

*Occasionally *ventricular hypertrophy* occurs without abnormalities of QRS; the S-T and/or T changes being the only changes present.

†The differential diagnosis of these clinical states is based on history, physical examination, laboratory studies, and serial ECGs.

A nonspecific change, may be due to any of the following:

Digitalis effect

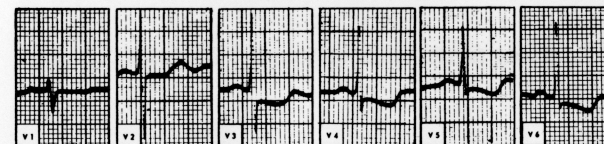
J depressed

Q-T shortened

S-T downward, bowed or sagged

T inverted or diphasic. If the T is inverted, it ends abruptly in a sharp upstroke to the baseline

FIG. S-T 10



Hypokalemia

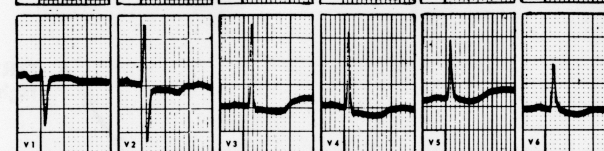
J depressed

S-T sags downward

T low to inverted

Prominent U wave

FIG. S-T 11

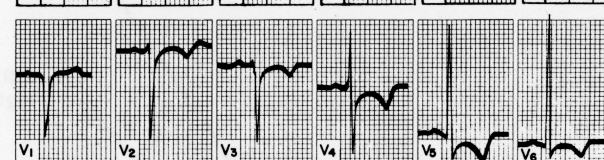


Left ventricular hypertrophy*

Slight to moderate S-T depression

S-T convex upward

FIG. S-T 12



Drug effect

Quinidine, quinine, procaine amide, phenothiazines (Q-U usually prolonged)

Coronary insufficiency† or angina pectoris or:

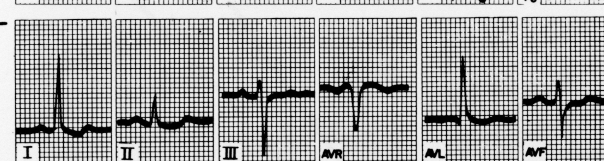
Subendocardial infarction†

Depressed J, downward, straight line slope S-T

T low, inverted or diphasic

Q-T usually lengthened

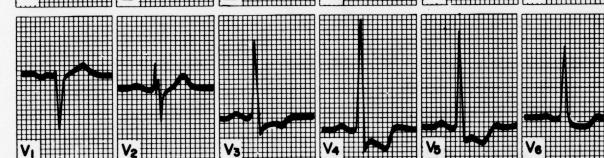
FIG. S-T 13



Cor pulmonale

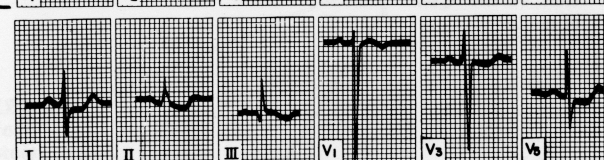
Depressed J in V1, V2, and/or L2, L3, and AVF

FIG. S-T 14



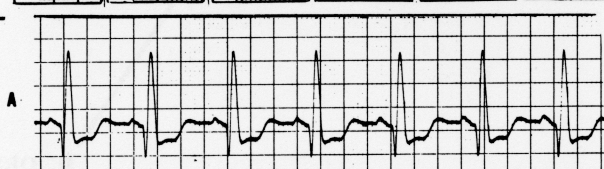
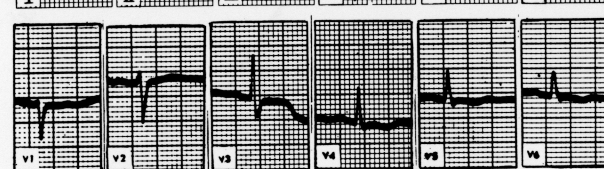
Nonspecific, includes anemia, shock, cerebral vascular accident

