

## Student's Corner

### Become a Sherlock Holmes in ECG

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#### Series 7:

#### “ECG can be Poorman’s ECHO”

This is the ECG of 29-year-old female presenting with breathlessness.

#### Questions :

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

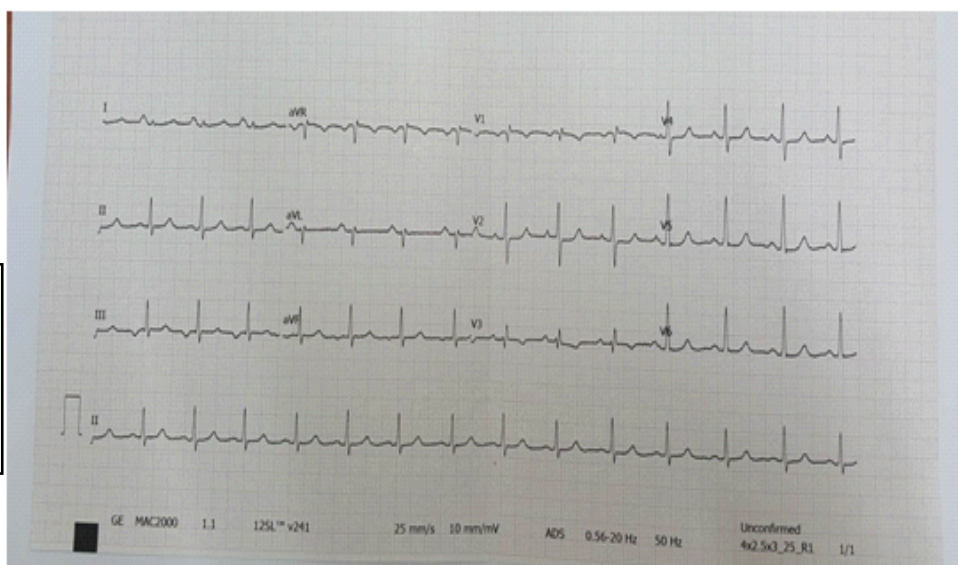
#### Answers :

#### ECG Findings :

The ‘P’ wave is inverted in L III and avF due to left axis deviation of P wave and not due to Junctional Rhythm or Low Atrial Rhythm because P wave in L II is upright. If you look at the ‘P’ wave in L I and avL it is bifid and wide and with predominant negative component in V1 one should suspect left atrial enlargement.

#### CLUE :

ECG as Poorman’s ECHO: In addition, left atrial enlargement described above, patient qR in V1. The R wave in with Right Axis deviation in limb leads is suggestive of Right Ventricular Enlargement (RVE). So, with the presence of Left Atrial Enlargement (LAE) and RVE in 29-year-old female are suggestive of severe Mitral



Stenosis (MS) with Pulmonary Hypertension. The qR pattern in V1 is suggestive of severe Right Atrial Enlargement (RAE) because in severe RAE, the V1 will face RA and show qR pattern. In the presence of pulmonary hypertension (PHT), severe RAE is suggestive of significant tricuspid regurgitation (TR). So, if carefully seen, ECG has given almost all findings shown in ECHO – that why it is “Poor man’s Echo”.

#### PRACTICAL IMPLICATIONS :

The ECG itself has indicated severe MS, Severe PHT, Severe TR and it definitely needs either non-surgical (Balloon Mitral Valvotomy) or Surgical intervention. (MVR)

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