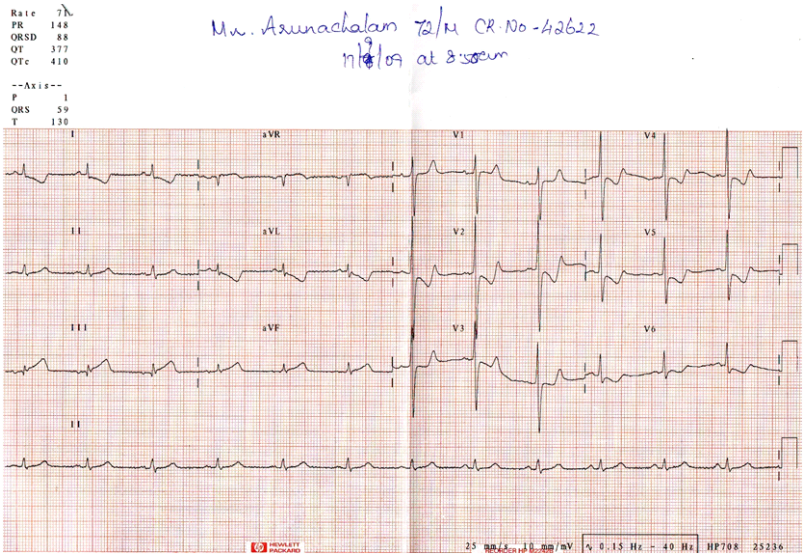
Student's Corner

Become a Sherlock Homes in ECG

M Chenniappan[1]

Series 2 :

"Subtle, Sinister and not single"



This is the ECG of 72 years old diabetic with tiredness; No previous ECGs were available.

1. Describe all ECG changes

2. Why is this clue?

3. What are practical implications?

ECG CHANGES :

The ECG shows sinus rhythm, slope ST segment in inferior leads (loss of concavity of ST segment) with reciprocal depression in L I and avL. The slope ST elevation is more prominent in LIII than L II (Right Coronary obstruction(RCA). In chest leads there is significant ST depression in all chest leads except in V1 where it is mild (discordant ST segment depression V1-V2). The ST depression in chest leads go beyond V3. (associated disease in left coronary artery system).
In addition, there is 1 mm ST elevation in lead avR. (Probable LMCA Disease). The P wave in chest and inferior leads are bifid without significant terminal P negative force in V1 (Left Atrial enlargement is unlikely).

CLUE :

SUBTLE :

1. The slope ST in inferior leads as the earliest and hyperacute sign of Acute Total Occlusion of RCA (LIII>LII)
2. Discordant ST depression between V1 and V2 which is suggestive of RV infarct indicates proximal RCA occlusion.
3. ST depression beyond V3 indicates, associated LCA disease
4. Mild ST elevation in avR is suggestive of LMCA critical occlusion
5. ST depression in >5 leads are suggestive of Triple Vessels Disease (TVD)
6. Bifid P waves in the absence of typical deep terminal P negativity in V1 are suggestive of inter atrial conduction disturbance rather than Left Atrial Enlargement or Abnormality which can happen in atrial infarct as depolarization abnormality.

SINISTER:

1. Proximal RCA disease
2. RV infarct
3. Associated LCA involvement
4. Probable LMCA occlusion
5. Triple Vessels Disease
6. Inter atrial conduction disturbance may indicate associated atrial infarction which may produce complications such as atrial arrhythmias, embolism and atrial rupture.

NOT SINGLE:

This is not single inferior wall infarction ; there are RV infarct, LCA Critical occlusion, LMCA disease , Triple Vessels Disease and Possible Atrial Infarction.

PRACTICAL IMPLICATION :

Because the of above said reasons, this patient should go for immediate CAG and suitable revascularisation rather than thrombolytic therapy if 5As (Affordability, Accessibility, Arrival time, Availability and About the institution) are met. Otherwise he should be thrombolysed immediately with Tenecteplase. Thrombolysis with Streptokinase is the last option.

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