

Student's Corner

Become a Sherlock Holmes in ECG

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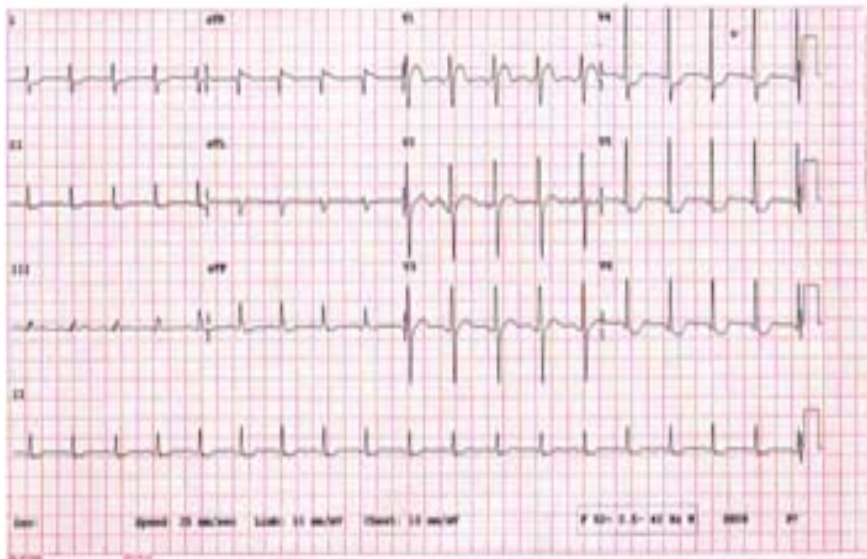
Series 9 :

“Don't Let This ECG Elevation Depress You”

This is the ECG of 52 years old man with chest pain

Questions :

- (1) What is the cause of ST elevation in V1?
- (2) Why is this clue?
- (3) How will you confirm this?
- (4) What are practical implications?



Answers :

(1) It shows ST elevation in V1, mild elevation in V2 and significant ST depression in V5, V6. This is not proximal LAD because ST elevation is regressing from V1-V3 whereas in proximal LAD it will progress. This is not RV MI because there is no Inferior Wall Myocardial Infarction. This is not Brugada as the ST elevation is not classical and there is RBBB pattern. The ST depression in V5 V6 indicates ST vector is travelling away from left sided and towards Right sided leads (ST elevation in V1). The ST depression in V5, V6 (Antero lateral wall) is probably accompanied by ST depression in posterior wall which is shown as ST elevation in V1.

(2) Most often there is reciprocal ST depression in opposite leads due to ST elevation in ST elevation in primary leads. For example, if you have ST elevation in inferior leads due to Inferior Wall Myocardial Infarction, you may have reciprocal ST depression in L I, aVL which are superior leads. But in this ECG, primary ST depression of posterior wall is shown as

reciprocal ST elevation in V1. So, this is the ECG of rare reciprocal ST elevation. Failing to diagnose this rare reciprocal ST elevation may depress you; that's why this clue.

(3) This first is to flip the ECG and see upside down where you will see significant ST depression in V1 which is actually happening in Posterior wall. The second is to record posterior leads V7, V8, V9 to actually record ST depression there. The third is to see serial ECGs. Here the serial ecgs showed tall R and upright T in V1 indicating evolved PWMI.

(4) The most important question here is to whether to thrombolyse this patient or not. The indication for thrombolysis is for primary ST elevation and not reciprocal ST elevation. Moreover, criteria are to thrombolyse ST elevation more than 2mm in V2, V3 in men and more than 1.5mm in women which are not there in the ECG. But unfortunately, this posterior ST depression has gone for posterior MI. So best option in these types of ECGs will be to have early CAG and suitable revascularization.

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