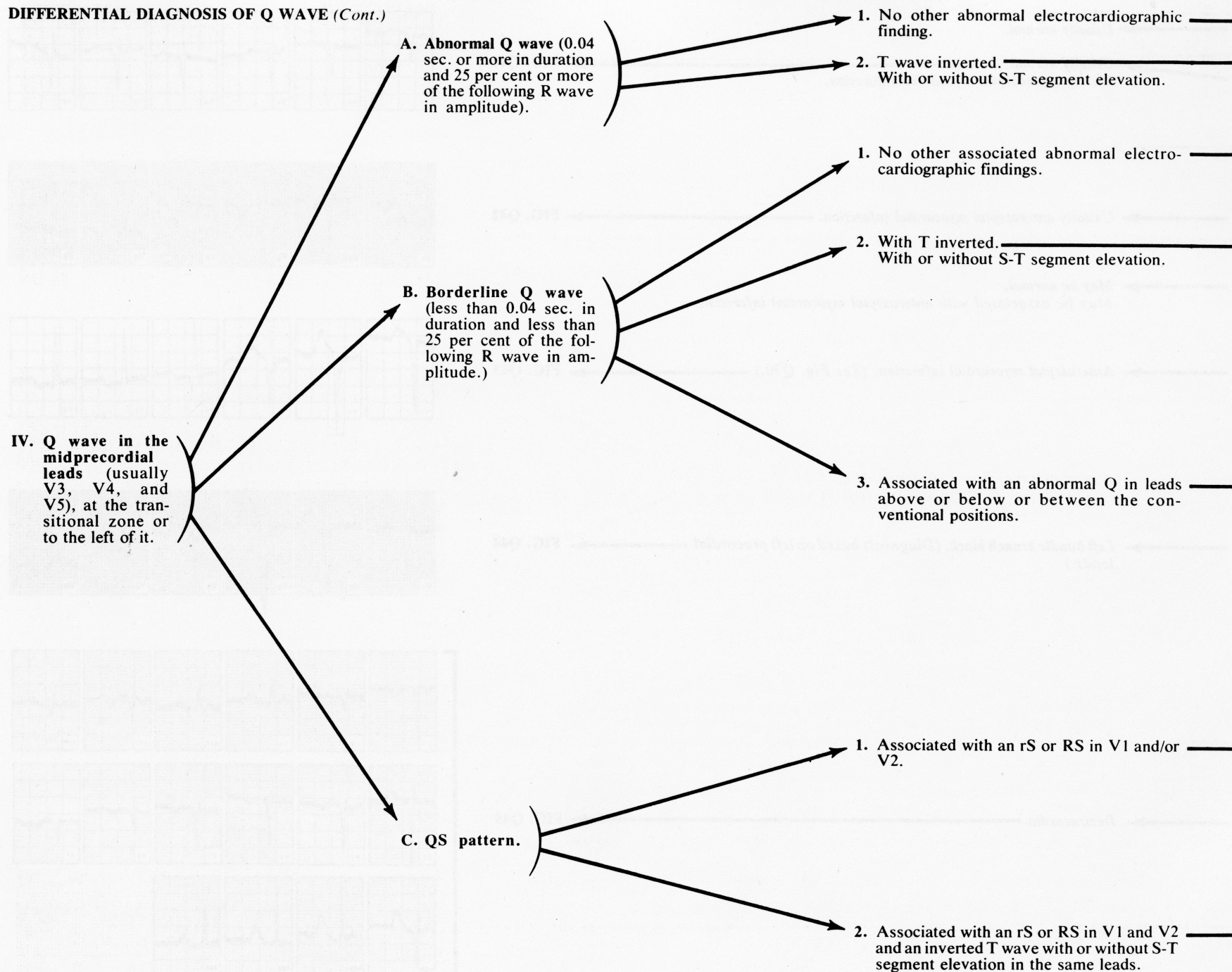
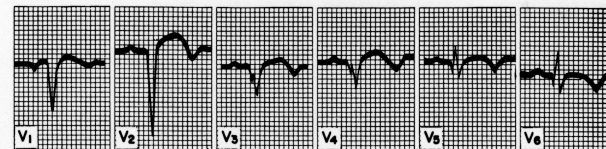