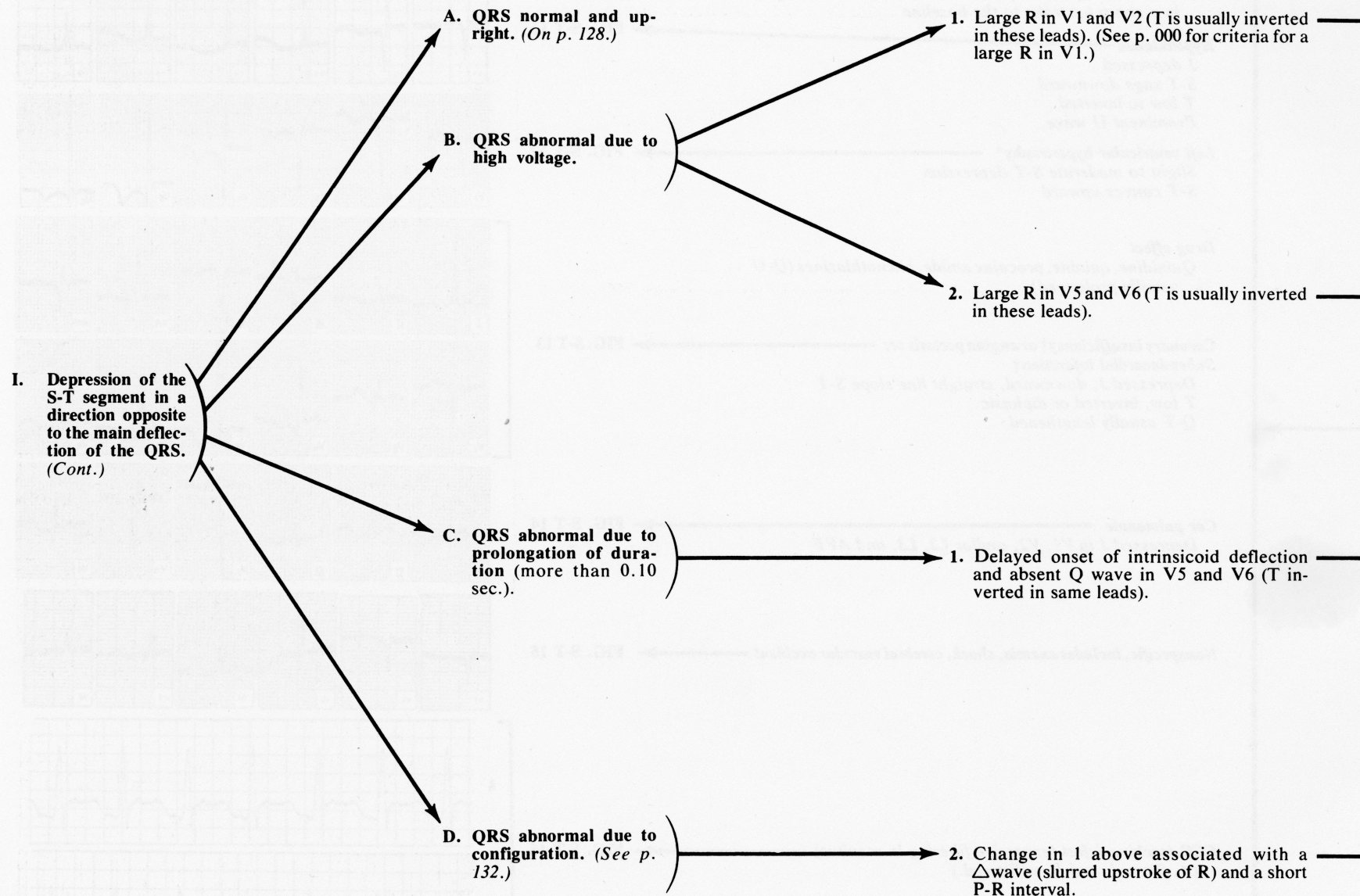
FIG. S-T 15



ECG machine defect (excessive filtering in monitor)
(A, filtered, and B, unfiltered.)

