



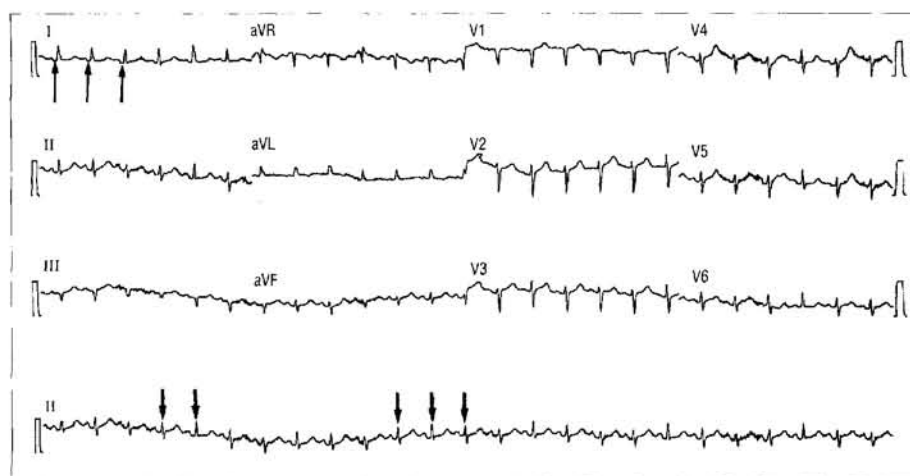
<b>Title</b>	<b>ECG Round: A lady with dyspnoea for 2 days</b>
<b>Author(s)</b>	<b>Pang, FC; Wan, SH; Lau, CP</b>
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## A Lady With Dyspnoea For 2 Days

### Clinical History:

A 48-year-old lady with known history of carcinoma of cervix stage IIIb, presented with dyspnoea for 2 days. Her blood pressure was 90/50. The following ECG was obtained. (Figure 1)

Figure 1



### Question 1: What was the ECG diagnosis?

- A. Acute pulmonary embolism
- B. Pericardial tamponade
- C. Atrial flutter
- D. Atrial ectopic

This ECG Round was prepared by: **Dr. F C Pang**, MBChB(CUHK), MRCP(UK)  
**Dr. S H Wan**, MBChB(CUHK), MRCP(UK), FHKCP, FHKAM  
Department of Medicine & Geriatrics,  
Tuen Mun Hospital.  
**Professor C P Lau**, MD, FRCP, FRACP, FACP  
Department of Medicine,  
The University of Hong Kong.

# ECG ROUND

## Answer : B. Pericardial tamponade

The ECG shows low voltage of QRS in all leads and sinus tachycardia with rate of 152/min. In the long lead II, the electrical alternans (marked with ↓) was noted and PR segment depression (marked with ↑ in lead I) was also seen in some complexes. Therefore, the diagnosis is likely to be pericardial effusion.

An echocardiogram was performed for this patient and confirmed the diagnosis. The tamponade effect on the heart can be shown by the following features: abnormal respiratory changes in ventricular dimensions, right and left atrial compression, right and left ventricular diastolic collapse, abnormal respiratory variation in tricuspid and mitral flow velocities, dilated inferior vena cava with lack of inspiratory collapse.<sup>1</sup> Sometimes, a swinging heart can be seen and it is the proposed cause of electrical alternans on ECG.

Clinical features include elevated jugular venous pressure, low blood pressure, Kussmaul sign and paradoxical pulse. CXR of this patient also revealed cardiomegaly with a globular heart.

The three ECG signs (PR depression, electrical alternans, low voltage) were specific but not sensitive for pericardial effusion (specificity 89% to 100%; sensitivity, 1 to 17%) and cardiac tamponade (specificity 86% to 99%; sensitivity, 0 to 42%). The low voltage was associated with large and moderate pericardial effusions.<sup>2</sup> Therefore the 12-lead ECG has poor diagnostic value for pericardial effusion and cardiac tamponade. The clinical symptoms and signs, CXR, ECG and then echocardiogram are necessary in making a correct diagnosis.

## Question 2: What is the most likely cause of the diagnosis?

- A. Malignancy
- B. Myocarditis
- C. Drug induced
- D. Acute myocardial infarction

## Answer : A. Malignancy

Neoplastic pericarditis most commonly results from either direct extension or lymphatic metastasis of a primary intra-thoracic tumour. It can also spread by haematogenous metastasis of a distant neoplasm. Carcinoma of the lung and breast can frequently spread to the pericardium directly while lymphoma and leukaemia spread via haematogenous route.

Infective causes of pericardial effusion include acute viral pericarditis, TB pericarditis, and purulent pericarditis (most common in children).

Aseptic pericarditis can result from acute myocardial infarction, post-cardiac injury syndrome and uraemic pericarditis.

## Question 3: What would you do?

- A. Anticoagulation
- B. Pericardiocentesis
- C. Observation
- D. Direct current cardioversion

## Answer : B. Pericardiocentesis

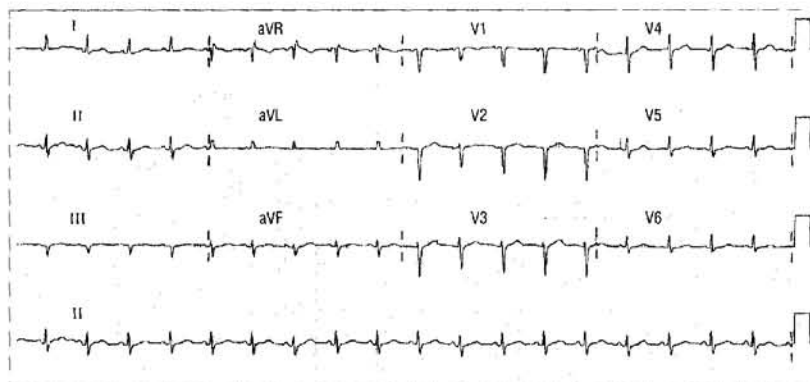
The decision of pericardiocentesis strongly depends on etiology and clinical status of the patient. When haemodynamic compromise is severe with dyspnoea or falling blood pressure, urgent pericardial drainage is indicated.

There are a number of approaches for performing pericardiocentesis. Subxiphoid approach was preferred because the chances of lacerating a coronary vessel or entering the left pleural space are minimized.

Figure 2 is the ECG done after pericardiocentesis and it shows sinus rhythm within heart rate of 100/min. For those effusions which are likely to recur, it is useful to leave a plastic cannula or a drain in the pericardium for several days. Surgery like subxiphoid pericardiotomy under local anaesthesia can be done together with biopsy of the pericardium for histological study.

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Figure 2



For treatment of a malignant pericardial effusion, introduction of sclerosing agents, creation of a pericardial window, complete pericardial stripping (pericardiectomy), cardiac irradiation or systemic chemotherapy can be considered. ■

## References

1. Noble O. Fowler: Cardiac tamponade, a clinical or an echocardiographic diagnosis? *Circulation* 1993;87(5):1738-1741.
2. Mark J. Eisenberg: The diagnosis of pericardial effusion and cardiac tamponade by 12-lead ECG: *CHEST* 1996;110:318-324.

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## CORRIGENDUM

An Editorial error occurred in the Gastric Cancer – An

Overview by Dr. K.M. Chu, *HK Pract* 1999;20(8):357-364, Page 363, Figure 1b.

The arrow should be pointing to a liver metastasis which has responded to chemotherapy.