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An illustrative case of constrictive pericarditis

Case report

A 72-year-old man, treated for hypertension and type II diabetes, presented with a few months history of inferior limbs oedema, legs

ulcerations, weight gain (4–5 kg in the last 2 months), nycturia, abdominal tension, and gradually increasing dyspnea.

Clinical examination demonstrates prominent jugular veins, hepato-jugular reflux,

Figure 1

Chest X-ray (antero-posterior and lateral view): pericardial calcifications (black and white arrows) and right pleural effusion.

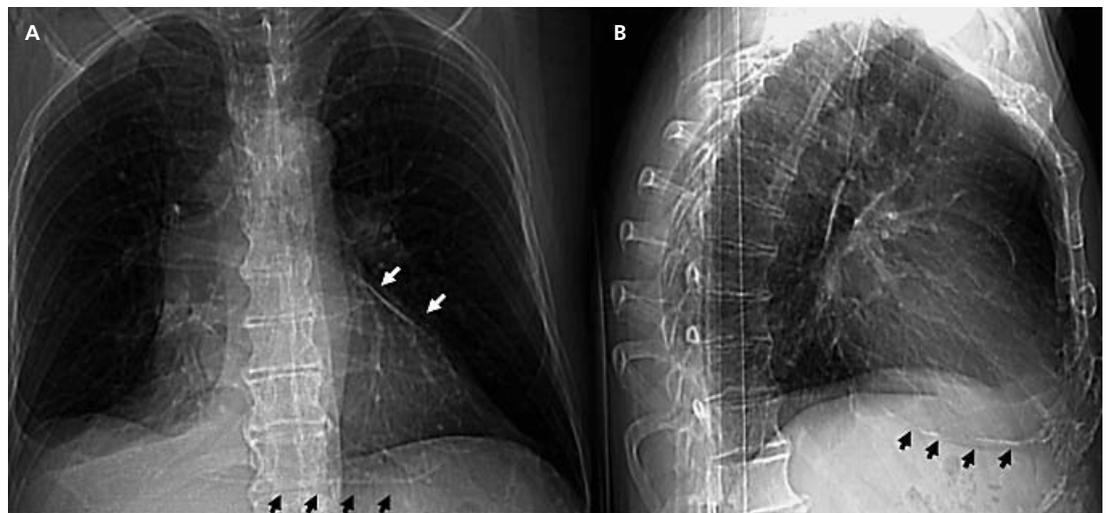
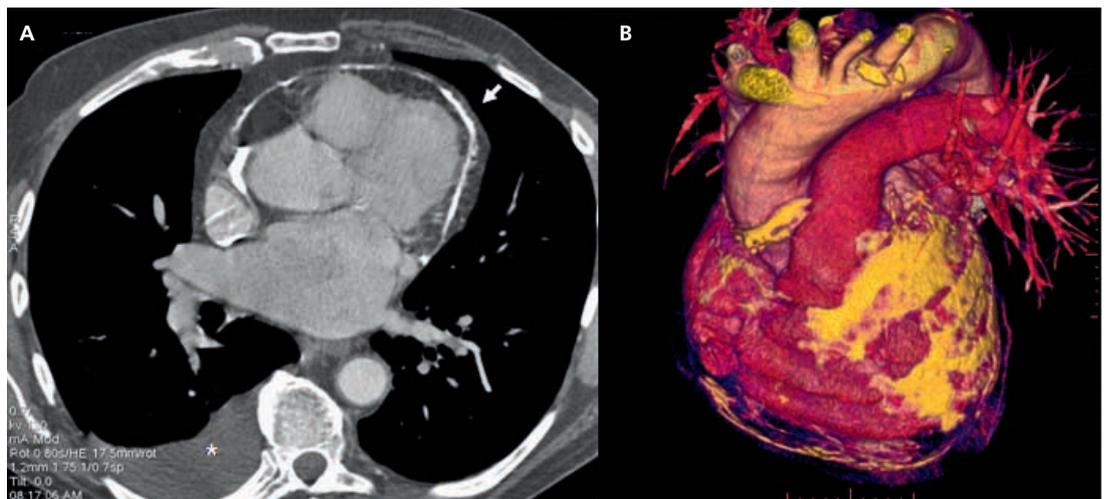


Figure 2

Standard chest CT scan after contrast media injection. A transverse section (1.2 mm thickness) at the aortic root level showing circumferential pericardial calcification (arrow) and right pleural effusion (*). B 3D reconstruction of the heart and great vessels (anterior view) demonstrating calcifications of the pericardium (in yellow) covering most of the antero-lateral wall of the left ventricle.