FIG. S-T 16

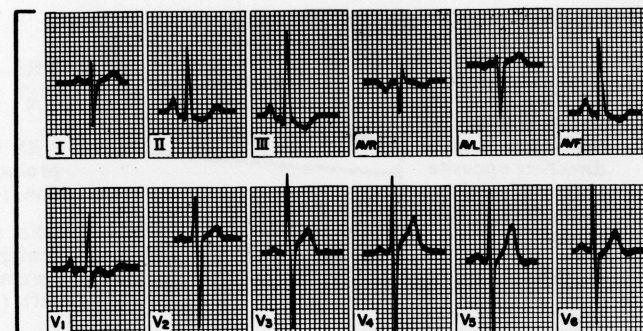




*Occasionally *ventricular hypertrophy* occurs without abnormalities of QRS; the S-T and/or T changes being the only changes present.

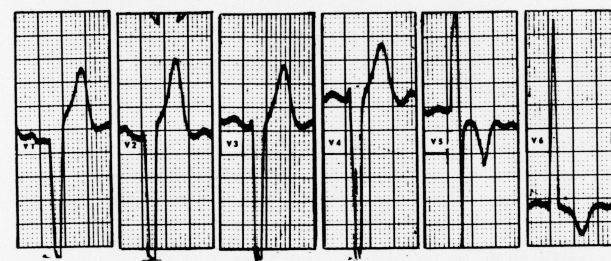
→ *Right ventricular hypertrophy.*

→ FIG. S-T 17



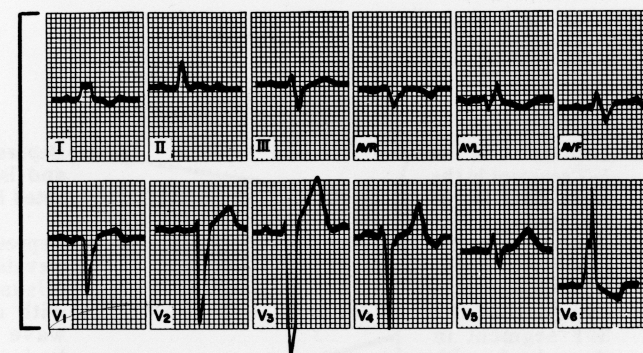
→ *Probable left ventricular hypertrophy.**

→ FIG. S-T 18



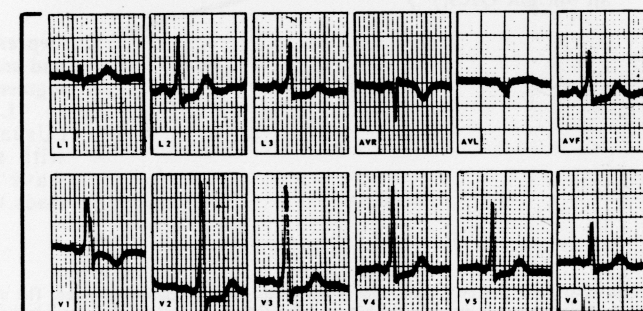
→ *Complete or incomplete left bundle branch block.*

