

Right atrial perforation from intracardiac cement embolus after vertebroplasty

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Received 21 September 2021; first decision 1 November 2021; accepted 3 December 2021

A 70-year-old male, who had undergone thoraco-lumbar vertebroplasty 3 months before presentation, was admitted with dyspnoea and recurrent atrial fibrillation.

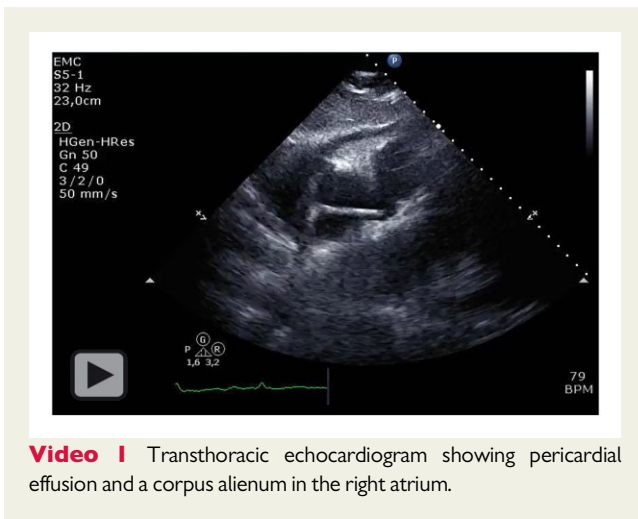
At physical examination the patient was normotensive with an irregular heart rate between 110 and 130 b.p.m. Heart sounds were normal and without murmurs. Central venous pressure was not raised.

Echocardiography revealed pericardial effusion and right-sided intra-cardiac structures, elongated in shape and with high density (Video 1). These structures were confirmed by computed tomography scan (Figure 1A).

Not knowing what these structures were, pericardiocentesis was performed as a diagnostic tool and to relieve the dyspnoea but was characterized by persistent drainage of blood. Therefore patient underwent urgent open heart surgery, during which several intra-cardiac emboli (ICE) were found, definable as venous cement casts (Figure 1B). One embolus was evacuated from the right atrium, causing perforation. The second was located posterior to the septal leaflet of the tricuspid valve in the right ventricle outflow tract. After removal, tricuspid valve regurgitation developed, therefore subsequently a ring annuloplasty was performed. Computed tomography scan ruled out other sites of cement embolism and the patient reached a full recovery. In retrospect, one should have immediately opted for surgery without the interference of pericardiocentesis. However, this complication manifested only 3 months after vertebroplasty, therefore the association was not immediately apparent.

Vertebroplasty is a widely used treatment of symptomatic vertebral compression fractures. During this procedure, low-viscosity bone cement is injected in the damaged vertebra.¹ Migration of bone cement to the right-sided heart may occur after accidental cement leakage in the paravertebral veins, migrating into the azygos system or directly into the vena cava. The incidence of ICE is approximately 4%, while only 8.3% of patients with ICE are symptomatic.²

Thus, ICE is a rare complication of vertebroplasty, yet it is important to consider this diagnosis when a patient presents with cardiovascular symptoms after recent vertebroplasty, because it is a potentially life-threatening complication.



Video 1 Transthoracic echocardiogram showing pericardial effusion and a corpus alienum in the right atrium.

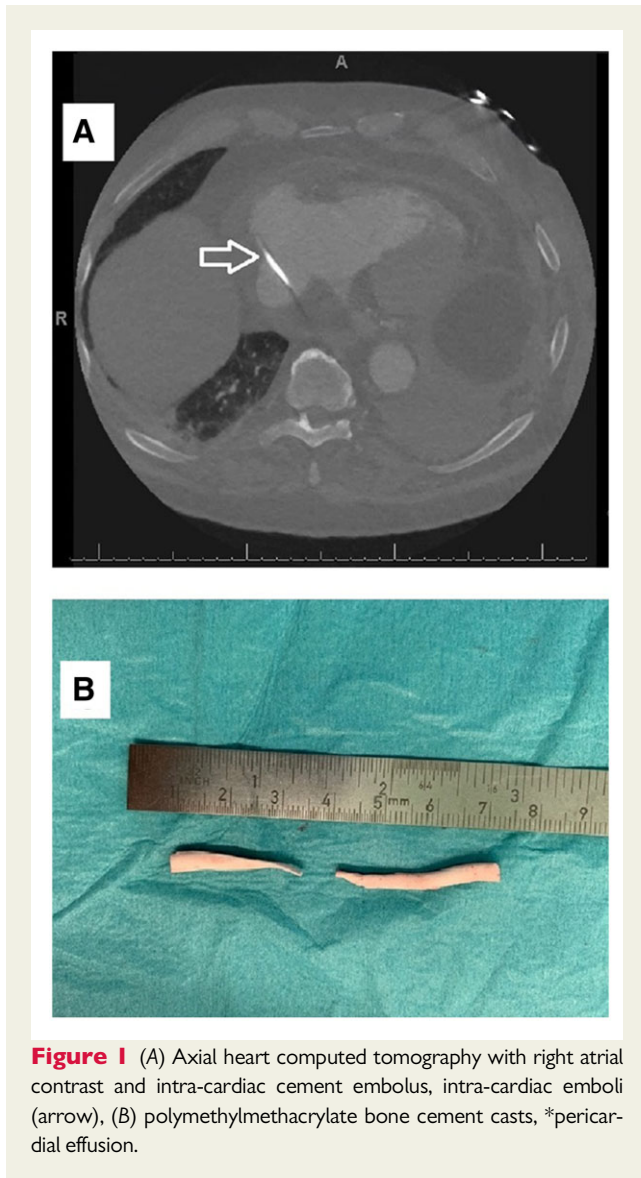
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Handling Editor: Roberto Lorusso

Peer-reviewers: Abdullah Sayied Abdullah; Subhi Akleh

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Claire van de Ree was trained as an internist in both the Albert Schweitzer hospital in Dordrecht and the Erasmus MC in Rotterdam. In the latter she was further trained as an intensivist. She currently works at the Maastad Hospital in Rotterdam.

Consent: The authors confirm that written consent for submission and publication of this case report including images and associated text has been obtained from the patient in line with COPE guidance.

Conflict of interest: None declared.

Funding: None declared.

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