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Migrated Bone Cement Impending Cardiac Perforation

A 75-year-old woman was admitted for further evaluation of an incidentally detected mass in the right atrium (RA) on transthoracic echocardiography (TTE) during a medical check-up. She complained of not having chest pain or dyspnea and had been on medication for hypertension and dyslipidemia for 30 years. TTE showed a small hyperechoic mass-like structure just below the tricuspid valve (TV) in the RA (Figure 1A, Video 1), which appeared to be linear and extended into the right ventricle (RV) with rotation of the ultrasound transducer (Figure 1B, Video 2). Additional history taking revealed that she had undergone percutaneous vertebroplasty (PVP) for a lumbar compression fracture 7 months ago. Based on her history, the echogenic structure in the right heart was regarded as migrated bone cement. TTE showed no signs suggesting cardiac perforation such as pericardial effusion. Cardiac computed tomography demonstrated a highly attenuated, L-shaped material located in the RA and RV across the TV (Figure 1C). Because of the risk of perforation, urgent cardiac surgery was performed and a 67-mm long, bent foreign body penetrating the septal leaflet of TV was successfully removed (Figure 2).

Cement leakage, a common complication of PVP, is mostly a subclinical local complication, but migration of bone cement to the right heart can rarely result in cardiac perforation. During the echocardiographic examination of the right heart, various normal anatomical variants and pathologies can be encountered. The possibility of migrated bone cement should be considered if unexpected findings are detected from the right heart in patients with a history of PVP.

Informed Consent: Written informed consent was obtained from the patient.

Video 1: Modified apical-4-chamber view of transthoracic echocardiography showing a small hyperechoic mass-like structure just below the tricuspid valve in the right atrium.

Video 2: Subcostal view of transthoracic echocardiography showing a linear, echogenic structure extending into the right ventricle with rotation of the ultrasound transducer.

E-PAGE ORIGINAL IMAGE

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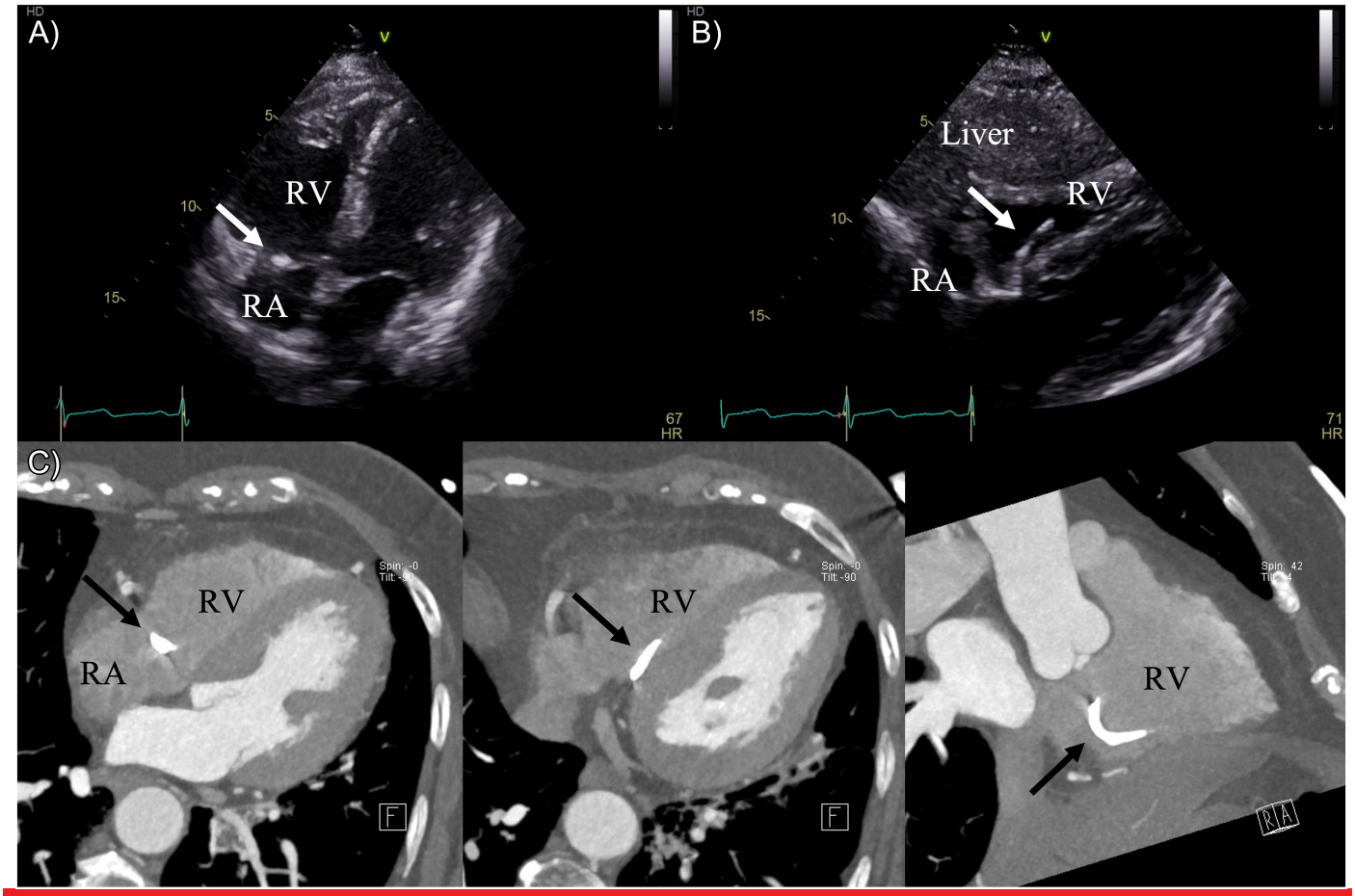

Figure 1. Transthoracic echocardiography showing (A) a small hyperechoic mass-like structure (arrows) just below the TV in the RA and (B) the RV. (C) Cardiac computed tomography shows a highly attenuated, L-shaped material (arrows) in the RA and RV across the TV. TV, tricuspid valve; RA, right atrium; RV, right ventricle.

Figure 2. Surgically removed migrated bone cement from the right heart.