Country cardiograms case 43: Answer

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Figure 1 (on page 63) shows an electrocardiogram (ECG) that is within normal limits, with normal sinus rhythm at a rate of 62 beats/min, normal complexes and intervals, and an axis of 0°.

The interpretation of Figure 2 (on page 64), without knowledge of Figure 1, might have read as follows: normal sinus rhythm, 93 beats/min; normal intervals; axis in fourth quadrant (265°), transition zone shifted to the left; small r waves in inferior leads, possible left anterior fascicular block; consider old inferior myocardial infarction. No significant ST–T changes.

Consideration of the 2 tracings together, however, allows a different interpretation to emerge. The interval changes, other than the axis shift, are mostly in the inferior leads and leads V5–V6. There has been loss of height of R waves in these leads, especially in leads II, V5 and V6; only a minute r wave remains in lead II (and it appears to disappear completely at times, likely in accordance with respiration). Deep S waves have developed.

The electrocardiographic changes of myocardial infarction classically involve ST-segment elevation or depression, T-wave changes (tall in the hyperacute phase, deeply inverted later) and the evolution of abnormal Q waves.

Not all myocardial infarction presentations follow these rules. The loss of height of R waves can be regarded as a "Q-wave equivalent." This forms the probable explanation of the pattern of change seen in these ECGs, suggesting involvement of the inferior and lateral myocardium. The elevated troponin T levels, indicating myocardial damage, support this. It is possible, of course, that there were ST-segment changes of short duration that were not picked up by these electrocardiograms.

This patient required transfer to a tertiary centre. On coronary angiography, extensive disease was apparent, and 5 stents were inserted.

Inferior myocardial infarction may present more with dyspeptic symptoms rather than typical chest pain, and patients with diabetes have a higher incidence of myocardial infarction that is silent or has seemingly minor symptoms. There will always be patients who present to the emergency department with atypical symptoms, with investigations that are initially negative.

Dealing with such cases appropriately can be challenging. Troponin levels take time to become elevated, and follow-up tests are therefore required if the presentation occurred within the first 8 hours of symptom onset. In this patient, the fact that symptoms had been present for 24 hours at the time of the initial investigations, and were abating, would have made it tempting to regard the initial results as accurate. However, the troponin rise only occurred later. This patient serves as a reminder that rules are not absolute and that meticulous follow-up has benefits.

For the question, see page 63.

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