

Case Report

Massive haemorrhagic pericardial effusion in a patient with previously undetected lung carcinoma

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Introduction

Pericardial effusions can arise secondary to malignancies. Lung cancer is the commonest malignancy to cause pericardial effusion. Very rarely it can be the initial manifestation in previously undetected lung cancer. We present such a case of massive haemorrhagic pericardial effusion with cardiac tamponade as the initial manifestation of a previously undetected lung adenocarcinoma.

Case Report

A 41-year-old previously healthy lady presented to us with acute shortness of breath. There was no fever, chest pain or cough. Urine and bowel habits were normal. There was no family history of malignancies or thrombotic conditions. She was a housewife and a non-smoker and had no exposure to toxic or carcinogenic material.

On examination she was dyspnoeic with O₂ saturation of 93% on air. Blood pressure was 90/70 with a pulse rate of 116 bpm. Her jugular venous pulse was increased. Lungs were clear but she had muffled heart sounds. Urgent ECG showed electrical alterans. Troponin I was negative. Chest Xray was suggestive of a pericardial effusion. Urgent cardiology referral was done and 2D Echo revealed a massive pericardial effusion with right atrial and ventricular collapse. She was prepared for pericardiocentesis and 870cc of haemorrhagic fluid was aspirated with a pigtail catheter kept in situ.

Other investigations revealed WBC $13.25 \times 10^9/L$, Hb 9.1g/dL, MCV 85fL, MCH 27pG, PLT $283 \times 10^9/L$, Na 138mmol/L, K 3.9mmol/L, Serum Cr 76umol/L, ALT 40U/L, AST 28U/L, Alb 37g/L, Total protein 67g/L, Total bilirubin 11umol/L, CRP 27mg/L, ESR 72mm in 1st hour, TSH 2.25miU/L, Serum corrected Ca 2.29mmol/L, PO4 1.3mmol/L. Urine full report was normal. Pericardial fluid bacterial culture was sterile with negative TB culture. Pericardial fluid amylase and ADA levels were normal. LDH was 1691U/L against a serum LDH level of 342U/L. No malignant cells were seen in pericardial fluid cytology. Rheumatoid factor, ANA, serum ACE and vit B12 levels were normal. Ultra sound scans of breasts and thyroid were normal. Over the next few days, she needed 4 more pericardiocentesis via pigtail catheter, with haemorrhagic fluid being aspirated each time. For the evaluation of recurrent pericardial effusion, a contrast enhanced CT scans of the neck, chest and abdomen were done and they showed a suspicious lung mass in the right hilum measuring 2.5*3.8 cm, along with mild residual pericardial effusion. She was referred for chest physician's opinion and a bronchoscopy with biopsy was planned. A lesion of the segmental division of the right bronchus with mucosal surface infiltration was identified on bronchoscopy and the biopsy report showed invasive adenocarcinoma of the bronchus. Following an oncology referral, she was referred for initiation of chemotherapy.

Discussion

Pericardial involvement in malignancies often goes undetected, unless the patient presents with massive pericardial effusion and cardiac tamponade. Lung is the commonest primary site of malignancy associated with a pericardial effusion, with an incidence of approximately 30% [1]. In particular, non-small cell lung cancer harboring anaplastic lymphoma kinase rearrangement is most likely to cause pericardial effusions. [1,2,3]. Previously undetected malignancy with an initial presentation with a pericardial effusion is only rarely reported.

The normal pericardium has parietal and visceral layers, separated by 15 – 50 mL of fluid. Lung cancer can cause pericardial effusions due to local invasion, metastases or lymphatic obstruction [1,2]. The clinical features will depend on the fluid volume, rate of exudation and pericardial wall compliance. Large effusions may present with acute or subacute cardiac tamponade resulting in hypotension, tachycardia, narrow pulse pressure, jugular venous distension and pulsus paradoxus. Tamponade and haemorrhagic effusions are more common in malignancies and therefore a high index of suspicion for underlying malignancy is necessary [1,2,3].

Echocardiogram is the initial diagnostic test (4). Pericardial fluid analysis including malignant cytology and chest and abdominal imaging with contrast enhanced CT or MRI should be undertaken for the detection of an underlying tumor. In case of a lung tumour, tissue diagnosis with CT guided biopsy or bronchoscopic biopsy, depending on the site of the lesion, is important [2,3,5].

Treatment varies depending on the clinical presentation, size of the effusion and underlying malignancy. Patients with cardiac tamponade require emergency

pericardiocentesis. Repeated aspirations may be necessary depending on the recurrence of the effusion. Malignant pericardial effusions are a marker of an advanced malignancy and has a poor prognosis with median survival ranging between 7 to 15 weeks. However non-malignant pericardial fluid cytology, as in our patient, has a much higher median survival. Treatment for the underlying malignancy depends on the tumor stage, presence of metastases and tissue type [1,2,3].

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