

Disseminated carcinoma of the breast with malignant pericardial tamponade and complete heart block – a case report

Omar Ismail*, MD (UKM)
Medical Officer

Tahir Azhar*, MRCP (UK), FFRRCS
Associate Professor and Deputy Dean

Khalid Yusoff*, MBBS (Melb), MRCP
Lecturer

Phang Koon Seng*, MBBS (UM), DCP (Lond)
Lecturer

**Department of Medicine, *Department of Pathology,
Faculty of Medicine, Universiti Kebangsaan Malaysia, 50300 Kuala Lumpur*

Summary

A 49 year old Malay women presented with pericardial tamponade 18 months following left segmentectomy and local irradiation for carcinoma of the breast. Subsequently she developed complete heart block terminating in cardiac arrest.

Key words: Disseminated carcinoma of the breast, pericardial tamponade, complete heart block.

Introduction

Cardiac involvement is one of the recognised causes of death in patients with breast cancer, pericardial involvement being the commonest¹. Myocardial involvement occurs less commonly.³ The incidence of cardiac metastases ranges from 0.1% to 20%.¹⁻⁵

Malignant pericardial involvement may be missed clinically due to its slow insidious onset or nonspecific symptoms.^{4,5} However about 50% of cancer patients have symptomatic non malignant pericardial disease. These include radiation pericarditis, drug-induced pericarditis, infection, hypothyroidism, autoimmune disorders and idiopathic pericarditis.⁴⁻⁵ These diagnosis are important in view of their being amenable to treatment.

We report here a case of carcinoma of the breast with metastates to the pericardium with probable involvement of the myocardium and the conducting tissue.

Case Report

A 49 year old premenopausal Malay woman had a left segmentectomy and axillary clearance for an infiltrating ductal carcinoma of the left breast (T₂ N₀ M₀) in March 1989. This was followed by post-operative radiotherapy of 4500 centigray to the left breast, the axilla and the supraclavicular region. The scar was boosted to another 1000 centigray.

Following this, she was apparently well till August 1989 when she became progressively breathless on effort. A month prior to admission she developed bilateral ankle edema which progressed to orthopnea.

Her past history was unremarkable apart from uncomplicated non-insulin dependent diabetes mellitus. There was no history of ischemic heart disease, hypertension or smoking.

On admission she was afebrile, but orthopneic with a tinge of jaundice. Her blood pressure was 90/70mmHg with pulsus paradoxus. Her pulse rate was 145/min, small volume and paradoxical. There was mild bilateral ankle edema and the jugular venous pressure was elevated up to the angle of the jaw. Kussmaul's sign was present. The apex beat could not be felt and the heart sounds were faint. In addition there were bilateral pleural effusion, ascites and nodular hepatomegaly, 14 cm in span.

A surgical scar was noted at the left breast with "peau de orange" change around the nipple. No axillary or supraclavicular lymph nodes were felt.

The ECG showed a sinus tachycardia of 150/min with a low voltage QRS complexes and flattened T waves throughout all the leads (Fig 1).

The chest radiograph showed globular cardiomegaly and mild bilateral pleural effusion. There was no pericardial calcification (Fig 2).

Echocardiography revealed massive pericardial effusion with thickening of the pericardium. There was right ventricular free wall diastolic collapse. Hyperechoic masses were seen on the epicardium at the apex and the right ventricular free wall.

A pericardiocentesis was performed via subxiphisternal approach draining 400ml haemorrhagic fluid. The blood pressure increased from 90/70 mmHg to 110/70 mmHg on aspirating the first 30ml of the pericardial fluid and this came up to 130/80 mmHg upon aspirating 400ml of the fluid. She became less dyspnoeic and could manage to sleep flat.

Pericardial fluid analysis showed a protein level of 40g/l with abundant red blood cells. A syncytium of malignant cells was seen (Fig. 3). Direct smears and cultures did not reveal any organism.

Blood urea and creatinine improved from 22.7 mmol/L and 192 umol/L to 8.4 mmol/L and 120 umol/L respectively following pericardiocentesis. The liver profile showed a bilirubin of 20 mmol/L, alanine transaminases of 185 iu/L and alkaline phosphatase of 166 iu/L with normal protein and albumin levels.

A week later, whilst awaiting systemic chemotherapy, she developed recurrent pericardial tamponade with acute pulmonary edema. In addition to low voltage complexes in ECG, she developed bradycardia with complete heart block with a ventricular rate of 50/min. (Fig. 4)

Repeat pericardiocentesis yielded 70ml haemorrhagic fluid. She required ventilatory support, temporary pacing and inotropic support with dopamine, but her hemodynamic status progressively deteriorated over 24 hours. She died of cardiac standstill. A postmortem was refused.

