

QRS ABNORMAL DUE TO:

High Voltage in the Right Precordial Leads.

When the major positive deflection is greater than the negative deflection in these leads, high voltage is present regardless of the absolute voltage, i.e., R is greater than S, or Q is less than R.

HIGH VOLTAGE
(high amplitude)
IN RIGHT PRECORDIAL LEADS V1 and/or V2.*
(R>S, especially if R is 7 mm. or more.)

I. QRS otherwise normal.

II. QRS abnormal due to prolongation of its duration. (See p. 110.)

III. QRS abnormal because of change in configuration only. (See p. 110.)

A. No other abnormality present.

B. Other abnormalities of the electrocardiogram present.

1. Right axis deviation in the limb leads 110 degrees or more. (Fig. R6A).

2. P waves peaked and tall in L2, AVF, and L3.

3. Depressed S-T segment and inverted T wave in the same lead.

4. Small q before the R in V1.

5. R:S in V6 less than 1 in V6.

6. With a prominent R wave in V5 and V6.

7. Notched or slurred R in V1, (usually associated with positive T wave in this lead.)

*Occasionally, high voltage is better demonstrated in V3R and/or V4R.

Normal in young children. Abnormal in adults, may be the only manifestation of right ventricular hypertrophy, though not diagnostic. May be the only residual manifestation of a true posterior wall infarction.

FIG. R5

Each of these additional criteria is further evidence for the diagnosis of right ventricular hypertrophy.

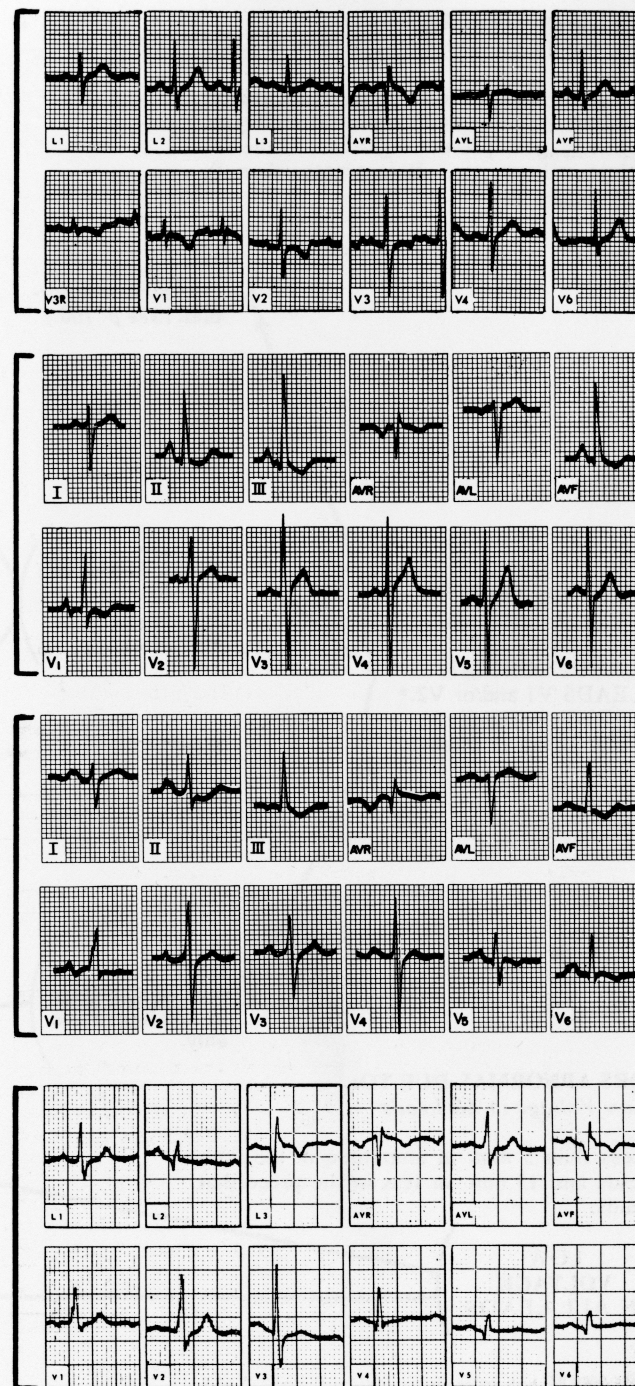
FIG. R6

Combined right ventricular hypertrophy and left ventricular hypertrophy.

