

Massive Pericardial Effusion

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Dear Editor,

The widespread growth of bedside ultrasound, including echocardiogram, in emergency medicine allows physicians to make rapid diagnoses in the resuscitation room, without the need for other specialists or advanced imaging. With a little training, emergency physicians can attain basic echocardiogram skills relevant to their practice, allowing diagnosis of conditions such as pericardial effusion. We present one such case where the bedside echocardiogram allowed diagnosis of a massive pericardial effusion out of hours, when formal echocardiogram was not available and there was no on-call cardiology service to assist in diagnosis.

A 35-year-old male patient presented to the Emergency Department (ED) with a one-week history of shortness of breath and cough. He was haemodynamically stable. Despite appearing comfortable, his oxygen saturation on room air was 69%. He has a history of pulmonary hypertension secondary to congenital hypoventilation syndrome and requires non-invasive ventilation at night.

A chest radiograph was obtained which showed a markedly enlarged cardiac silhouette. This was followed by a bedside echocardiogram which confirmed the presence of a large pericardial effusion. Despite this, the right and left ventricular function were preserved. On review of his chart, it was revealed that five years previous, he required pericardiocentesis for a massive pericardial effusion. He had since been lost to follow up and had recently discontinued his diuretic and sildenafil.

The diagnosis was made of a well-tolerated, large, likely chronic pericardial effusion. The following day the patient was transferred to a tertiary centre where 2.6L of pericardial fluid was drained. His symptoms resolved and he was discharged home several days later.

In normal circumstances 15-50ml of serous fluid is present within the pericardial sac, any more than this is considered to be a pericardial effusion¹. The aetiology of pericardial effusion includes infection, inflammation, malignancy, traumatic or iatrogenic myocardial defects, and aortic root dissection.

Pericardial effusions can be categorised according to size, by measuring the degree of echo-free space on echocardiogram. They can be small (<10mm), medium (10-20mm) or large (>20mm)². On formal echocardiogram, the patient in this case had an echo-free space of >70mm.

An estimated 25-30% of patients with pulmonary hypertension (PH) have evidence of pericardial effusion on echocardiogram³. When the effusion collects slowly over time, very large effusions can be tolerated well with minimal effect on haemodynamic function. In patients with PH, recommendations currently suggest drainage for effusions causing tamponade, and for those over 20mm in depth⁴.

In conclusion, it is important to remember that patients with PH are at increased risk of developing pericardial effusion and that these effusions can become very large if they develop slowly. Bedside ultrasound aids in the rapid diagnosis of pericardial effusion without moving the patient to a different part of the hospital.

Yours sincerely.

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