**DIFFERENTIAL DIAGNOSIS OF Q WAVE (Cont.)**



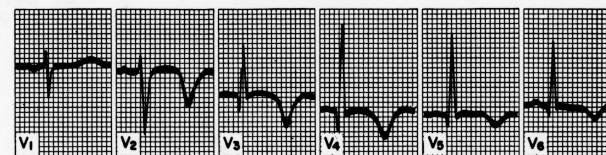
→ **Anterior wall myocardial infarction.**

→ **Confirms the above diagnosis.** → **FIG. Q46**



→ **Borderline tracing.**

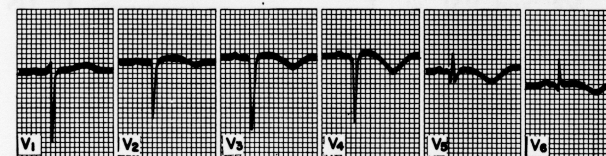
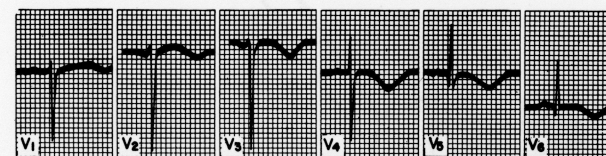
→ **Probable anterior wall myocardial infarction.** → **FIG. Q47**



→ **Anterior wall myocardial infarction. (Fig. Q48-A in normal lead positions; Q48-B, one intercostal space higher.)**

**FIG. Q48-A**

**FIG. Q48-B**

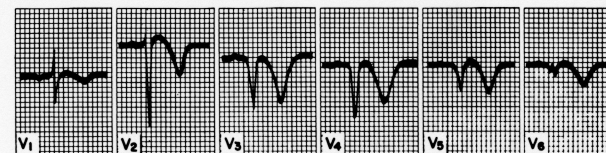


**V LEADS ONE INTERSPACE HIGHER**

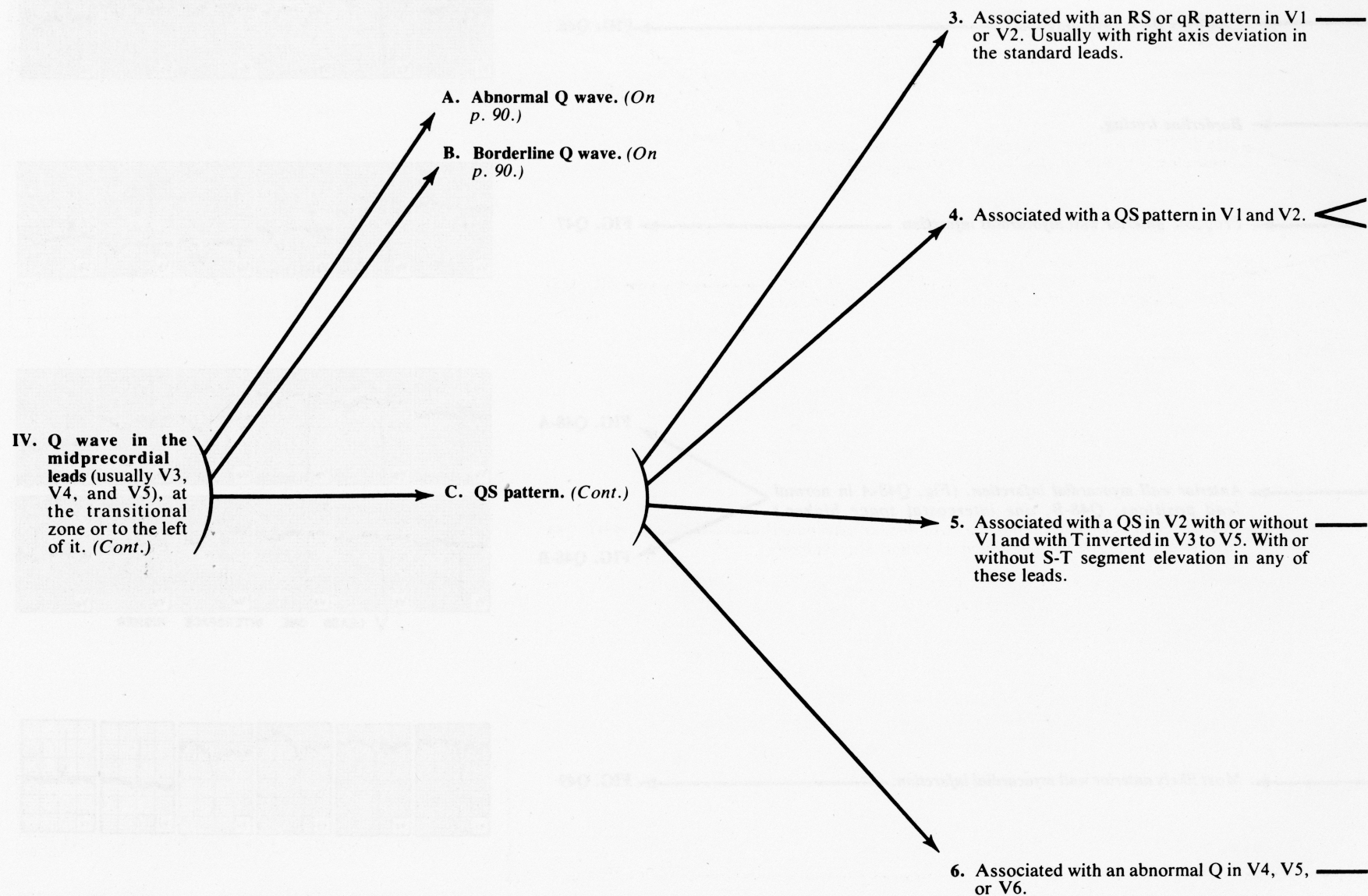
→ **Most likely anterior wall myocardial infarction.** → **FIG. Q49**



