

Unexpected pacemaker lead in an 84-year-old patient

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Abstract

An elderly patient with a history of atrial fibrillation presented to our emergency room. Previous medical records from another hospital described a pacemaker lead in the echocardiography although the patient had no known history of a pacemaker implantation. Finally, by close examination, chest X-ray, and computed tomography, we found that a kyphoplasty of the spine had caused a so-called palacos embolism, which had repeatedly been mistaken for a pacemaker lead. Unusually, there were no further signs of kyphoplasty material in the pulmonary veins. As the patient was asymptomatic and the embolism caused only moderate tricuspid regurgitation, a conservative treatment was agreed on.

KEYWORDS

embolism, kyphoplasty, pacemaker lead, tricuspid regurgitation

1 | CASE

An 84-year-old patient presented to our emergency room with palpitations and a longstanding history of atrial fibrillation. Medical records from another hospital described a pacemaker lead in the right ventricle. Echocardiography at our center, too, showed a highly echogenic, filiform structure, reaching from the right atrium through the tricuspid valve into the apex of the right ventricle (Figure 1A,B). There was no elevation in transvalvular pressure gradient and tricuspid regurgitation was mild. However, the patient's history did not include a pacemaker implantation and the clinical examination revealed no signs of a previous pacemaker procedure. Upon close examination of the chest X-ray, we found signs of a spinal vein (Figure 2A, big arrow), presumably filled with kyphoplasty material (vertebroplasty cement, eg, *palacos*). The kyphoplasty had supposedly resulted in a so-called palacos embolism, which had not passed through the heart but remained within it. This assumption was confirmed using computed tomography (see three-dimensional reconstruction, Figure 2B, arrow pointing at palacos). The palacos embolism was approximately 2–3 mm thick and 65 mm long.

There was no sign of further palacos embolisms in heart, pulmonary artery, or lungs. A possible explanation for why the embolism remained within the heart and did not pass through, it may be its relatively large size. After treatment for atrial fibrillation, the patient was asymptomatic.

Percutaneous vertebroplasty is a treatment option for back pain caused by instability of the vertebral body and comprises the injection of bone cement into the vertebral body.¹ Bone cement leakage into paravertebral veins and passage through the venous system into the right heart and especially into the pulmonary arterial system has been reported before.² A recent investigation of 1512 patients who underwent percutaneous vertebroplasty showed an intracardiac embolism rate of 3.9%.² Reported treatment options for cement embolism include watchful waiting, but also a wide range from endovascular procedure to vascular surgery and even open-heart surgery can be discussed.^{2–4} Commonly used bone cement is methyl-methacrylate bone cement, which has shown to not be thrombogenic.³

In the presented case, it was decided to continue frequent echocardiographic and clinical examinations but not to attempt an

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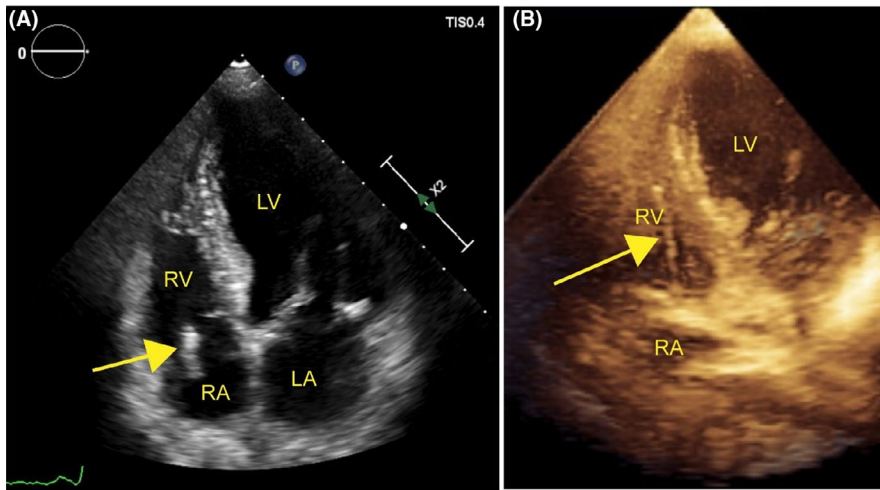


FIGURE 1 Echocardiographic apical 4-chamber view (A) and additional 3D image (B), the arrows point toward the palcos embolism

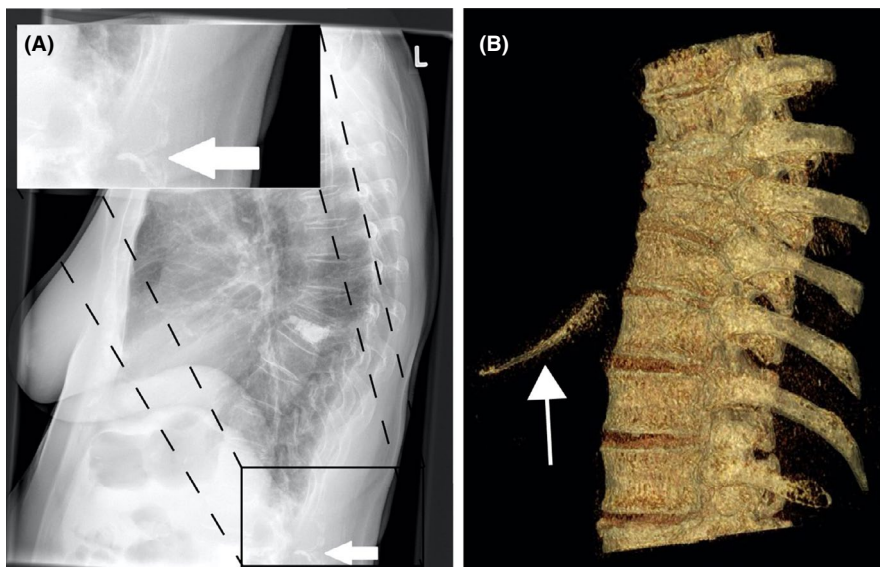


FIGURE 2 A, Lateral chest X-ray with clearly visible kyphoplasty filling of a thoracic vertebra. Arrow pointing at a spinal vein filled with cement (see magnification). The kyphoplasty of a thoracic vertebral is clearly visible. B, 3D reconstruction of a high-density structure of a computer tomography image of the chest. Arrow pointing at the cement embolism within the right heart

extraction of the embolism. An individual treatment concept should be developed in these patients.

CONFLICT OF INTEREST

None declared.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available in <https://pubmed.ncbi.nlm.nih.gov/>.

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