FIG. R7

Probably true posterior wall myocardial infarction.

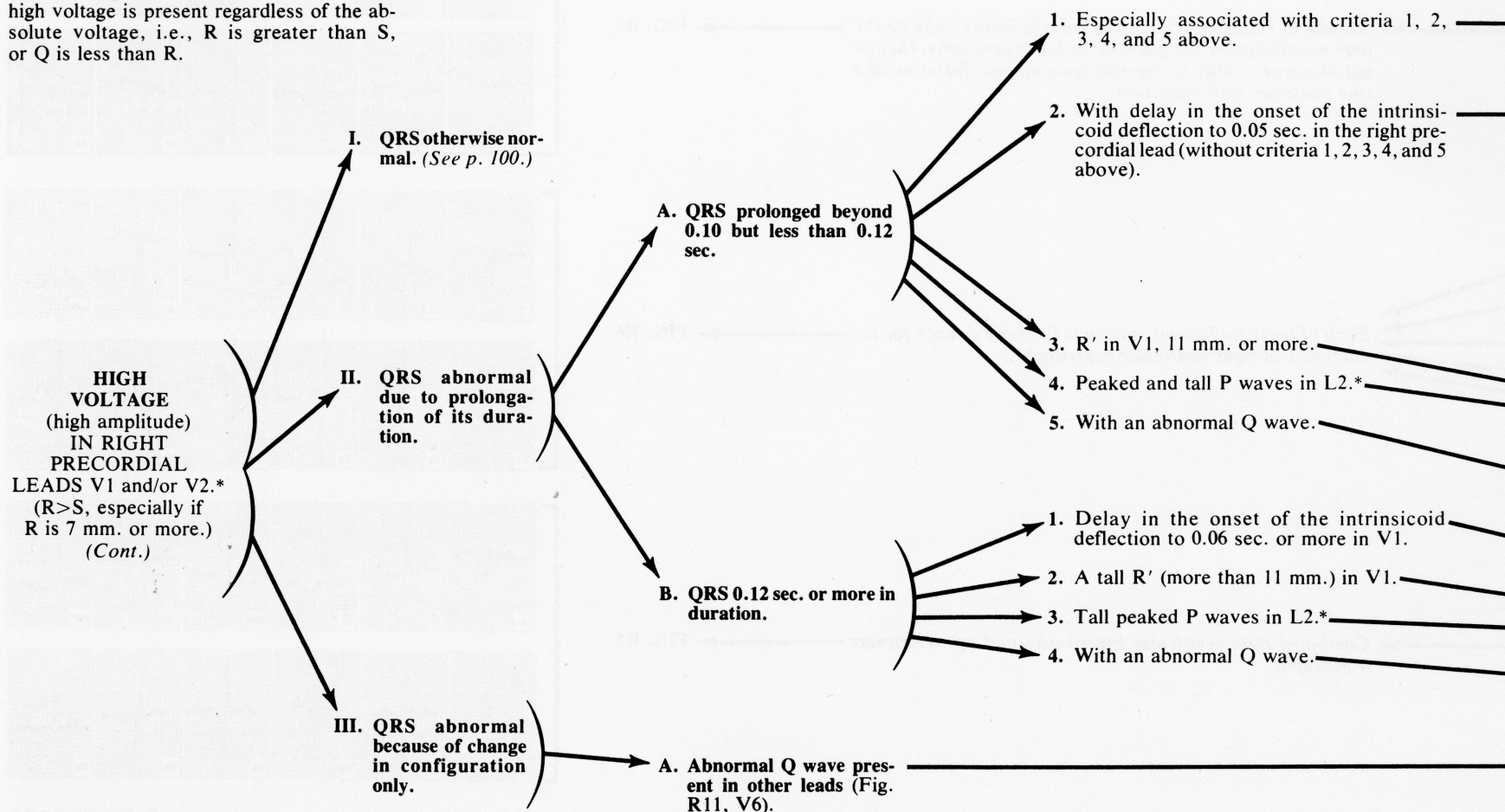
FIG. R8



QRS ABNORMAL DUE TO:

High Voltage in the Right Precordial Leads (Cont.)

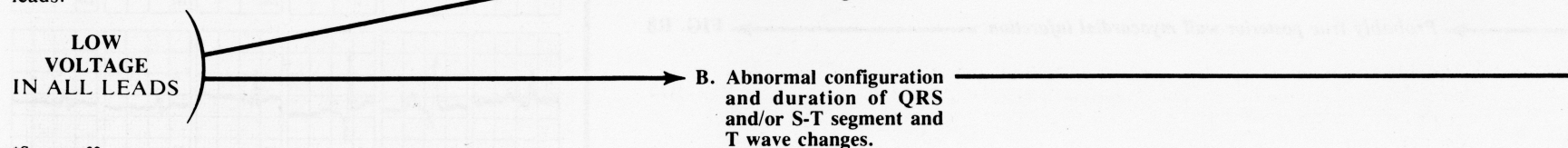
When the major positive deflection is greater than the negative deflection in these leads, high voltage is present regardless of the absolute voltage, i.e., R is greater than S, or Q is less than R.



QRS ABNORMAL DUE TO:

Low Voltage in All Leads

Less than 5 mm. in amplitude in the limb leads and 15 mm. or less in the precordial leads.

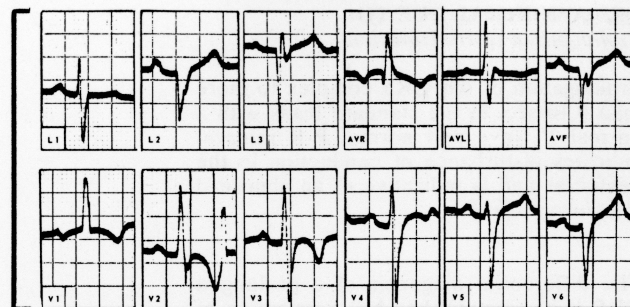


*See page 32.

→ *Right ventricular hypertrophy.*

→ **FIG. R9**

→ *Incomplete right bundle branch block or right ventricular hypertrophy.*



→ *Incomplete right bundle branch block with possible right ventricular hypertrophy.*

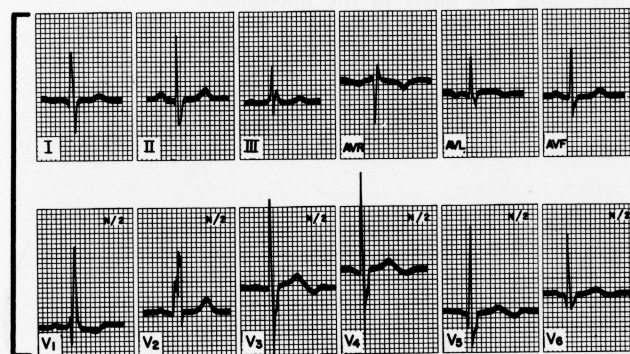
→ **FIG. R10**

→ *Incomplete right bundle branch block with myocardial infarction.*

→ *Right bundle branch block (Fig. R19, p. 109).*

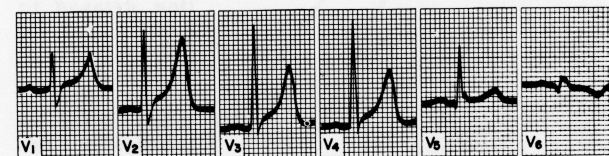
→ *Right bundle branch block with possible right ventricular hypertrophy.*

