

Student's Corner

Become a Sherlock Homes in ECG

Series 2 :

M Chenniappan¹

ECG

Clue : "ABnormal Left"

This is the ECG of 60 y old female with chest pain;

Diagnosis from limb leads only.

Questions:

1. What are ECG findings?
2. Why is this clue?
3. What is Practical implication?

Answers :

ECG FINDINGS :

The limb leads show in this ECG shows left ward axis with no significant changes in QRS, ST or T waves. The important features in this ECG is P wave is tallest in L I rather than in L II. In normal ECG, P wave is tallest in LII. Rarely, if there is left axis deviation of P wave, P wave may be taller in LI. In addition to this, the P is inverted with terminal positivity with negative QRS in LIII. So, this combination of ECG findings is suggestive of left arm, left lower limb lead reversal.



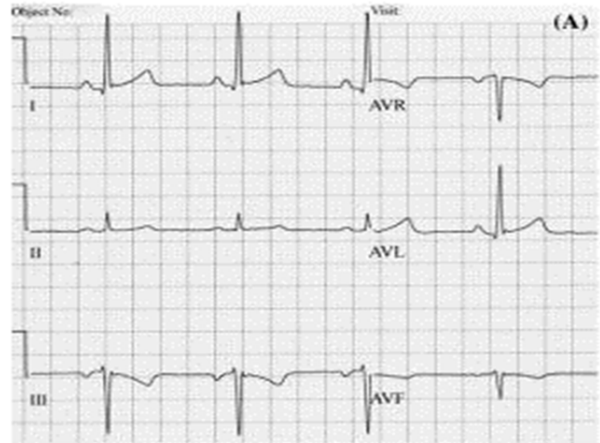
Fig.68A. Inverted P with terminal positivity and negative QRS in LIII.

As the left arm lead is in the lower limb and the left lower limb lead in the left upper limb, L I becomes L II and L II becomes L I. Hence, the P wave is directed to L I in this ECG, which is the real L II in normally recorded ECG. Here L III is reversed (LA in lower limb) and that's QRS is negative in LIII. The peculiarity of inverted P wave is the terminal positivity of P wave.(68A)

THE CLUE :

The 3 important signs of this ECG indicating LA, LL leads reversal are:

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



1. Tall P wave in L I ,
2. Negative QRS in L III
3. Inverted P with terminal positivity in LIII.

So these 3 ECG signs are named as "Abdollah sign". Because of this, "ABnormal left" clue is given to indicate Abdollah sign (AB) and abnormal lead connection on left side.

PRACTICAL IMPLICATION :

These subtle ECG findings are often missed and may be wrongly diagnosed as IWMI sometimes. So whenever the P wave is taller in LI than LII, look at LIII for inverted P with terminal positivity and negative QRS. This means Left Arm, Lower Limb lead reversal. The correctly recorded ECG is shown in ECG 62B.



Fig.68B: Correctly recorded ECG of the same patient.