The authors have no conflict of interest to declare.

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Figure 3

Cardiac MRI before and after gadolinium injection with late enhancement study.

A T1 weighted sequences, short axis view, exhibiting flattening of the interventricular septum and pericardial thickening (arrows).

B Late enhancement study after gadolinium injection showing absence of myocardial or pericardial enhancement confirming chronic pericarditis without acute inflammatory process (* denotes pleural effusions).

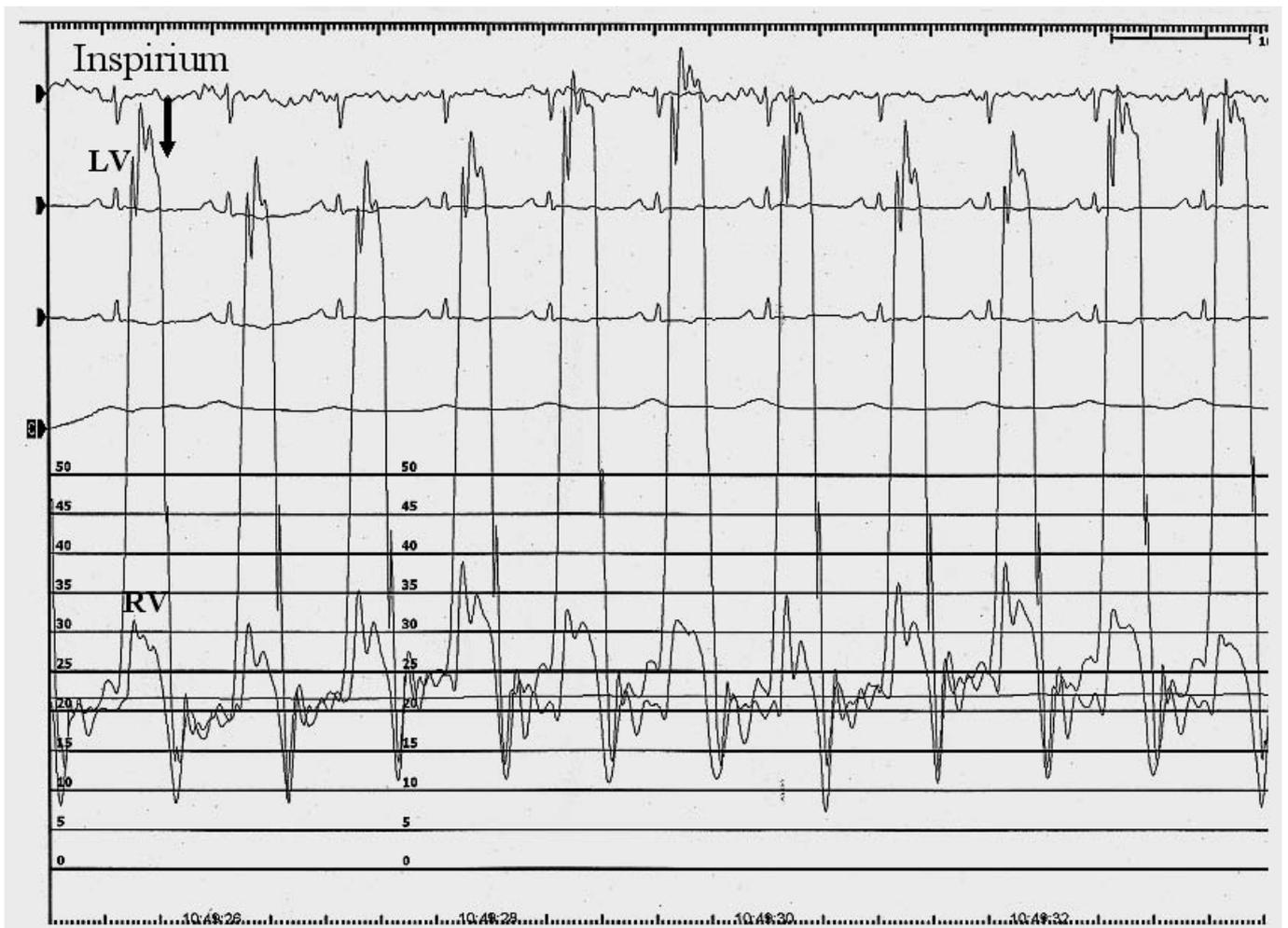
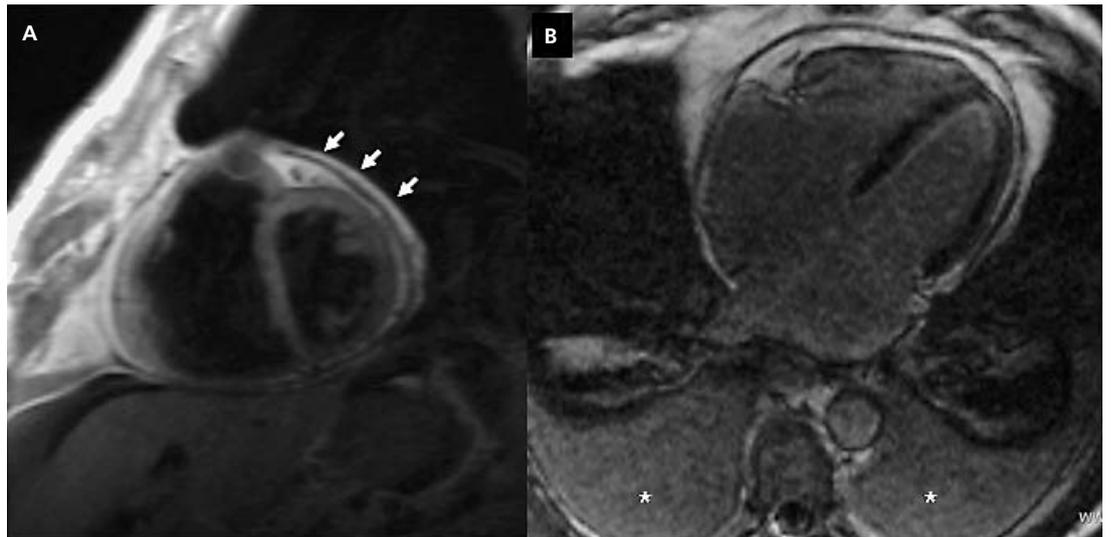