→ *Right bundle branch block with myocardial infarction.*



→ *Myocardial infarct.*

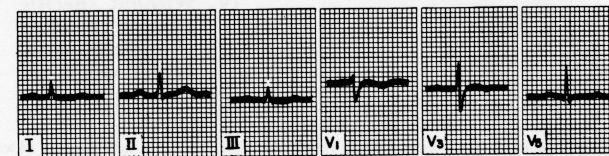
→ **FIG. R11**



→ *Not a specific finding but frequently encountered in myxedema, diffuse myocardial damage, pericardial effusion, obesity, massive pleural effusion, and debilitating states.*

→ *The differential diagnoses of the above conditions can at times be made from other and more characteristic changes in the electrocardiogram and are discussed under these changes.*

→ **FIG. R12**



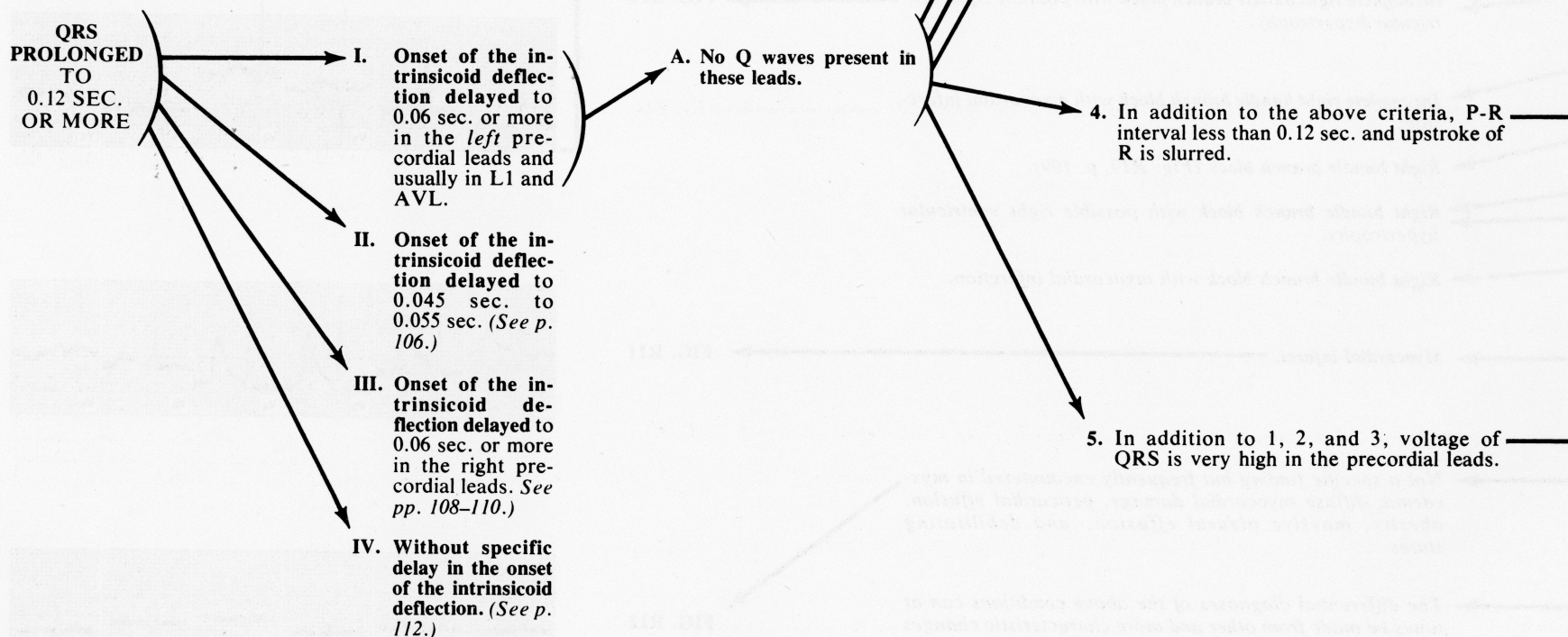
QRS ABNORMAL DUE TO:

Prolongation of Its Duration

Prolongation of the QRS complex to more than 0.10 sec. in the standard leads with a normal P wave and normal P-R interval indicates disturbance of conduction in the ventricles and is indicative of an abnormal electrocardiogram.