Discussion

This middle aged Malay woman presented with an insidious but progressive cardiac failure 18 months following a left segmentectomy and radiotherapy for her breast carcinoma.

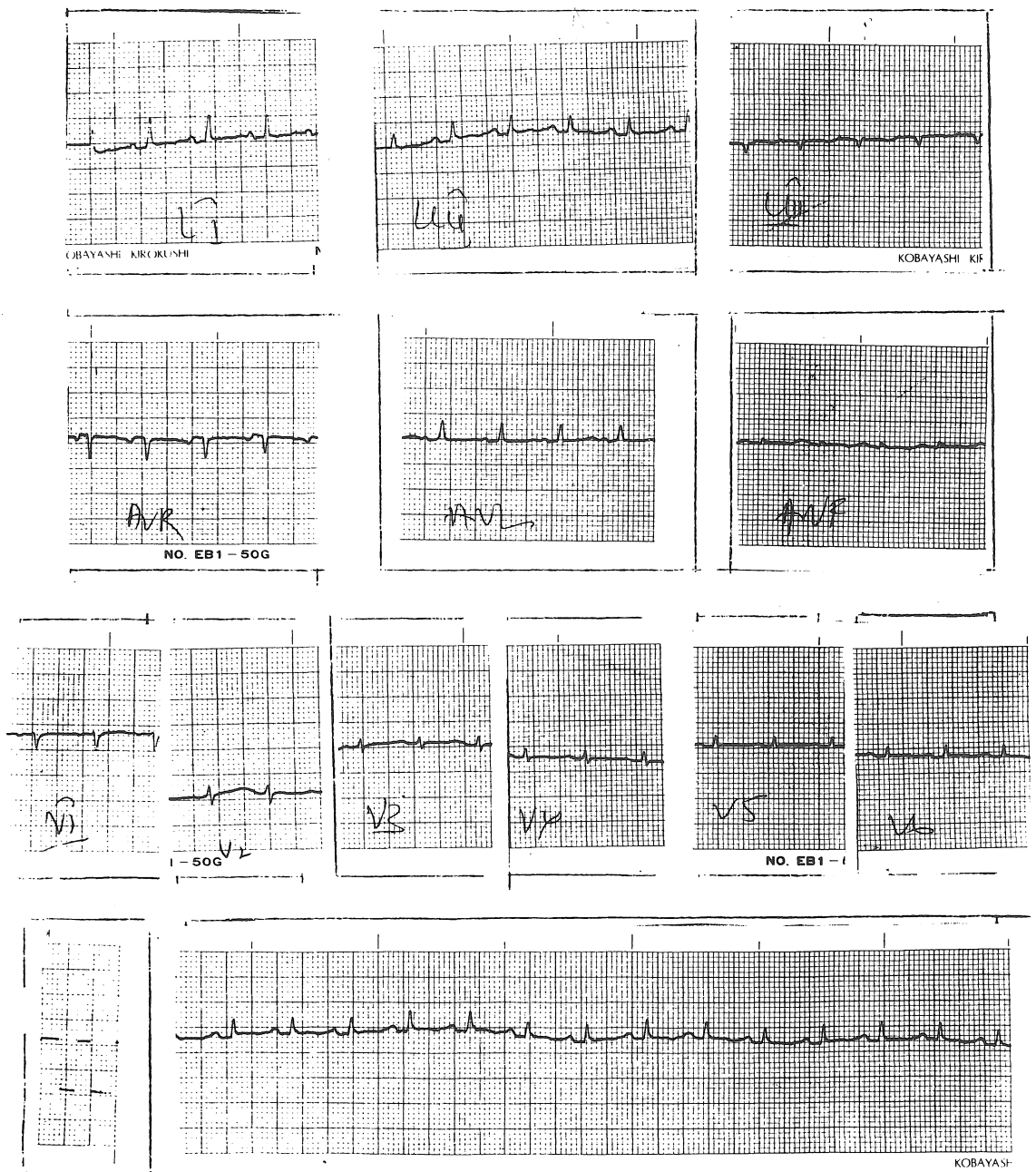


Fig. 1 : ECG at presentation showing low voltage complexes throughout all leads

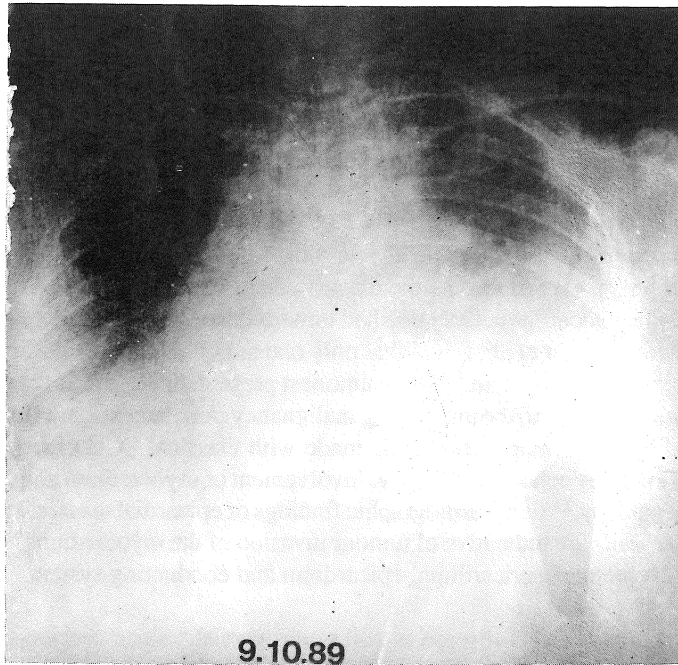
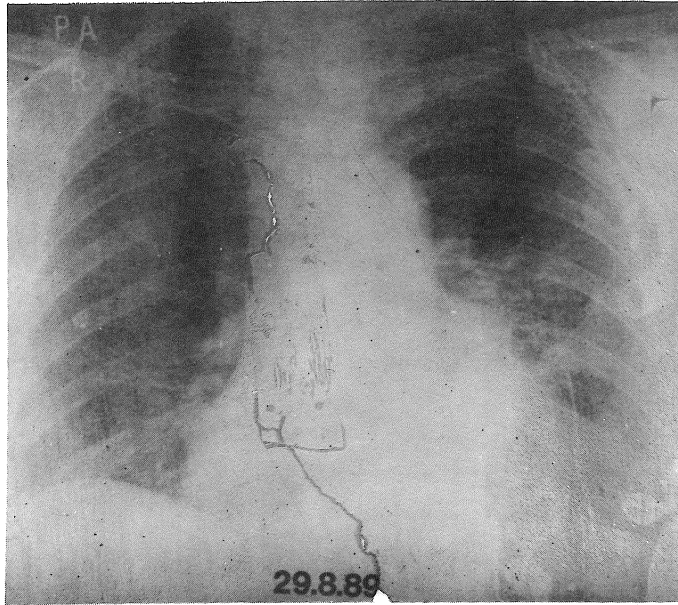