Figure 4

RV and LV curves show equalisation of diastolic pressures with a typical “dip-and-plateau” pattern. During inspiration, there is an increase in peak systolic RV pressure and a decrease in peak systolic LV pressure, classically described in constrictive pericarditis.

oedema and ulcerations of inferior limbs and signs of bilateral pleural effusions. The cardiac auscultation was normal.

Chest X-ray (fig. 1A, 1B) shows diffuse pericardial calcifications and right pleural effusion. Thoracic CT scan confirms pleural effusion and circumferential pericardial thickening (6 mm) with calcifications (fig. 2A) together with dilatation of the inferior vena cava, hepatomegaly and ascites. 3-dimensional reconstruction (fig. 2B) nicely delineates the spatial extension of pericardial calcifications.

Due to poor echogenicity of the patient, cardiac MRI is performed and demonstrates: important pericardial thickening (6–7 mm) (fig. 3A), normal left ventricular function, interventricular interference during inspiration and a protodiastolic “septal bounce” (cine-MRI images). No late pericardium or myocardium enhancement is observed after Gadolinium injection (fig. 3B).

Simultaneous right- and left-heart catheterisation demonstrates rapid filling (“dip and plateau” pattern) and elevation and equalisation of LV and RV end-diastolic pressures at a value of 20 mm Hg. During inspiration, a discordant pattern of RV and LV sys-

toxic pressure changes diagnostic of pericardial constriction (fig. 4) is observed.

In summary, careful examination of chest X-ray raised the suspicion of calcific constrictive pericarditis in this patient with overt right heart failure. Standard chest CT-scan allows a nice anatomic delineation of the pericardium and its calcifications. Cardiac MRI provides systolic function of both ventricles as well as signs of diastolic interaction like “septal bounce”. Respiratory variations in chambers filling can be observed using “real-time” cine sequences [1]. The definitive diagnosis relies on a careful haemodynamic evaluation by right and left heart catheterisation including respiratory recordings of RV and LV pressure changes [2].

References

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