

Student's Corner

Become a Sherlock Holmes in ECG

M Chenniappan¹

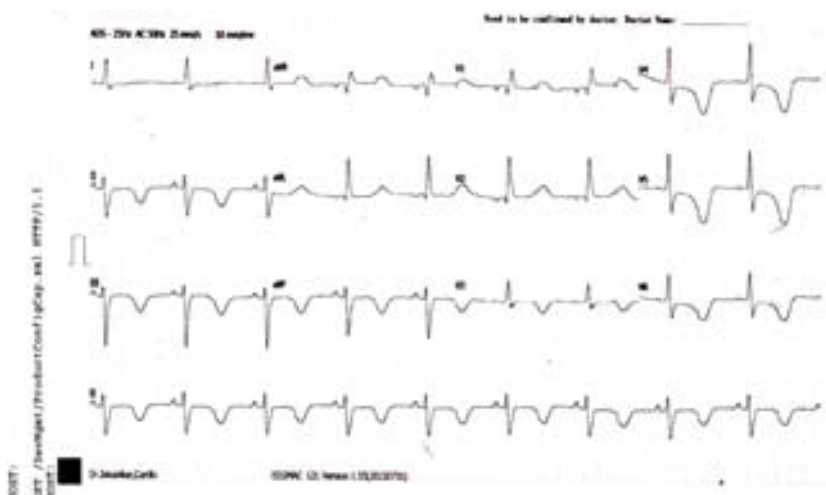
Series 1 :

“The Terrible Ten”

This is the ECG of 60-year-old Female who has chest pain and intermittent dizziness.

Questions :

- (1) Describe ECG changes
- (2) Why is this clue?
- (3) What are practical implications?



Answers :

(1) ECG CHANGES :

The ECG shows complete RBBB, Left Anterior Fascicular Block (LAFB) with a P wave in the ST segment of all beats. Most of the leads shows deep, broad, symmetrical T inversions with prolonged QTc. The PR interval is normal and constant. The P wave in the ST segment can be either Atrial Premature beat or a sinus P which is not conducted to the ventricles. As the P-P intervals including non conducted P waves are constant, it is likely that this P in ST segments is non conducted sinus P. If it is APD, conducted Sinus P to non conducted P in the ST segment is likely to be short when compared with other P-P intervals. It is ideally called as “non-conducted” rather than “blocked”P because it is falling in a period where it is not expected to be conducted. The deep broad symmetrical T inversion is unlikely due to Acute Coronary Syndrome (ACS) like “Wellens syndrome” because the QTc is prolonged and it is diffuse. There is no initial r in V1 and initial q in V5 V6 indicating Antero Septal MI(ASMI). There is homophasic ST T changes with RBBB.

The deep broad symmetrical T inversion with prolonged QTc is probably due to recent “Strokes Adam Attack”

(2) CLUE :

The overall 10 ECG findings are :

1. Complete RBBB
2. Left Anterior Fascicular Block
3. 2:1 AV conduction
4. Anteroseptal MI
5. Deep Broad symmetrical T inversion
6. Prolongation of QTc
7. Homophasic ST T changes in the presence of RBBB
8. Probable recent Stokes Adams attack
9. Dominant RBBB (presence of terminal r in L1 in the presence of LAFB)
10. "Pseudo" Wellens

As this ECG has “Ten” terrible changes which may be dangerous to patient’s life, the clue of “The Terrible Ten” is given.

(3) PRACTICAL IMPLICATIONS :

In the presence of advanced conduction disturbances such as RBBB, LAFB and 2:1 A.V. Conduction, the broad, symmetrical deep inversion represent recent stokes Adams Attacks. (Stoffwechsel syndrome). This T inversion in advanced A.V.Blocks or sinus node disorders, represent recent transient brain ischemia like the ECG changes which happen in CVA. Although, this patient does not have typical syncope, the dizziness may represent episodes of pre syncope and it is the definite indication for Permanent Pacemaker Implantation. The presence of ASMI, and homophasic ST T changes in RBBB represent occult CAD, and she also needs Coronary Angiogram to decide about further management of CAD.

¹Adjunct Professor, Dr MGR Medical University, Tamilnadu; Senior consultant cardiologist, Tamilnadu; Ramakrishna Medical Centre, Apollo Speciality Hospital, Trichy