→ **Anterior wall myocardial infarction.** → **FIG. Q50**







→ **Right ventricular hypertrophy.**

FIG. Q51

→ QS in V1 to V4 may be **normal**, occasionally **anteroseptal infarction**; if QS is notched more likely **abnormal**.

→ QS extending to V5 usually **abnormal**, and other electrocardiographic changes will usually lead to a correct diagnosis.

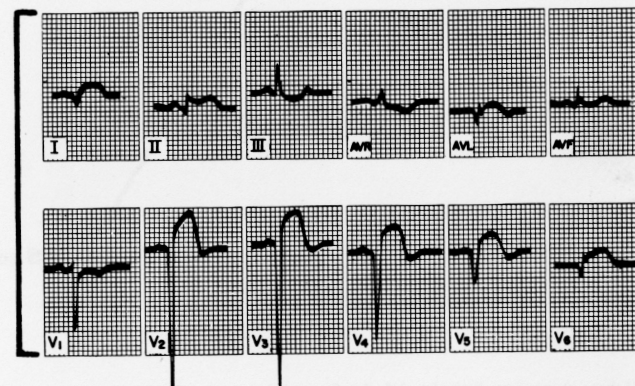
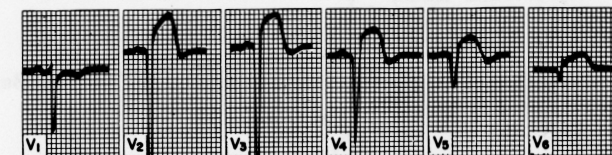
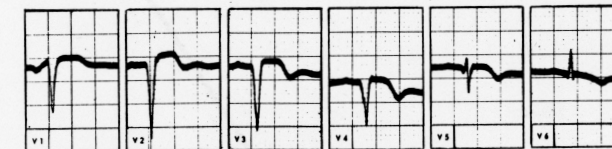
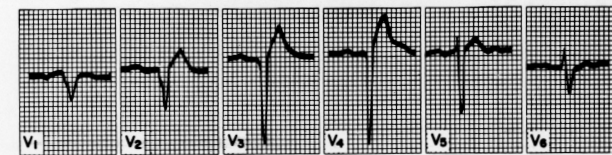
FIG. Q52

→ **Anterior wall myocardial infarction.** (Acuteness determined by serial tracings.) (S-T segment elevation may indicate acuteness or, if persistent, indicate aneurysm.)

