Massive, ring-shaped pericardial calcification of atrioventricular groove

A foreign 72-year-old man who had diabetes mellitus and hypertension was admitted to the emergency room with severe chest pain and dyspnea. Physical examination upon arrival was found to be unremarkable, with a pulse rate of 70 beats/minute and a blood pressure of 115/75 mm Hg. Initial 12-lead electrocardiogram revealed sinus rhythm with minimal ST segment elevations in leads DII, DIII, aVF, and V4-V6, without reciprocal ST segment changes. Inferior wall motion abnormalities were detected in emergency bedside two-dimensional transthoracic echocardiographic examination. The echocardiogram revealed constrictive physiology of the mitral and tricuspid valves and pericardial thickening in the atrioventricular (AV) groove. The early diastolic velocity of the lateral mitral annulus and that of the septal annulus was not reduced in tissue Doppler imaging. The patient was referred to emergency coronary angiography with the diagnosis of acute coronary syndrome. Coronary angiography (Fig. 1a, b) showed coronary artery disease (three-vessel disease) and massive calcification along the AV groove. Reconstructed images of cardiac computed tomography (Fig. 2a, b) demonstrated massive, ring-shaped calcification along the AV groove causing strangulation of the heart. The patient underwent an extensive pericardial resection and coronary artery by-pass graft surgery.

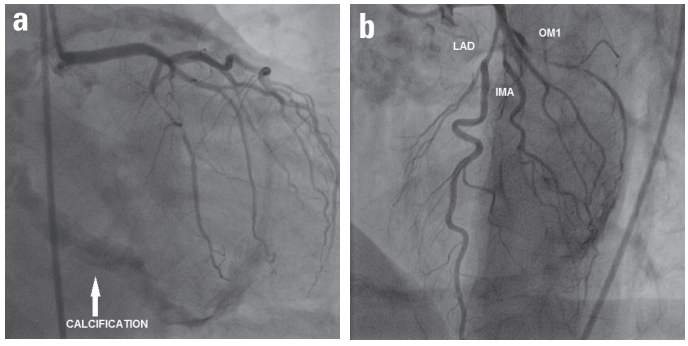

Figure 1. (a) Right anterior oblique caudal view of left system coronary angiography revealed massive, ring-shaped pericardial calcification of atrioventricular groove. (b) Left anterior oblique cranial view of left system coronary angiography showed stenosis of proximal parts of the left anterior descending, intermedius, and high obtuse margin arteries

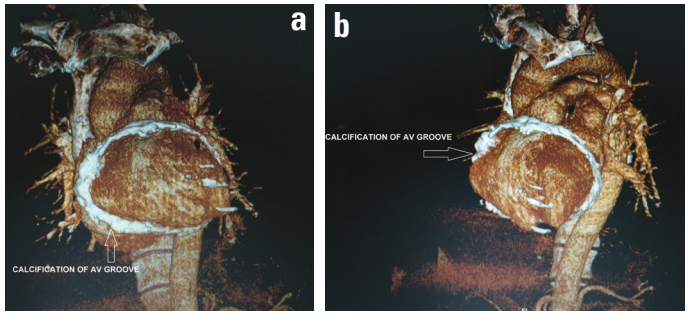

Figure 2. (a) Right-side view and (b) left-side view of the massive pericardial calcification of the atrioventricular groove in reconstructed images of cardiac computed tomography

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Successful management of complications after inappropriate positioning of a hemodialysis catheter

A 61-year-old woman with a history of diabetes mellitus, hypertension, and chronic renal impairment was admitted with complaints of fever and inadequate hemodialysis. She had been undergoing catheter-based hemodialysis 3 times a week for 6 months. Chest X-ray revealed that the tip of the catheter was

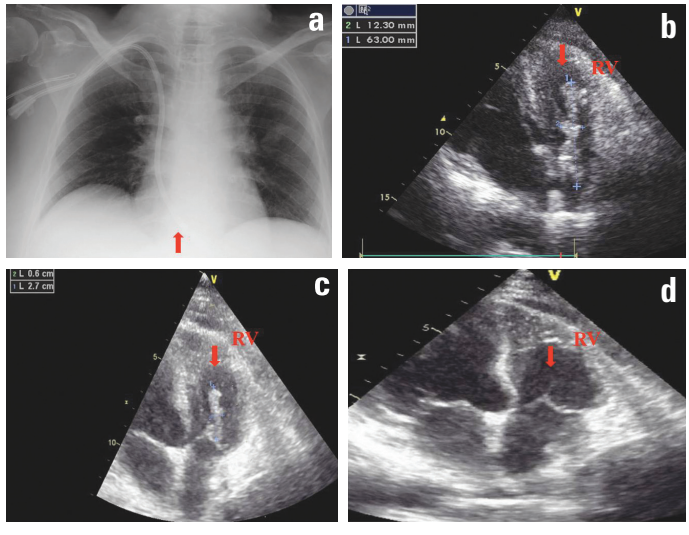

Figure 1. (a) Chest X-ray showing the catheter (arrow) extending to the right ventricle. (b) Transthoracic echocardiographic view showing the catheter and the thrombus attached to it (arrow indicates the catheter; RV - right ventricle). (c) Transthoracic echocardiographic view after surgical removal of the catheter demonstrating the thrombus attached to the tricuspid valve (arrow indicates the thrombus; RV - right ventricle, TV - tricuspid valve). (d) Transthoracic echocardiographic view after heparin infusion complete resolution of the thrombus (RV - right ventricle, TV - tricuspid valve)

positioned inappropriately in the right ventricular apex (Fig. 1a). Transthoracic echocardiography (TTE) revealed that the catheter entered the right ventricular apex and that there was a 63x12 mm semi-mobile mass attached to it (Fig. 1b, Video 1). The catheter was removed surgically. During the operation, the tricuspid valve was reported to be intact and without any abnormality. Although empirical antibiotherapy was initiated for the patient due to the suspicion of infective endocarditis, no bacterial growth was found on the catheter tip or in blood cultures. Pathological examination of the catheter tip showed organized thrombus with fibrin structure, so antibiotherapy was discontinued. Control TTE unexpectedly revealed a mobile mass on the lateral leaflet of the tricuspid valve with dimensions of 27x9 mm (Fig. 1c, Video 2). Since the tricuspid valve had no abnormality during the operation and postoperative blood cultures were negative, it was thought that thrombus occurred due to trauma during withdrawal of the catheter. Heparin infusion was initiated and control TTE performed 8 days later (Fig. 1d, Video 3) indicated that the thrombus had disappeared completely. Warfarin therapy was initiated and the patient was discharged without any problem.

Frequent complications of hemodialysis catheter include thrombosis, embolism, infection, and inappropriate positioning. TTE is important in the diagnosis and follow-up of these complications. Percutaneous or surgical retrieval, anticoagulation or thrombolytic therapy, and antibiotics are the main treatment options.

Video 1. Transthoracic echocardiographic view showing the catheter and the attached thrombus.

Video 2. Transthoracic echocardiographic view after surgical removal of the catheter showing the thrombus attached to the tricuspid valve.

Video 3. Transthoracic echocardiographic view after heparin infusion showing complete resolution of the thrombus.

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