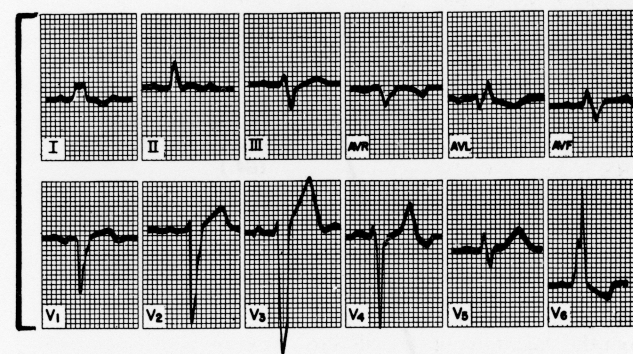
The differential diagnosis of a prolonged QRS is best established by examination of the precordial leads.

The peak of the final R wave in the precordial leads marks the onset of the intrinsicoid deflection. The duration of the time interval from the beginning of the QRS to this point is characteristically delayed in certain abnormalities of ventricular conduction and is used here as the criterion for differential diagnosis.

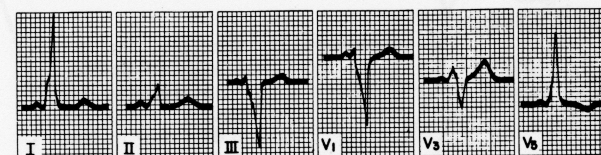


*There are no certain criteria for left ventricular hypertrophy in the presence of left bundle branch block.

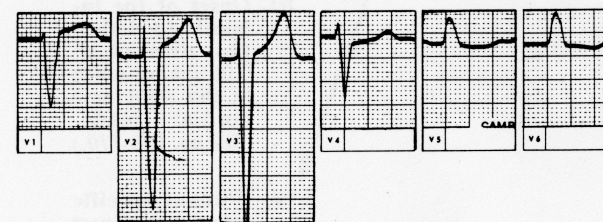
Complete left bundle branch block. → FIG. R13



