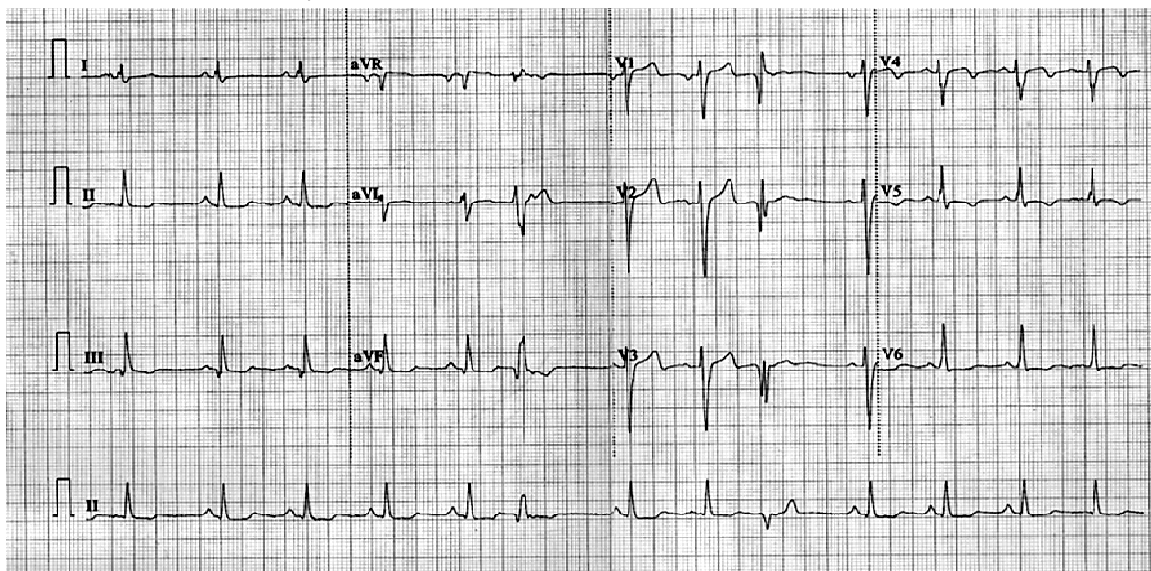


Valuable Pointer of Diseases

Dr. M. Chenniappan

Senior Cardiologist, Ramakrishna Nursing Home, Tiruchirappalli

This is the routine ECG of 56 years old male.



Questions:

Describe ECG changes.

What is this clue?

What are the practical implications?

ECG FINDINGS:

The ECG shows Sinus rhythm, T inversion in V4, V5, and V6, flat ST segment in inferior leads, and 2 VPDs.

The first VPD will likely arise from the Left Ventricle as an indirect RBBB pattern in aVL (the slurred S). This VPD's axis is towards the right, and the pattern in aVL and aVF, and L II resembles the Left posterior fascicular block pattern. So, the VPD is likely to arise from Left Anterior Fascicle.

The next VPD, seen in the chest leads, has terminal R in V1, which is suggestive of the RBBB pattern, so the site of origin is likely to be the Left ventricle. The VPD in LII is negative, indicating the inferior portion of LV as its origin.

What is interesting is the Q wave in front of these 2 VPDs. These Q waves may indicate the

infarct in that region. The first VPD unmasking inferior infarct (QR in L II, III) and 2nd VPD reveal anterior MI as deep Q waves are seen in V1-V3.

The ECG manifestations of CAD in VPDs are shown in the QRS complex, ST segment or T wave, or the above combination.

Q wave: Any Q wave in front of the VPD whenever the VPD has a positive QRS complex (as in the ECG above) may indicate old MI in that region. It should not be diagnosed for VPDs which have negative QRS complexes.

Any Q wave, however small, in front of positive QRS VPDs may indicate a scar in the region. In this ECG, the Q waves are not only seen as positive QRS VPDs, but they are shown in 2 different areas. The first VPD indicates old IWMI, and the Q wave in 2nd VPD shows evidence of Anterior Myocardial Infarction.

ST Segment: The classical VPDs show secondary ST changes in the form of the down-sloping ST and asymmetrical T inversion. The horizontal ST, horizontal ST depression, or ST elevation in

VPDs with positive QRS may indicate chronic CAD or ACS (see Fig.1)

T wave: If the T inversion is deep and symmetrical instead of asymmetrical T in the presence of positive QRS VPDs or if the T wave is in the same direction of QRS (Homophasic T changes), associated CAD should be suspected.

Clue:

In this ECG, VPDs have given a valuable clue regarding the presence of inferior and anterior infarction even though the basic ECG does not show them. There are many 'uses' of VPDs, which are given in Table1. So these VPDs are "Valuable Pointer of Diseases"

Practical Implications:

Because of Anterior and Inferior Wall MI unmasked by VPDs, multi-vessel CAD is likely in the patient. So appropriate investigations and management should be planned.

Table 1 – "Uses" of VPDs

Unmask ischemia

Unmask infarction

Poor man's exercise test

Brokenbroughs' effect (HOCM)

Warning arrhythmias –ACS

Unmask sick sinus

Risk stratification on cardiomyopathies

Termination of reentry

Predictor of SCD

To make a patient – cardio neurotic!!!

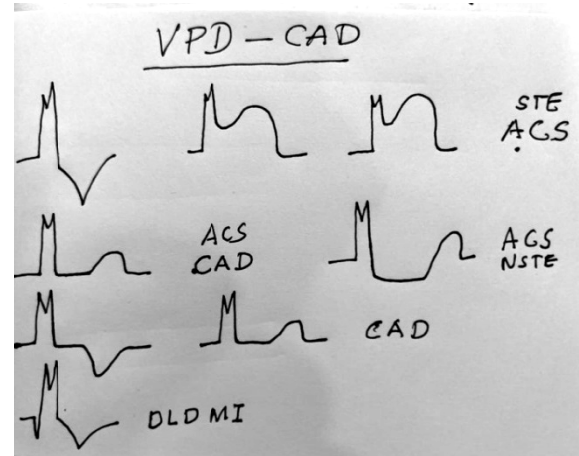


Fig.1- Diagnosis of IHD from VPDs- through ST, T and QRS complex.