→ FIG. S-T 19

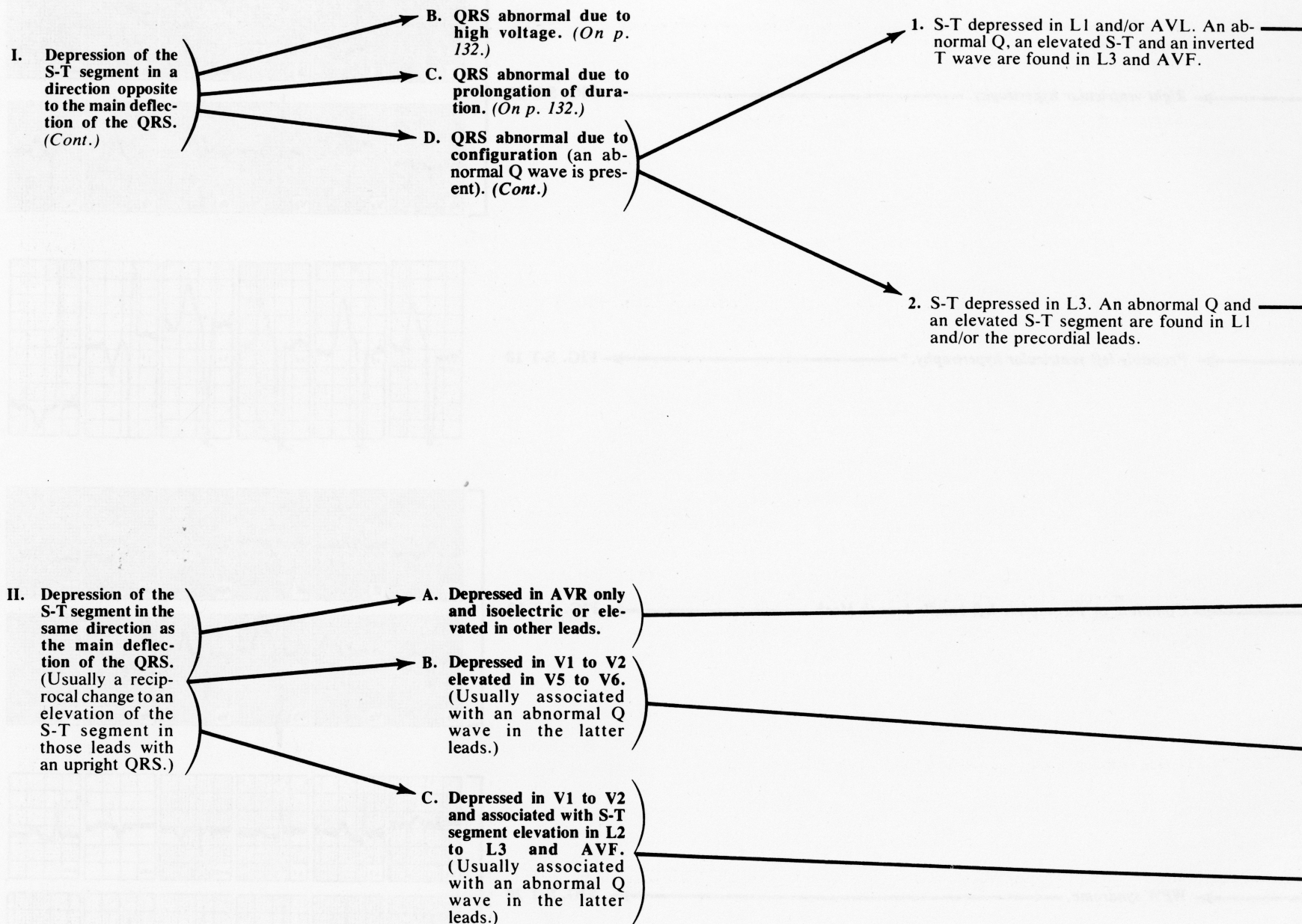


→ *WPW syndrome.*

→ FIG. S-T 20



ABNORMAL DISPLACEMENT OF S-T SEGMENT (Cont.)



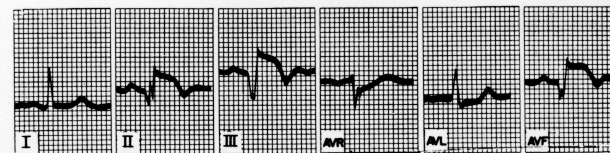
*Ventricular aneurysm may cause similar but persistent S-T segment changes. The differential diagnosis between acute myocardial infarction and ventricular aneurysm is based on the history, clinical findings, and serial changes in the electrocardiogram. (See Chap. 9.)

→ The S-T depression is a reciprocal change to the S-T segment elevation in other leads.

The diagnosis and localization of the myocardial injury is dependent on the changes in the leads with the abnormal Q wave and S-T elevation. (See Chap. 4.)

The typical S-T changes may occur before the abnormal Q wave develops.