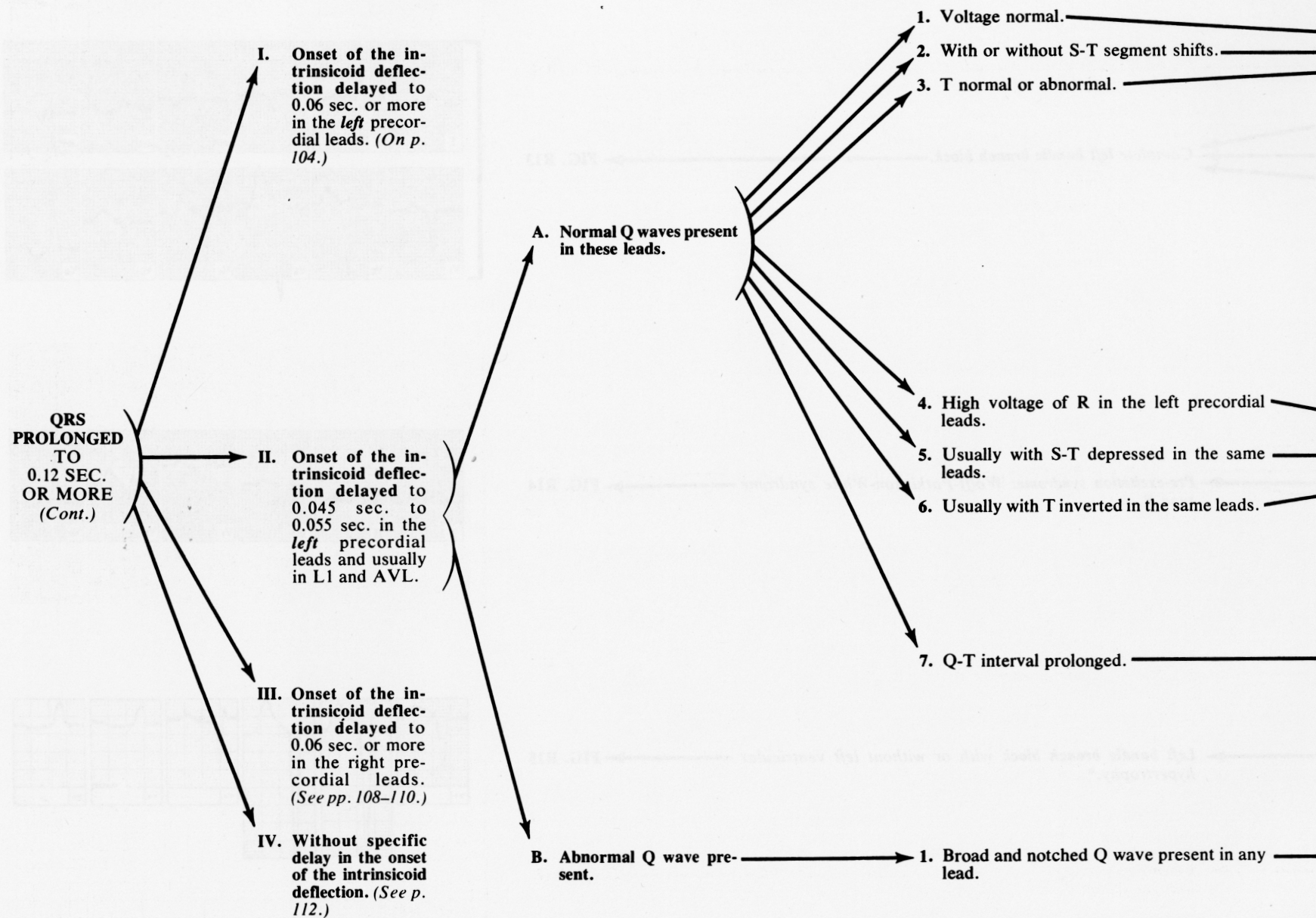
Pre-excitation syndrome: Wolff-Parkinson-White syndrome type B. → FIG. R14

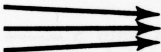


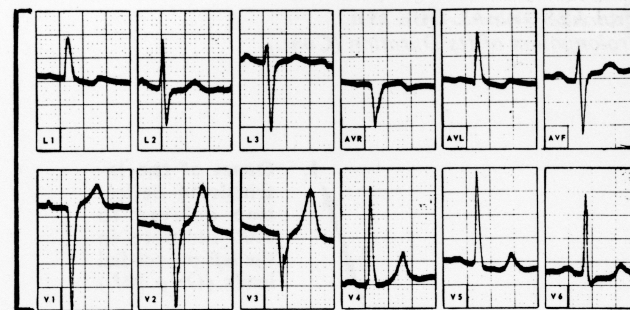
Left bundle branch block with or without left ventricular hypertrophy.* → FIG. R15




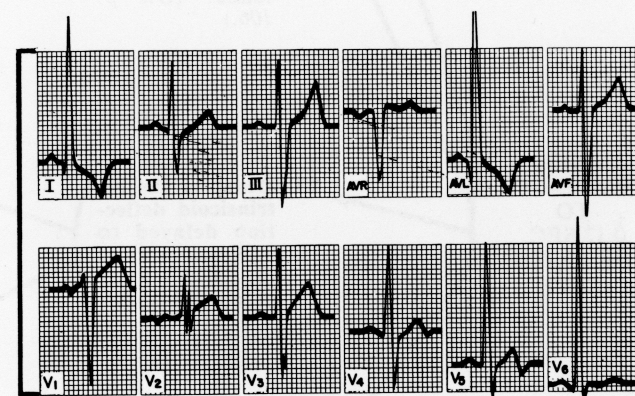
QRS ABNORMAL DUE TO:
Prolongation of Its Duration

