

Student's Corner

Become a Sherlock Holmes in ECG

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Series 10 :

“Unexpected Absence and Presence”

72 y Palpitations ; Known COPD.

Questions :

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

Answers :

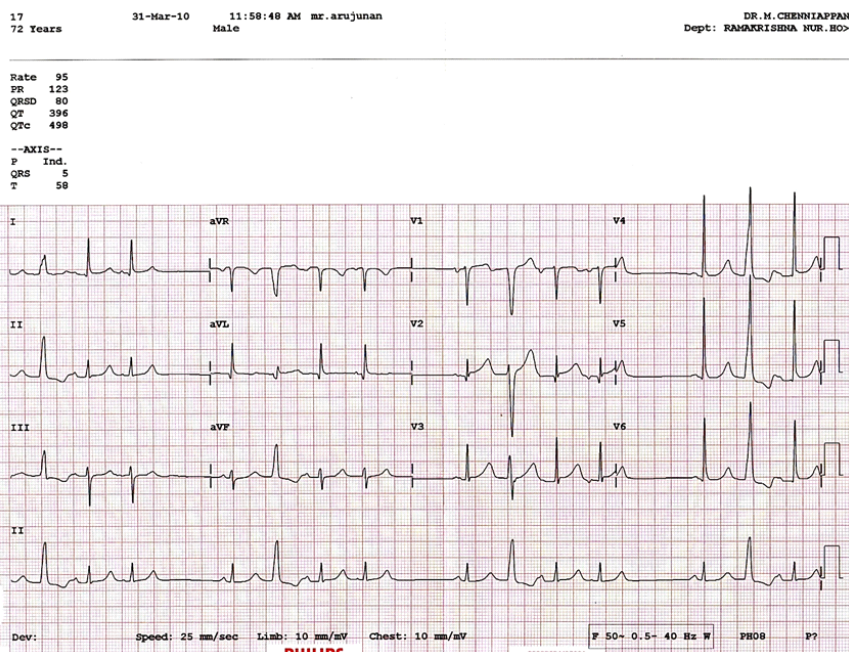
(1) ECG CHANGES :

This is the ECG of 72 years old man with COPD which shows normal sinus rhythm with frequent VPDs of RVOT origin without compensatory pause- interpolated VPDs. The basic sinus rate is around 60/minute – Basic Bradycardia. So, the PR interval following the VPD is prolonged due to concealed retrograde conduction of VPD. The change in the P wave configuration of the sinus beat following VPD is due to P wave falling on T wave. In addition there is frequent atrial premature beats probably arising from the Right atrium with normal intra ventricular conduction followed by full compensated pause. (The P-P interval which includes the Atrial Premature Beats is exactly twice of the basic sinus cycle). The atrial and ventricular premature beats are alternating with sinus beats. Basic sinus beats do not show significant abnormality. There is no L 1 sign of COPD.

(2) CLUE :

The ECG shows following interesting findings

- RVOT VPDs
- Interpolated
- Concealed retrograde conduction
- VPD, APD alternating with sinus beat
- Right Atrial premature depolarisation
- APD is having full compensatory pause
- No significant changes in the Basic ECG



Unexpected absence – absence of complete compensatory pause in VPD

Unexpected presence – presence of complete compensatory pause in APD (Usually APD has incomplete compensatory pause)

That is why the clue of "Unexpected absence and presence" is given.

(3) PRACTICAL IMPLICATIONS :

APDs and VPDs indicate increased irritability of atrium and ventricles. Interpolated VPDs are expected with basic bradycardia. Because of basic sinus bradycardia and COPD betablockers cannot be given as anti-arrhythmic drugs. Because of the VPD configuration and RVOT origin it is likely to be benign. APDs and VPDs are expected in COPD because of the hypoxia and treatment with sympathomimetic agents. As this patient may be using sympathomimetic agents / inhalers, hypokalemia as the cause of Premature beats has to be excluded. After stopping stimulants like coffee, tobacco, alcohol and sympathomimetic agents, if still these arrhythmias are present, Holter may be done to decide about further management.

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