

## A “Swimming” Heart

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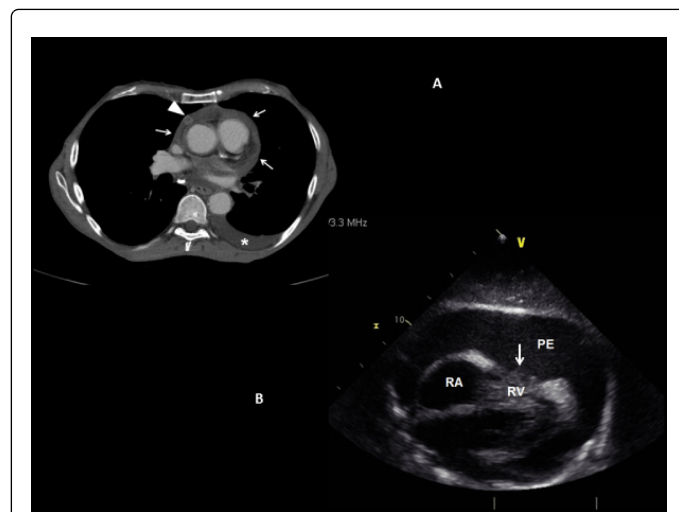
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### Case

A 61-year-old man was seen by an oncologist for evaluation of a pluri-metastatic pulmonary adenocarcinoma. Thoracic computed tomography, performed two weeks earlier (Figure 1A) showed a left-sided pleural effusion and pericardial metastasis with a small pericardial effusion. During physical examination the patient presented shortness of breath and dizziness. Jugular venous distension, sinus tachycardia (140/min) and pronounced systolic arterial hypotension (70 mmHg) with pulsus paradoxus prompted the suspicion of cardiac tamponade.

In the emergency room a transthoracic echocardiography subcostal view revealed a “swimming” heart with swinging motion due to a huge, relevant pericardial effusion producing diastolic collapse of the free right ventricular wall (Figure 1B).



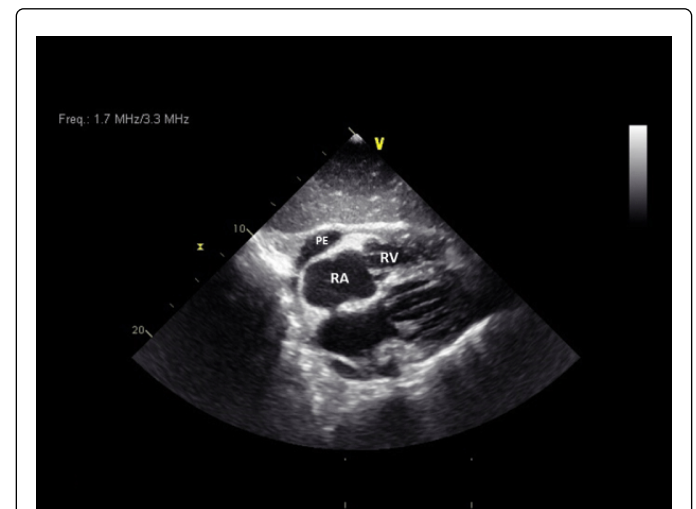
**Figure 1:** (A) Thoracic CT scan, showed a left-sided pleuric effusion (\*), pericardial metastasis (arrowhead) and small pericardial effusion (arrows); (B) Transthoracic echocardiogram (subcostal 4 chamber view) revealed a large pericardial effusion (PE) with diastolic collapse of the free right ventricular wall (head, RV). RA= right atrium; RV= right ventricle; PE= pericardial effusion

An urgent needle pericardiocentesis was performed and just 200 ml of sero-hemorrhagic fluid were removed, and signs and symptoms of cardiac tamponade rapidly disappeared. A total of 1200 ml of liquid was progressively evacuated. Repeat echocardiogram revealed no relapse of pericardial effusion, a quasi-voided pericardial space and

good diastolic distension of the free right ventricular wall (Figure 2). Consecutively, a pericardiodesis with cytomycin was affected.

Cardiac tamponade is the accumulation, acute or sub-acute, of pericardial fluid leading to compression of all cardiac chambers due to increased pericardial pressure [1]. Metastatic lung cancer is one of the causes which induce a pericardial hemorrhagic effusion [2].

Although clinical history and physical examination are important elements to suspect cardiac tamponade, the two-dimensional and Doppler echocardiography play major roles in the identification of pericardial effusion and in assessing its hemodynamic significance [3]. In the present case the diagnosis was reached through the interpretation of clinical history and of the clinical signs. The initial suspicion of cardiac tamponade was confirmed by echocardiography, which demonstrates a “swimming” heart into a large pericardial effusion suggesting hemodynamic compromise of the right chamber.



**Figure 2:** Transthoracic echocardiogram (subcostal 4 chamber view) show minor pericardial effusion (PE) without diastolic collapse of the free right ventricular wall (RV). RA= right atrium; RV= right ventricle; PE= pericardial effusion

### References

1. Spodick DH (2003) Acute cardiac tamponade. *N Engl J Med* 349: 684-690.
2. Permanyer-Miralda G (2004) Acute pericardial disease: approach to the aetiologic diagnosis. *Heart* 90: 252-254.

3. Imazio M, Adler Y (2013) Management of pericardial effusion. Eur Heart J 34: 1186-1197.