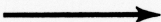


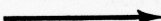

Intraventricular conduction defect. → **FIG. R16**

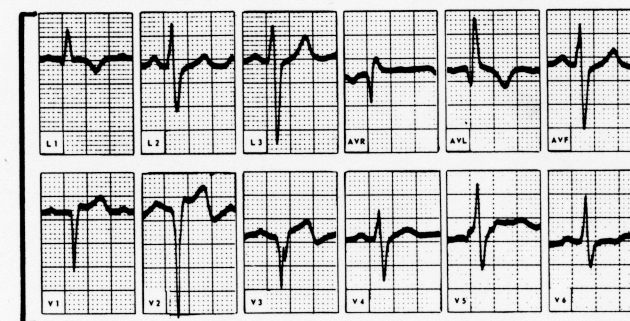



Left ventricular hypertrophy with intraventricular conduction defect. → **FIG. R17**

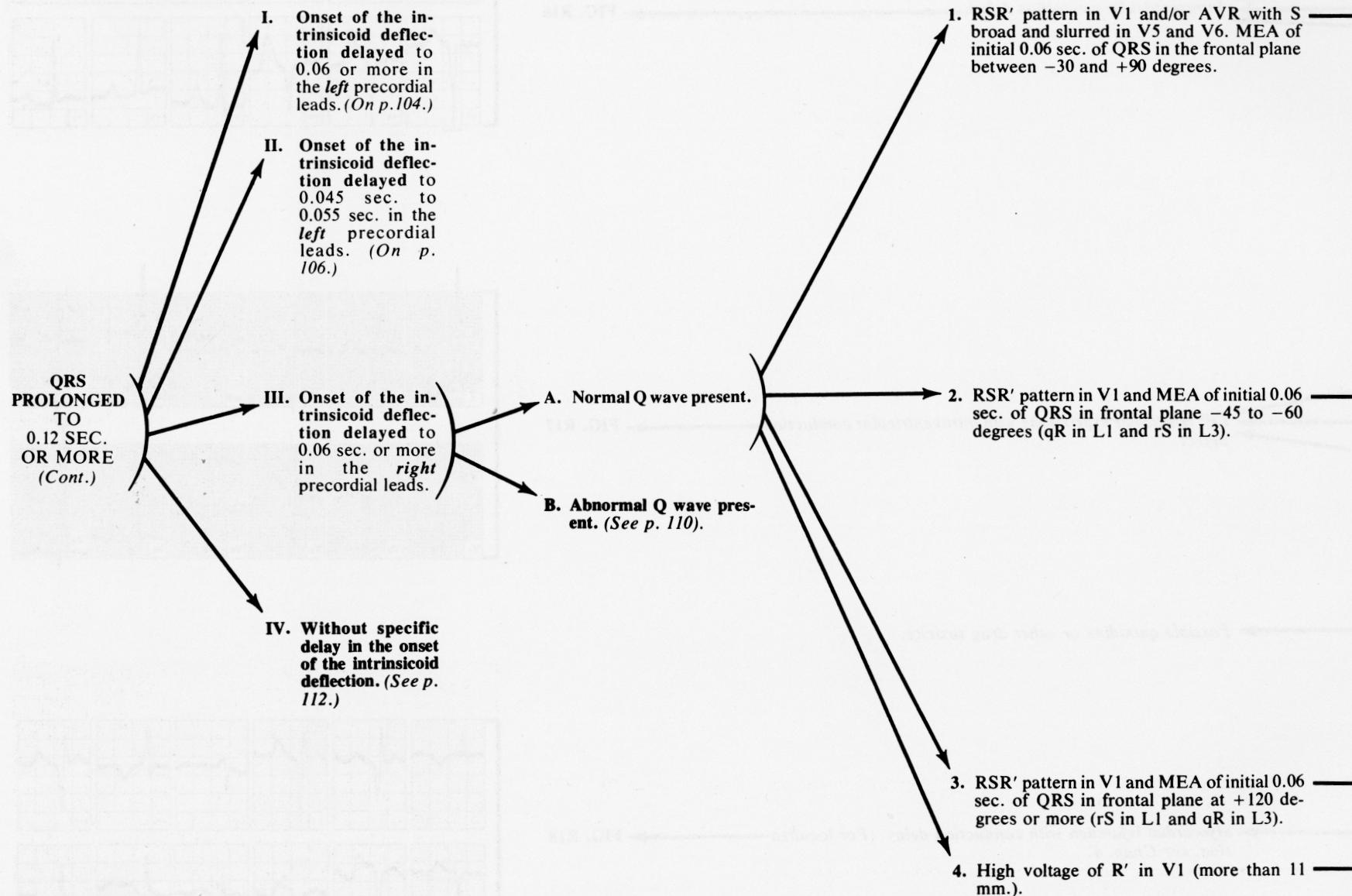



Possible quinidine or other drug toxicity.


Myocardial infarction with conduction delay. (For localization, see Chap. 4.) → **FIG. R18**

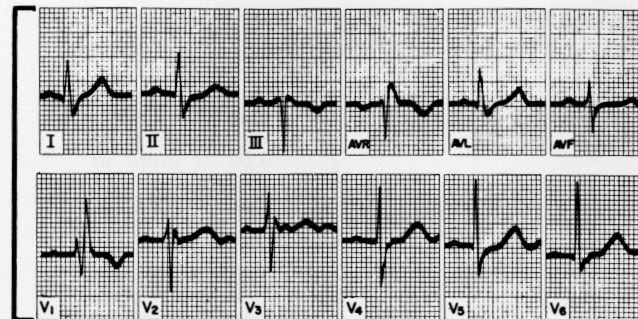


