A sword-like foreign body lodged in the ventricular septum: a rare complication of percutaneous vertebroplasty

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A 76-year-old woman was referred for NYHA functional class III dyspnoea for 1 year. Her medical histories were benign, except hypertension for 5 years. The physical examination revealed irregular heart sounds, a soft holosystolic murmur, and distended jugular veins. An electrocardiography showed atrial fibrillation and a chest X-ray showed multiple, branching radiopacities in both lung fields (white arrows), and a curvilinear dense radiopacity overlying the cardiac silhouette (black arrow; Panel A). An echocardiography confirmed a hyperechogenic linear structure (9 cm in length) in the right ventricle with one end in the right atrium through the tricuspid valve and the other end lodged in the ventricular septum (Panel B). Colour Doppler echocardiography disclosed severe tricuspid regurgitation (Panel C). On further questioning, the patient disclosed a history of percutaneous lumbar vertebroplasty for a compression fracture 5 years ago and the cardiopulmonary embolization of bone cement was diagnosed. The embolized bone cement was surgically removed. The intracardiac embolus was 10 cm in length, destroyed the septal tricuspid leaflet, and nearly perforated the ventricular septum (Panel D).

Poly(methylmethacrylate) (PMMA) is a transparent, thermoplastic substance with various medical applications. Percutaneous vertebroplasty using PMMA is regarded as a safe and effective procedure to treat compression fractures of vertebral bones. The paravertebral venous leakage and pulmonary embolization of PMMA occurs frequently, but is clinically silent in most cases, while cardiac embolization is rare, but may cause serious adverse events.

The abbreviations used are RA, right atrium; LA, left atrium; RV, right ventricle; LV, left ventricle; SVC, superior vena cava.