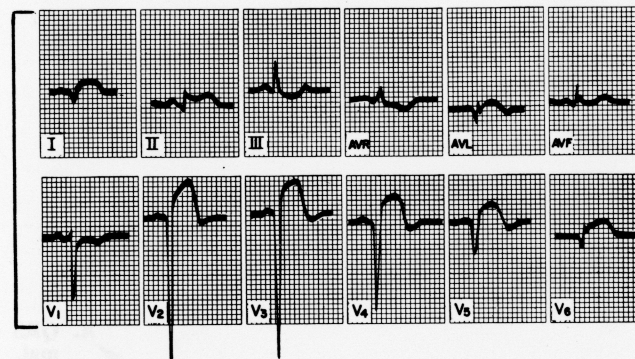
FIG. S-T 21



→ The S-T depression is a reciprocal change to the S-T segment elevation in other leads.

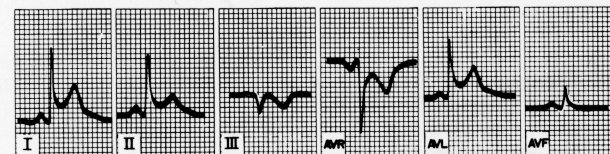
The diagnosis and localization of the myocardial injury is dependent on the changes in the leads with the abnormal Q wave and S-T elevation. (See Chap. 4.)

FIG. S-T 22



→ Acute pericarditis, rarely acute myocardial infarct. (The diagnosis is based on changes in the leads where the S-T is elevated.)