QRS ABNORMAL DUE TO:
Prolongation of Its Duration (Cont.)



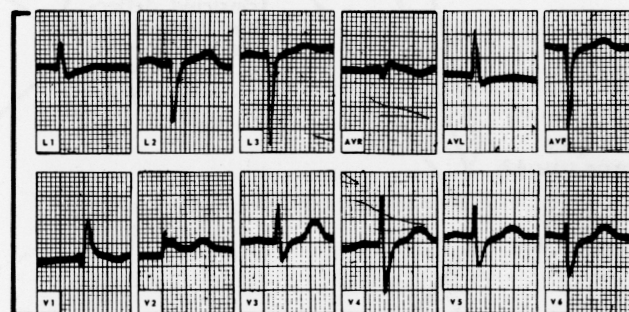
→ *Right bundle branch block.*

→ FIG. R19



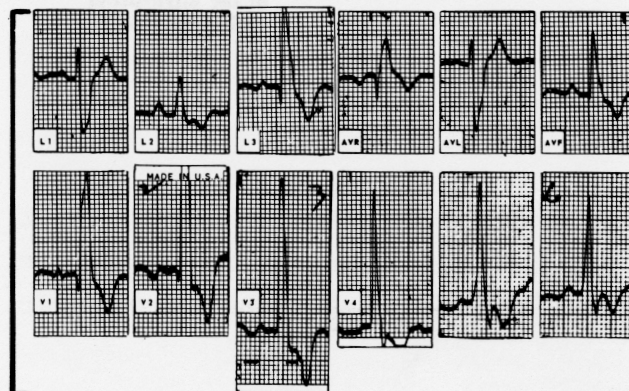
→ *Right bundle branch block with left anterior hemiblock (bifascicular block).*

→ FIG. R20



→ *Right bundle branch block with left posterior hemiblock (bifascicular block).*

→ FIG. R21



→ *Right bundle branch block with or without right ventricular hypertrophy. (See Fig. R10.)*