IMAGE CHALLENGE

De Winter’s wave

CLINICAL INTRODUCTION
A 45-year-old man was admitted to the ED because of an acute retrosternal chest pain which prolonged for 20 min. He was overweight and a regular smoker. When admitted the pain had disappeared and the physical examination remained normal. The ECG was normal (figure 1). The ultrasensitive T troponin remained negative (H0 and H+3). He was treated for a non-ST elevation myocardial infarction and transferred to the inpatient ward.

A few hours later, he once again presented with severe and continuous chest pain. The ECG was performed 5 min after the onset of the pain (figure 2).

QUESTION
What is your diagnosis?
A. Normal ECG
B. Hyperkalaemia
C. Acute occlusion of the left anterior descending coronary artery
D. Hypocalcaemia

For the answer see page 851

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Figure 1  Normal ECG.

Figure 2  ECG realised 5 min after the beginning of the chest pain.
De Winter’s wave

For the question see page 830

ANSWER: C

The second ECG (with pain) shows wide, positive and symmetrical T waves, with a depressed J point from V1 to V3 (*). There was no ST segment elevation. There was slight ST segment elevation on aVR (+) (figure 3).

These abnormalities have recently been described as ‘De Winter’s wave’, which is the ECG picture of a proximal occlusion of the left anterior descending coronary artery, present in 2% of STEMI.

Diagnostic criteria for ‘De Winter’s wave’ are a J point depression, a symmetrical T wave and a possible isolated ST elevation in aVR.

This ECG highlights the thin boundary between STEMI and NSTEMI, showing that NSTEMI with De Winter’s wave should be treated as STEMI.

Hyperkalaemia is manifested by widened QRS complexes and peaked T waves on the ECG. Hypocalcaemia is often associated with an elevated J point and short QT segment.

The patient was urgently referred for a coronary angiography, which confirmed the proximal occlusion of the left anterior descending coronary artery.

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Figure 3  ECG realised 5 min after the beginning of the chest pain annotated.

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