Fig. 2 : Series of CXR showing gradual enlargement of cardiac silhouette during follow-up after radiotherapy (29/8/89), and at presentation with cardiac tamponade (9/10/89)

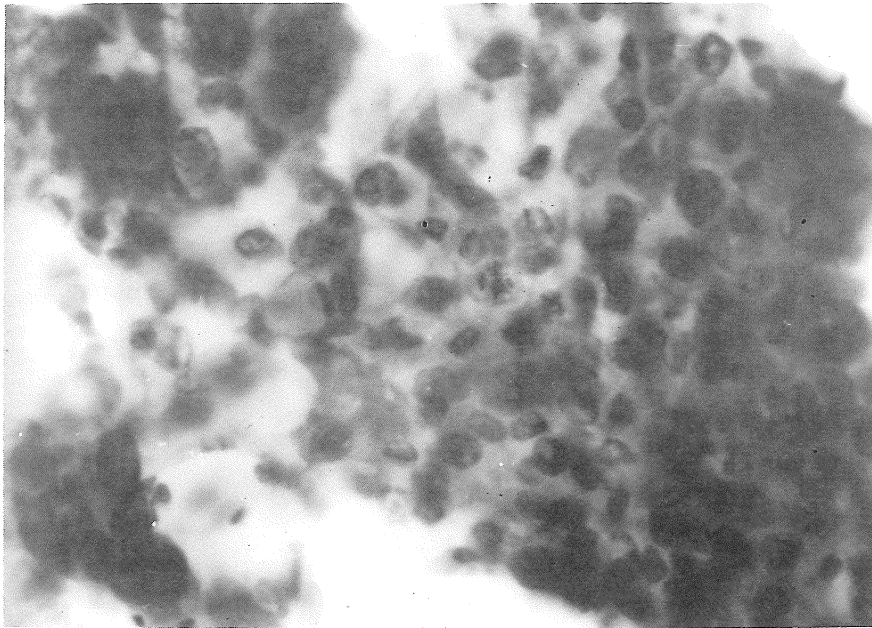


Fig. 3 : Pericardial fluid with a lot of red blood cells and syncytium of malignant cells.

Her main problem was recurrent malignant pericardial tamponade and probable tumour invasion of its conducting system as shown by the complete heart block and terminating in cardiac standstill.

