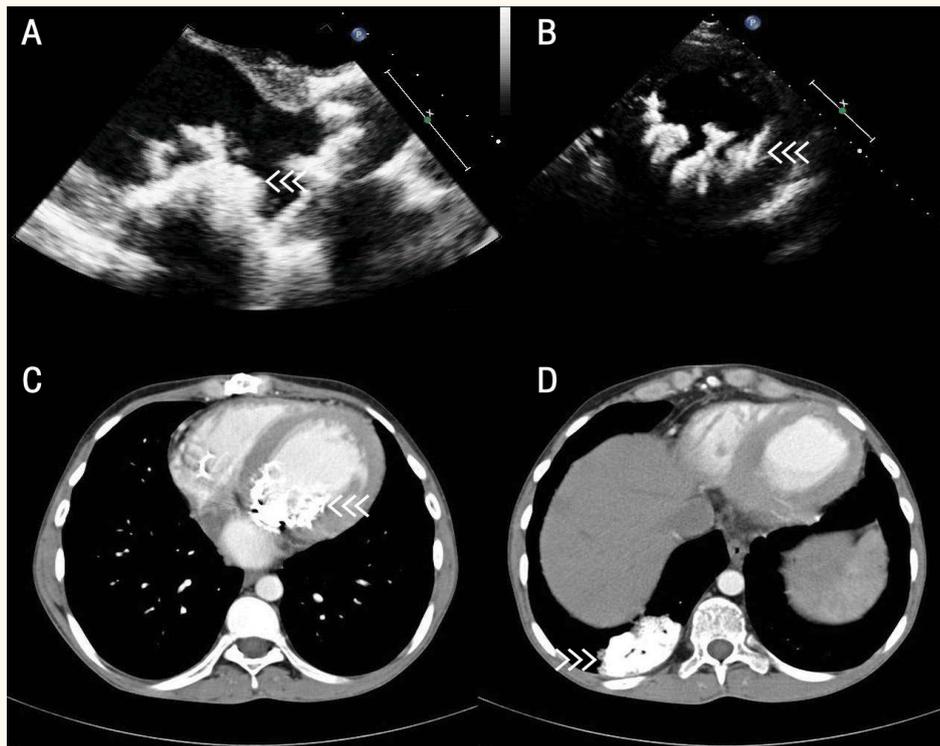


Figure 1A–D: A: Transthoracic echocardiogram (TTE) in parasternal long-axis view showing calcification (arrow heads) of mitral valve prosthesis without involving the discs, extensive calcification of the mitral valve chordae and multiple pedunculated calcific nodular masses seen subvalvularly. B: TTE in the short-axis view showing calcification (arrow heads) of the left ventricular myocardium and part of the interventricular septum. C: Computed tomography (CT) scan of the chest demonstrating cardiac calcification (arrow heads). D: CT scan of the chest showing a lung parenchyma mass of ground-glass nodular calcification (arrow heads) in the right lower lobe.

A 24-YEAR-OLD MALE PRESENTED WITH acute heart failure to the Department of Medicine at Royal Hospital, Muscat, Oman, in October 2011. He had undergone a mechanical mitral valve (MV) replacement in 2005 after a mitral valve prolapse and severe mitral regurgitation. He was diagnosed with systemic lupus erythematosus in 2006, end-stage renal disease on haemodialysis in 2008 and prosthetic valve endocarditis in February 2011.

A transthoracic echocardiogram showed calcification of the MV prosthesis without involving the

discs and extensive calcification of the MV chordae with multiple pedunculated calcific nodular masses which were seen subvalvularly. This was suggestive of old healed calcific vegetation [Figure 1A]. There was calcification of the adjacent left ventricular myocardium and part of the interventricular septum [Figure 1B]. The aorta and aortic valve were calcific with severe stenosis. A computed tomography scan of the chest confirmed cardiac calcification [Figure 1C] along with a lung parenchyma mass of ground-glass nodular calcification in the right lower

lobe [Figure 1D]. Laboratory investigations revealed secondary hyperparathyroidism suggesting metastatic calcification. The patient's parathyroid hormone level was 49.1 pmol/L (normal range: 1.6–6.9 pmol/L) with an adjusted calcium level of 2.78 mmol/L (normal range: 2.1–2.6 mmol/L) and a phosphate level of 2.72 mmol/L (normal range: 0.75–1.5 mmol/L). He underwent a successful aortic valve replacement procedure with decalcification of the MV and the subvalvular apparatus nodular masses without the need for a further MV replacement.

Comment

Metastatic calcification is the deposition of calcium salts in previously normal tissue due to an elevated calcium-phosphate product.^{1,2} In contrast, dystrophic calcification indicates calcium deposition in damaged tissue in the presence of normal levels of serum calcium and phosphate.^{1,2} Common causes of metastatic calcification are hyperparathyroidism, secondary hyperparathyroidism as in end-stage renal disease, hypervitaminosis D/sarcoidosis and extensive bone

metastases or destruction. Non-calcium-containing phosphate binders, paricalcitol (vitamin D receptor agonists), cinacalcet (to lower parathormone levels) and a parathyroidectomy need to be considered to prevent the development of secondary hyperparathyroidism and cardiac calcification.^{3,4}

References

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