FIG. Q53

→ **Anterior wall myocardial infarction.**

FIG. Q54





# DIFFERENTIAL DIAGNOSIS OF Q WAVE (Cont.)

V. Q wave in the left precordial leads, V4, V5, and/or V6. (Usually but not necessarily associated with a Q wave in L1 and AVL.)

A. Abnormal Q wave.\*

1. No other abnormal electrocardiographic changes present.
2. Associated with T wave inversion or S-T segment elevation in the same leads.
3. Associated with an abnormal Q in AVF and L3.

B. Borderline Q wave.

1. No other electrocardiographic abnormalities present.
2. Associated with an inverted T wave. With or without S-T segment elevation in the same leads.
3. Associated with an abnormal Q wave in V3 and V4.
4. Q wave narrow but deep and associated with tall R wave in same lead.

C. QS complex.

1. Associated with a normal progression of QRS in V1 through V4.
2. Associated with an abnormal Q wave in V1 to V4.
3. Associated with a tall RS or qR or R alone in V1 through V4. (Usually associated with right axis deviation in frontal plane leads.)

\*If these changes are limited to V6, the diagnosis is lateral wall infarction.

→ *Anterolateral wall infarct.*

→ *Confirmatory of lateral wall myocardial infarction.* → FIG. Q55

→ *Inferolateral myocardial infarction.* → FIG. Q56

→ *Borderline tracing.*

→ *Probable anterolateral wall myocardial infarction.* → FIG. Q57

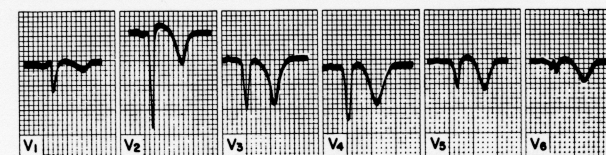
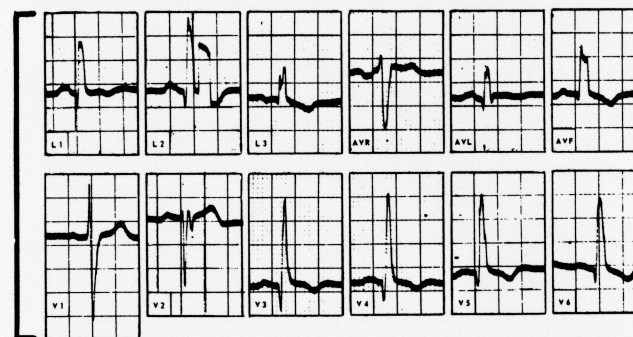
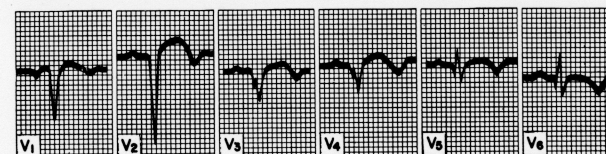
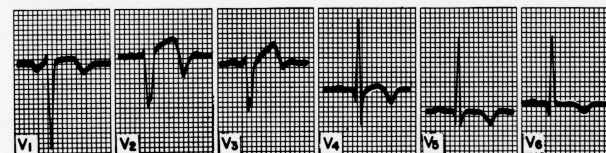
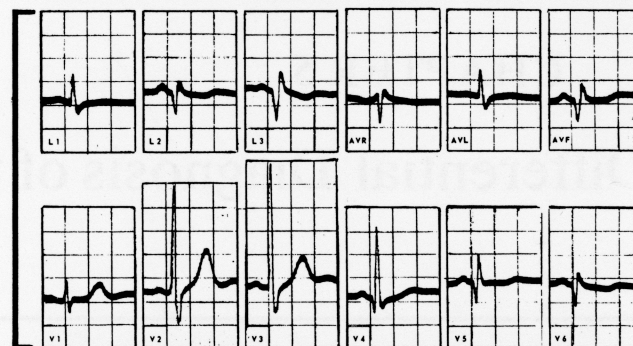
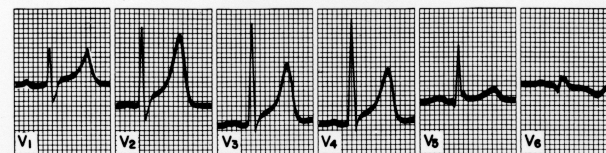
→ *Anterior wall myocardial infarction, with probable lateral wall involvement.* → FIG. Q58

