

IMAGES IN CARDIOLOGY

An unusual presentation of delayed cardiac perforation caused by atrial screw-in lead

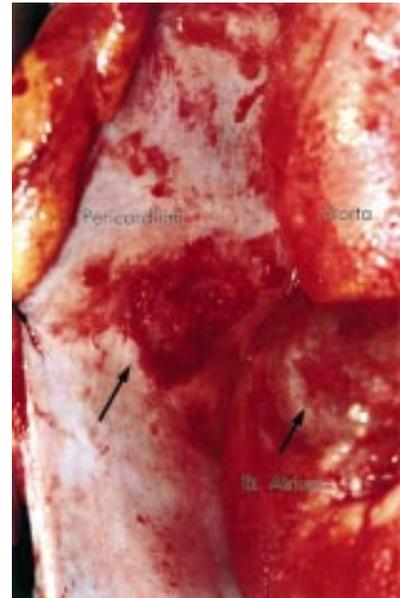
A 64 year old woman was admitted with sudden onset of sharp back pain radiating to the right arm, shoulder, and chest. She had undergone His ablation (for supraventricular tachycardia) with DDD pacemaker implantation one month previously. Physical examination, blood tests, ECG, chest x ray, computed tomographic chest scan, and pacemaker check were normal. An echocardiogram demonstrated a small (< 1 cm) pericardial effusion.

The patient's pain was treated as musculoskeletal, but two days after admission, she had a sudden haemodynamic collapse caused by cardiac tamponade. Haemoglobin had dropped from 13.4 g/dl to 7.8 g/dl (8.4 mmol/l to 4.8 mmol/l)

Tamponade was relieved by percutaneous aspiration, but drainage was incomplete. Hence open drainage was performed. It was found that the atrial screw-in lead had perforated the lateral right atrial wall (short arrow) and the pericardium (long arrow), causing haemopericardium. This was repaired and recovery was uneventful.

Cardiac perforation from atrial fixation electrode (usually the free wall of the atrium) is rare (0.6–1.2%), occurring during the procedure or within a few days, causing dyspnoea. The presentation in this case was delayed and atypical with back and shoulder pain, probably caused by phrenic nerve and pericardial irritation. Manifestations of perforation include elevation of sensing threshold and pacing failure. However, a normal pacing check may not exclude perforation. Ventricular perforation may seal spontaneously, but atrial perforation usually requires open drainage. Closed pericardiocentesis is rarely successful (< 25%).

Post-pericardiectomy syndrome, an autoimmune reaction to pericardial injury during implantation, can present similarly with effusion and tamponade, even after eight weeks of pacemaker implantation.

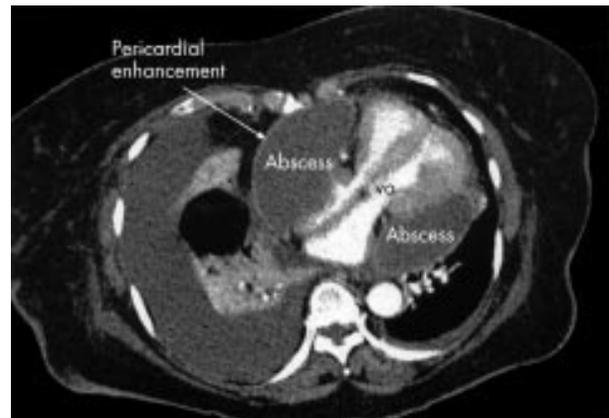


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Computed tomography imaging of cardiac tamponade secondary to a posterior pericardial abscess

A 61 year old woman with longstanding rheumatoid arthritis presented with a two month history of increasing breathlessness. On examination she had a raised jugular venous pressure, pitting oedema to the umbilicus, and dullness at the right lung base. There was clinical concern of pulmonary embolus so a computed tomography (CT) pulmonary angiogram was performed. This showed a moderate right pleural and pericardial effusions with no evidence of pulmonary emboli. Over the next few days the patient became septic with no obvious cause. Trans-thoracic echocardiogram on two occasions demonstrated what appeared to be only a small pericardial effusion. *Staphylococcus aureus* was grown from blood cultures and a repeat CT (right) performed on a 16 detector multislice CT showed a loculated posterior pericardial abscess (note subtle pericardial enhancement) compressing the ventricular outflow (VO) and causing severe tamponade. The posterior location probably accounts for the underestimation on echocardiography.

Using CT guidance, a 12 French pigtail drain was inserted into the pericardial space; 400 ml of purulent blood stained fluid was removed and subsequent culture grew *S aureus*. The



patient made an initial good recovery, but the pericardial collection reaccumulated and needed further drainage.

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