Unusual presentation of more common disease/injury

Malignant pericardial effusion in a patient with prostate adenocarcinoma

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Correspondence to Dr Nerys Conway, nerys.conway@doctors.org.uk**Summary**

The authors discuss a rare case of pericardial effusion secondary to carcinoma of the prostate. A month after therapeutic pericardiocentesis there was a haemodynamically significant recurrence, necessitating a pericardial window. The authors discuss pericardial effusion and the management of such patients.

BACKGROUND

This is an unusual case bringing together cardiology and oncology.

CASE PRESENTATION

This gentleman with no previous medical history was diagnosed with prostate adenocarcinoma in May 2009. He presented with acute urinary retention to the urologists. His prostate specific antigen was 136 ng/ml. Transrectal ultrasound and biopsy confirmed Gleason 9 adenocarcinoma and a bone scan showed skeletal metastatic disease (T3 NX M1). He had an echocardiogram at the time of diagnosis due to an incidental finding of a new murmur. His echocardiogram was unremarkable with an ejection fraction of >55%. He was commenced on leuprorelin acetate injections every 12 weeks, which were initially given over

an 18-month period. He was selected for the 'Trapeze' trial in January 2011, which consisted of six cycles of three weekly infusions of zoledronic acid and doctazacel. He was also commenced on daily prednisolone. He was entered in the trial to improve his survival rate, decrease his bone pain, improve his quality of life and delay his disease progression. He presented as an emergency to the acute medical intake in mid-October 2011 with a 5-month history of progressive dyspnoea and paroxysmal nocturnal dyspnoea.

INVESTIGATIONS

Transthoracic echocardiogram showed a large global pericardial effusion with echocardiographic criteria for tamponade. His ejection fraction was measured at 43% with right atrial collapse (videos 1–3 and figure 1). 1.5 litres

Figure 1 Subcostal view in systole showing a 5 cm pericardial effusion.

of dark orange cloudy fluid was initially drained. The drain remained insitu and drained a further litre in 48 h. Subsequent echocardiogram showed complete resolution of the effusion and he was discharged home. Cytology confirmed adenocarcinoma identical to the initial tumour. He was due to be followed up 6 weeks after discharge but he was readmitted with dyspnoea 1 month later and an emergency echocardiogram confirmed recurrence of the pericardial effusion, an ejection fraction of 44% and right atrial collapse.

Video 1 Transthoracic echocardiogram – an apical four chamber view showing a large global pericardial effusion with right atrial and ventricular collapse.10.1136/bcr.01.2012.5570v1

Video 2 Transthoracic echocardiogram – a parasternal short axis view at the aortic level showing a large pericardial effusion and right ventricular collapse.10.1136/bcr.01.2012.5570v2

Video 3 Transthoracic echocardiogram – a subcostal view showing a large global pericardial effusion with collapse of the right atrium.10.1136/bcr.01.2012.5570v3

TREATMENT

He was referred to the local tertiary centre and received a pericardial window. He is currently receiving abiraterone from the oncologists for his prostate cancer.

OUTCOME AND FOLLOW-UP

His prognosis remains poor. He is being reviewed as an outpatient by both the cardiothoracic surgeons and oncologists.

DISCUSSION

Malignancy is a common cause of pericardial effusion. A study by Gornik *et al* at Massachusetts stated that within a 4 year period 43.8% of patients who underwent pericardiocentesis had a malignant pericardial effusion.¹ The most common cause is lung carcinoma in men and breast or uterine carcinoma in women.² However, there have been very few cases reported in the literature of a malignant pericardial effusion secondary to prostate adenocarcinoma.^{3–5} There have also been very few cases reported of malignant pericardial effusion secondary to endometrial carcinoma.⁶

There is limited literature on the timing of a malignant pericardial effusion in relation to the original malignancy. Holdener *et al* stated that within a group of patients with a malignant pericardial effusion, 50% of patients presented with a malignant pericardial effusion as the initial manifestation of the disease. In the other group of patients, the malignant pericardial effusion appeared approximately 11 months after initial diagnosis of their malignancy.⁷

Postmortem studies have demonstrated that approximately 15–20% of patients with cancer have metastatic disease to the heart and pericardium.⁸ Malignancy related pericardial effusion is associated with a poor prognosis. Gornik *et al* reported a mean survival of such patients was approximately 15.1 weeks. In those patients with malignant or atypical cells within the effusion, the estimated survival was 7.3 weeks.¹ A similar study conducted by the Mayo clinic stated that survival was approximately 19.3 weeks.⁹

The management of such patients is a complex problem. Management may include observation, intrapericardial instillation of sclerosing agents, cytotoxic therapies, immunomodulators or surgical drainage procedures.³ Laham *et al* suggested that pericardial window or percutaneous balloon pericardiectomy should be considered as initial treatment to avoid reoccurrence.⁸ Cozzj *et al* suggested that management varies for different tumour types. For example systemic chemotherapy can be used for lymphoma and leukaemias whereas for percutaneous drainage plus systemic abd or local sclerosing agents with antineoplastic therapy seem to be preferred for solid tumours.¹⁰

Pericardial effusion is a frequent complication of malignant disease. In those patients suffering from cancer who present with dyspnoea and chest discomfort it is important to consider pericardial effusion as a possible diagnosis, arrange transthoracic echocardiogram and formulate an appropriate management plan in relation to the individual needs of the patient.

Learning points

- It is important to consider a malignant pericardial effusion in a patient suffering with cancer that presents with dyspnoea and chest discomfort.
- Appropriate discussion between the cardiologist, cardiothoracic surgeon and oncologist is vital to decide on the best management for the patient.
- Malignancy is a common cause of pericardial effusion.
- Prostate carcinoma is a rare cause of a malignant pericardial effusion.
- Adequate follow-up after drainage is necessary, to prevent patients from re-presenting as emergencies with cardiac tamponade.

Competing interests None.

Patient consent Obtained.

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Please cite this article as follows (you will need to access the article online to obtain the date of publication).

Conway N, Hutchison S. Malignant pericardial effusion in a patient with prostate adenocarcinoma. *BMJ Case Reports* 2012;10.1136/bcr.01.2012.5570, Published XXX

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