→ *Possible septal hypertrophy as seen in idiopathic hypertrophic subaortic stenosis (occasionally seen in left ventricular hypertrophy) or possible myocardial infarction.* → FIG. Q59

→ *Lateral wall myocardial infarction.*

→ *Anterolateral septal myocardial infarction.*

→ *Right ventricular hypertrophy.* → FIG. Q60





## CHAPTER 5

# Differential Diagnosis of the QRS Complex

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# KEY PAGE—QRS ABNORMALITIES

## QRS ABNORMAL BECAUSE OF

High voltage in left precordial leads.)

- I. QRS of normal form (p. 98).
- II. QRS of abnormal form (p. 98).

High voltage (R>S) in right precordial leads.)

- I. QRS otherwise normal (p. 100).
- II. QRS abnormal due to prolongation of duration (p. 102).
- III. QRS abnormal because of change in configuration only.

Low voltage in all leads.)

- A. With normal configuration of all components of the ECG (p. 102).
- B. With abnormal configuration and/or duration of QRS (p. 102).

Prolongation of duration to 0.12 sec. or more.)

- I. Onset of the intrinsicoid deflection delayed to 0.06 sec. or more in the *left* precordial leads and usually L1 and AVL (p. 164).
- II. Onset of the intrinsicoid deflection delayed to 0.045 sec. to 0.055 sec. in the *left* precordial leads and usually in L1 and AVL (p. 106).
- III. Onset of the intrinsicoid deflection delayed to 0.06 sec. or more in the *right* precordial leads (pp. 108–110).
- IV. Without specific delay in the onset of the intrinsicoid deflection (p. 112).

Prolongation of duration 0.10 sec to 0.12 sec.)

- I. Onset of the intrinsicoid deflection delayed to 0.045 sec. in the *left* precordial leads and usually L1 and AVL (pp. 114–116).
- II. Onset of the intrinsicoid deflection delayed to 0.05 sec. or more in the *right* precordial leads (p. 116).
- III. Without specific delay in the onset of the intrinsicoid deflection (p. 116).

Abnormal direction of the mean electrical axis.)

- I. Mean electrical axis shift in the frontal plane (pp. 118–122).
- II. Mean electrical axis shift in the horizontal plane (rotation on the longitudinal axis) (p. 124).
- III. Sagittal plane rotation (p. 124).