Various reports have shown that cardiac metastases are not uncommon with breast cancer but they are usually silent initially.⁷

Biran et al³ in an autopsy study of 150 patients who died of malignant disease found 26 (18%) who had cardiac metastases; only six of these were diagnosed antemortem. A majority of them involved the pericardium and the myocardium. Only one had tumour invasion in sinoatrial and atrioventricular nodes.³ In another study, Posner et al⁶, found that only one out of 18 patients with cardiac metastases had involvement of conducting system.⁶ The commonest presentation is effort intolerance, as seen in this lady. This is often attributed to the underlying malignancy. At a later stage when they present with cardiac tamponade, a clinical diagnosis can be made with classical ECG changes, aided by chest radiograph and confirmed by echocardiography. Involvement of myocardium and conducting system is often diagnosed at autopsy.^{2,3} Echocardiographic findings of epicardial mass and poorly contracting thickened ventricular walls are indicative of tumour invasion of the myocardium.^{4,5} In this lady there is evidence for involvement of pericardium, epicardium and conducting system.

Therapy for malignant pericardial disease is still controversial.⁴ Since carcinoma of the breast is chemoresponsive in addition to cytotoxic drugs, pericardiotomy or window procedure should be considered for those patients who are not terminally ill to lessen the mechanical effect on the heart^{4,7} Intrapericardial instillation of chemotherapeutic agents has not been helpful, in contrast to malignant pleural effusion.^{4,5} With the involvement of myocardium and conducting system, the value of chemotherapy is further limited in view of their potential cardiotoxicity and advanced disease.

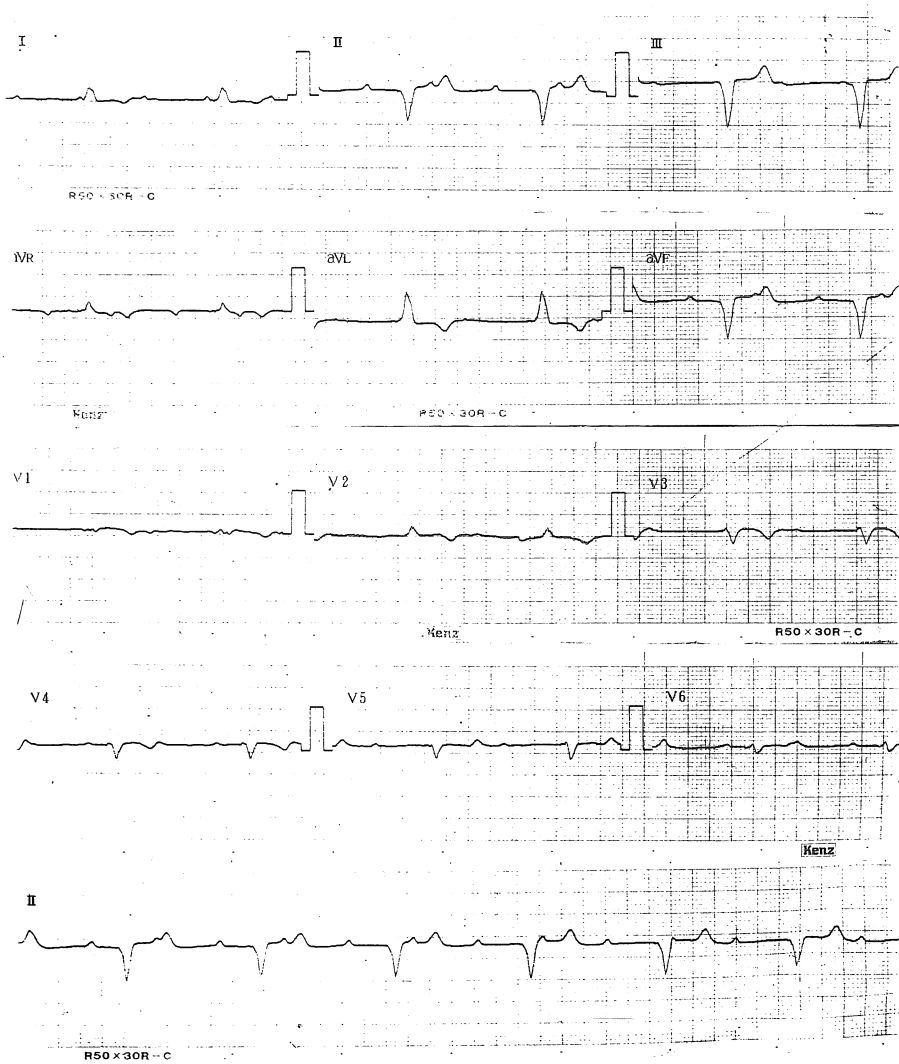


Fig. 4 : ECG during recurrent of pericardial tamponade with complete heart block

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