Economy Class Syndrome?

By Keith J.C. Finnie, MB, ChB

Vignette

A 30-year-old woman who returned from a business trip to the Far East one day earlier presents with complaints of chest pain and shortness of breath. The only medication she is taking is the oral contraceptive pill. Her cardiovascular examination is normal. The emergency department physician orders a ventilation/perfusion lung scan and requests a cardiology consultation. An electrocardiogram (ECG) is obtained (Figure 1).

Questions

1. What ECG abnormalities are shown?
2. What is the most likely diagnosis?
3. What did the lung scan show?

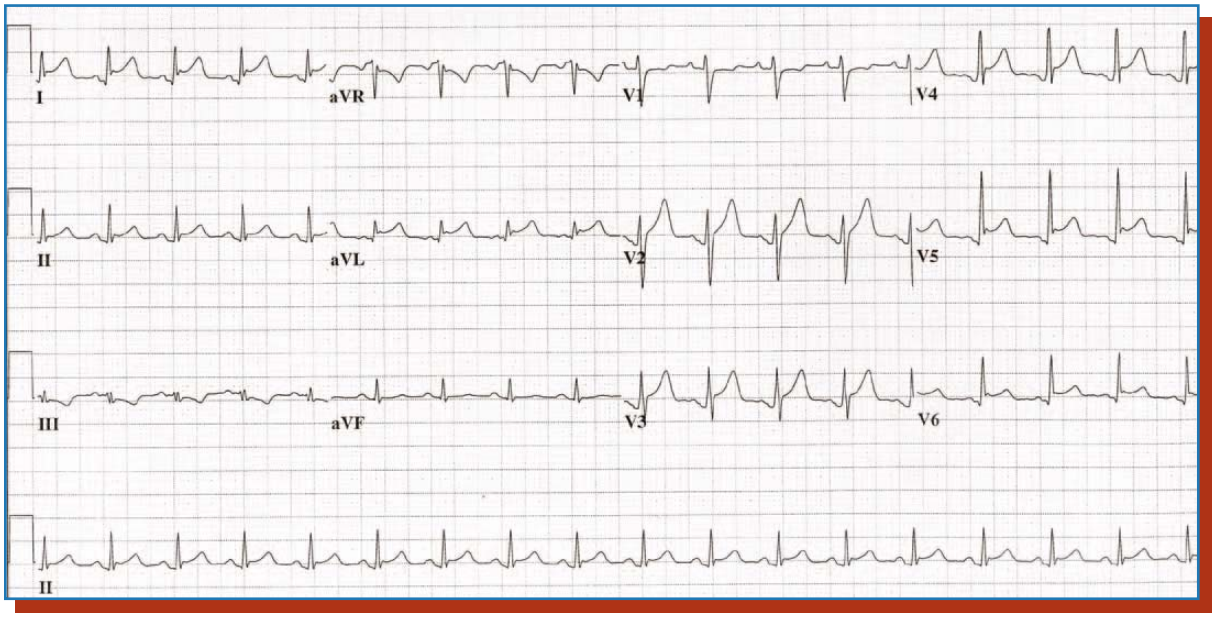

Figure 1. ECG of a young woman with chest pain.

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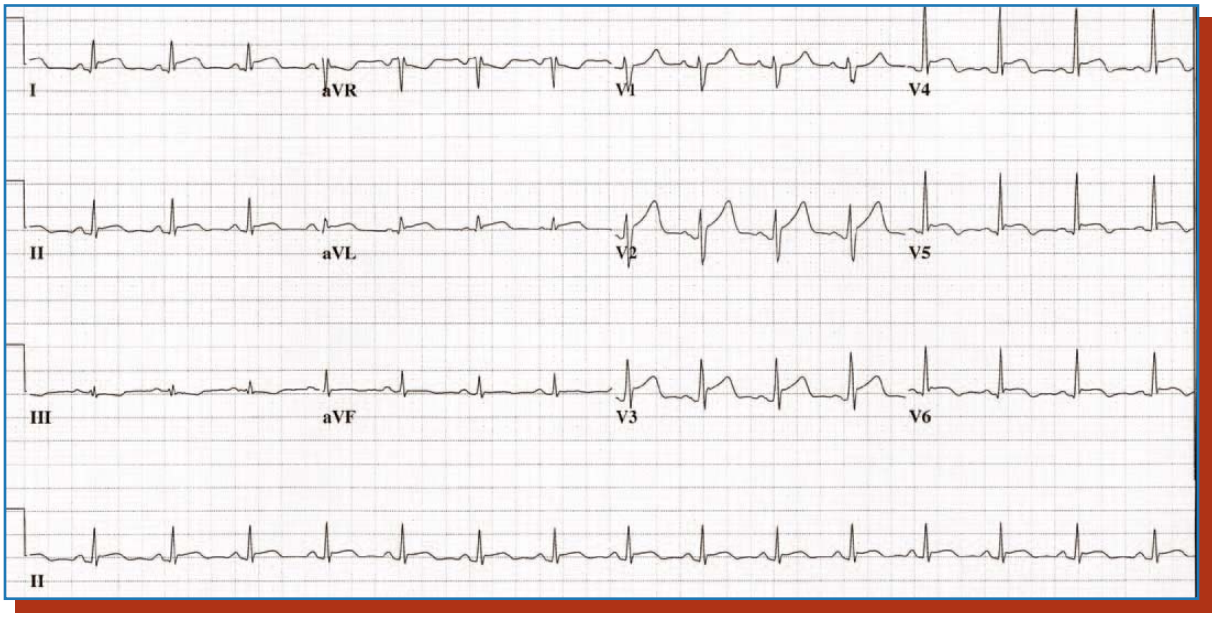

Figure 2. ECG three days after patient's presentation.

Answers

1. The ECG shows a sinus tachycardia at 104 beats per minute. The QRS complexes are normal. There is diffuse, concave-upwards ST segment elevation in most of the limb and precordial leads, with the exception of leads III, aV_R and V_1. In addition, some leads show PR segment depression, most noticeable in V_3 and V_4.

2. The ECG changes are typical for acute pericarditis. The ST segment changes are due to diffuse inflammatory injury to the superficial layers of the subepicardial myocardium (a diffuse superficial myocarditis) and can usually be distinguished from the early changes of acute myocardial infarction by their distribution. The PR segment depression is thought to be due to an atrial current of injury associated with inflammation of the pericardium overlying the atria. This can be helpful in distinguishing the ST segment elevation of pericarditis from that of early repolarization, in which PR segment depression does not occur. As the acute pericarditis resolves, the ST segments return towards baseline and T wave inversion may appear and persist for days or weeks. The ECG shown in Figure 2 was obtained three days after the patient's presentation and demonstrates these T wave changes. The ECG will usually return to normal over the next few weeks. The T wave changes may persist indefinitely, although this is a rare occurrence.

3. The lung scan, not surprisingly, was normal. The following day the patient had an easily heard pericardial friction rub, confirming the clinical diagnosis. Dx