

De Winter sign in a patient with left main coronary artery occlusion

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Case report

A previously healthy 31-year-old man with a history of smoking presented with severe prolonged chest pain for more than one hour duration. ECG taken on admission revealed slightly widened QRS complexes, and ST segment elevations in leads aVR, aVL, V₁ and V₂ in contrast to up-sloping ST-segment depressions in leads D_I, D_{III}, aVF and V₃₋₆ at the J point (Figure 1 A), which is called de Winter sign. Subsequent urgent coronary angiography revealed almost total occlusion of the left main coronary artery (LMCA) with severe thrombus formation (Figure 2) and poor distal filling of both the left anterior descending (LAD) and circumflex (CX). The patient underwent a successful coronary artery bypass grafting (CABG) operation with the bilateral internal mammary arteries to

the LAD and CX. His post-op. ECG substantially improved, as shown in Figure 1 B. He was discharged 10 days later with optimal medical therapy.

Although the underlying mechanism remains elusive, de Winter sign is generally ascribed to occlusions in the proximal segment of the LAD artery and is not mentioned among the ECG patterns representing acute left main coronary artery (LMCA) occlusion [1, 2]. Unfortunately, there is no single type of ECG pattern indicating sudden total occlusion of the LMCA [3]. Various factors such as individual differences in coronary anatomy, recruitment of collateral channels and repeated episodes of ischemia with preconditioning, the size of the jeopardized myocardium, timing of the ECG recording, partial obstruction causing some residual flow and different phases of the thrombotic cascade may all be responsible for the differ-

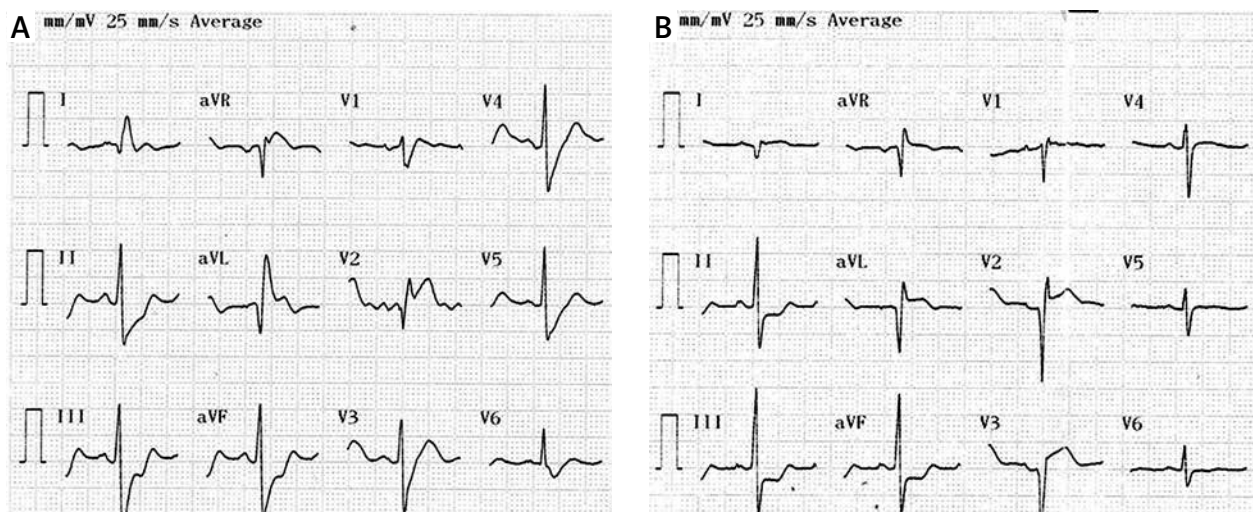


Figure 1. A – Surface ECG shows slightly widened QRS complexes, ST segment elevations in leads aVR, aVL, V₁ and V₂ in contrast to up-sloping ST-segment depressions in leads D_I, D_{III}, aVF and V₃₋₆ at the J point. **B** – Post-op. ECG improved with some residual ST segment changes

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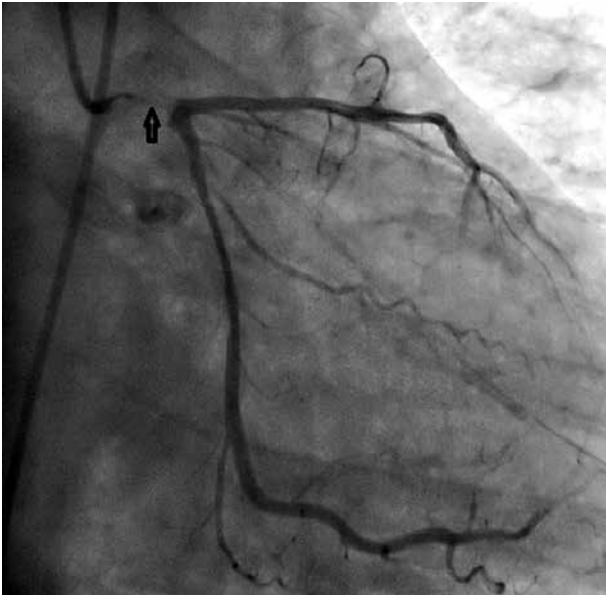


Figure 2. Coronary angiography shows total occlusion of the left main coronary artery with severe thrombus formation and poor distal filling of both left anterior descending and circumflex arteries

ent types of ECG changes. In conclusion, physicians and paramedics involved in the triage of patients with chest pain should be aware of de Winter sign because of its possible association with acute LMCA occlusion.

Conflict of interest

The authors declare no conflict of interest.

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