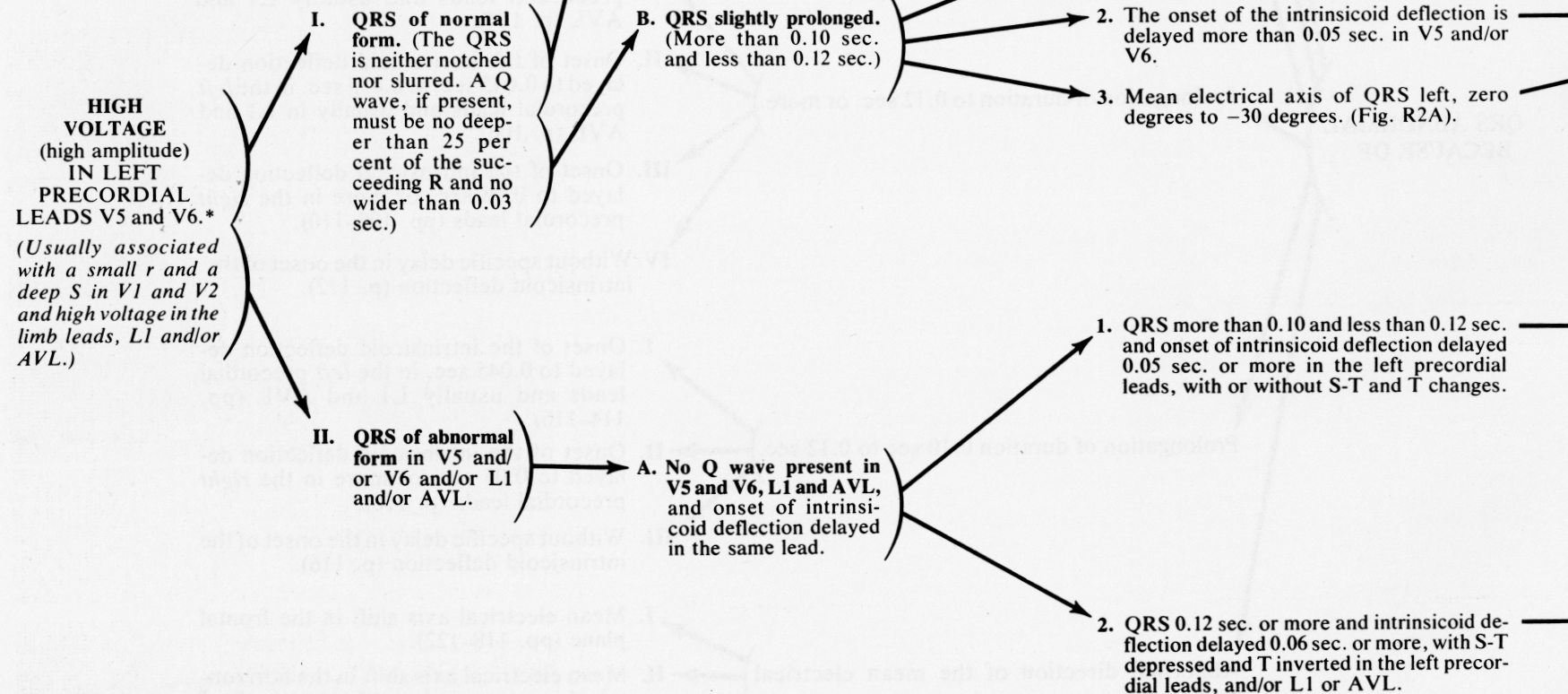


## QRS ABNORMAL DUE TO:

### High Voltage in the Left Precordial Leads

Fixed values for high voltage cannot be laid down because of the marked overlapping between the normal and the abnormal.

In an adult, any electrocardiogram where the sum of R in L1 plus S in L3 exceeds 25 mm. or R in AVL is over 11 mm., or the sum of S in V1 and R in V5 exceeds 35 mm. in amplitude, is probably abnormal and should be carefully inspected for evidence of other abnormalities. In normal children and young adults, much higher values are frequently encountered. Therefore, although high voltage alone cannot be considered a sole criterion for the abnormality of an electrocardiogram, an occasional very high voltage alone is abnormal.



\*Shift of the transitional zone in the V leads, although frequently described as associated with this finding, is not discussed under this heading since it is not characteristic and does not have diagnostic specificity.

†Left axis deviation is not essential to the diagnosis of left ventricular hypertrophy.

High voltage alone is suggestive of left ventricular hypertrophy. No single criterion is specific, but the probability that the left ventricle is hypertrophied increases as several of these criteria are present. → FIG. R1

As the QRS becomes prolonged and the additional criteria 1, 2, and 3 are present, the diagnosis is almost always left ventricular hypertrophy. → FIG. R2

→ Incomplete left bundle branch block. When the voltage of V5 and/or V6 is extremely high, the association of left ventricular hypertrophy is likely. → FIG. R3

→ Left bundle branch block with or without left ventricular hypertrophy. When the voltage is extremely high, the additional presence of left ventricular hypertrophy can be suspected. There are, however, no fixed voltage criteria for left ventricular hypertrophy in the presence of left bundle branch block. → FIG. R4