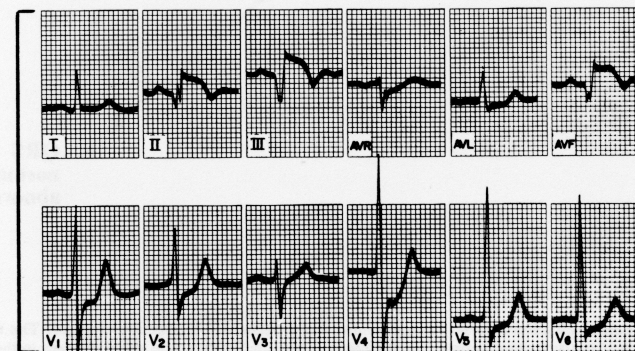
FIG. S-T 23

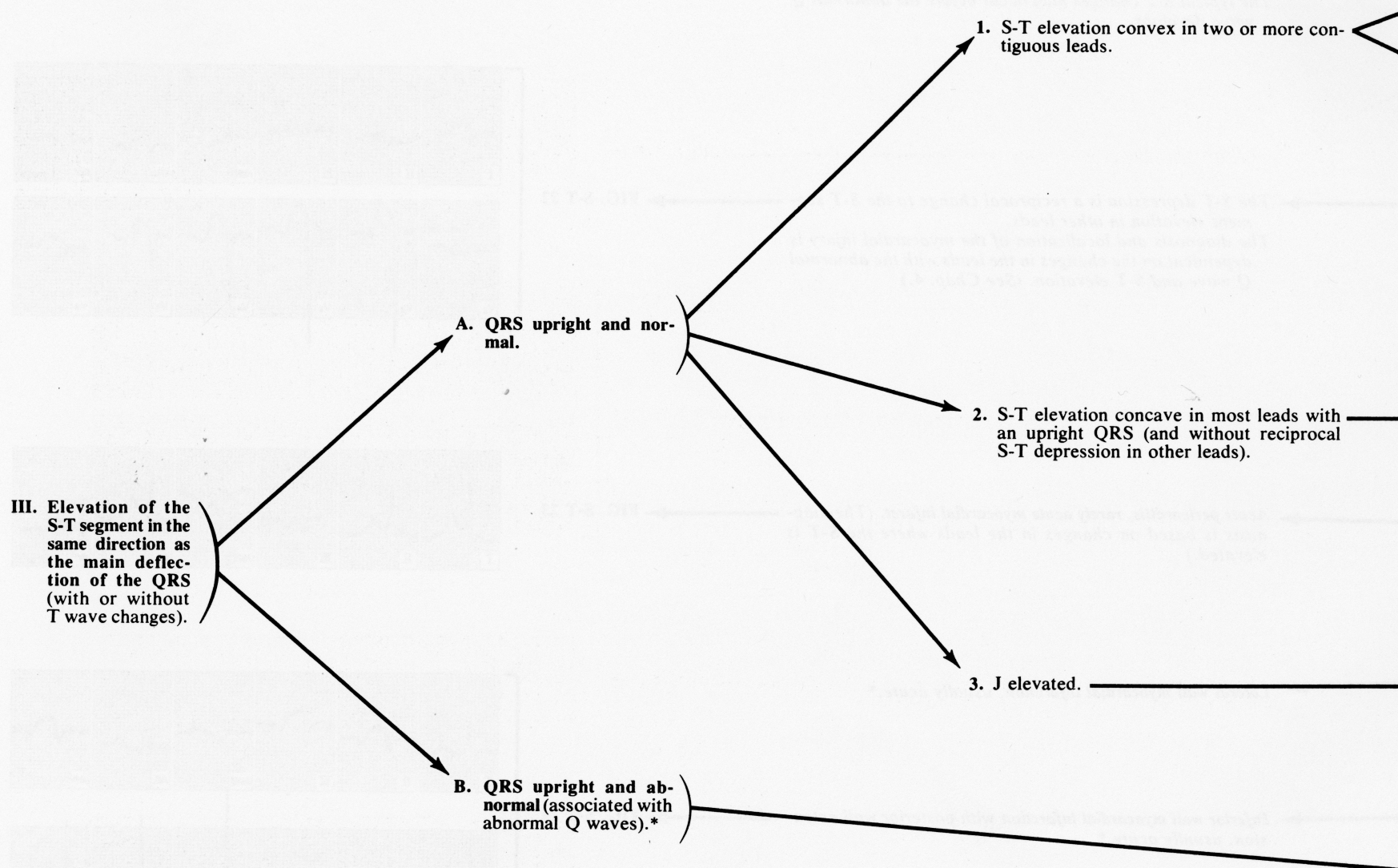


→ Lateral wall myocardial infarction, usually acute.*

→ Inferior wall myocardial infarction with posterior wall extension, usually acute.*

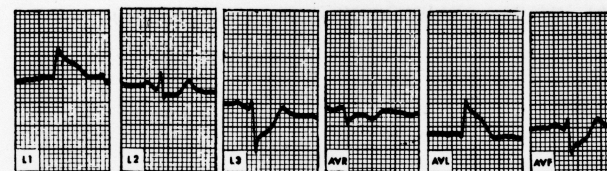
FIG. S-T 24



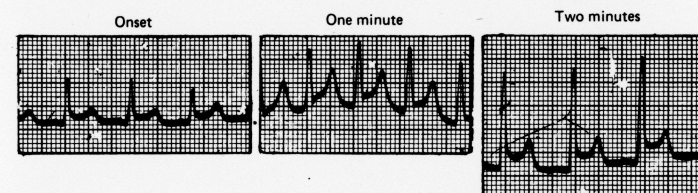


*Ventricular aneurysm may cause similar but persistent S-T segment changes. The differential diagnosis between acute myocardial infarction and ventricular aneurysm is based on the history, clinical findings, and serial changes in the electrocardiogram. (See Chap. 9.)

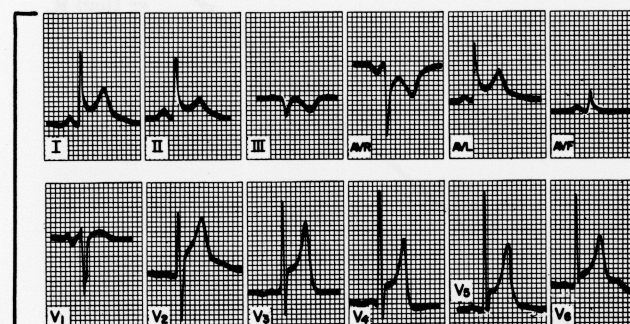
Acute myocardial infarction* or acute localized pericarditis. → FIG. S-T 25



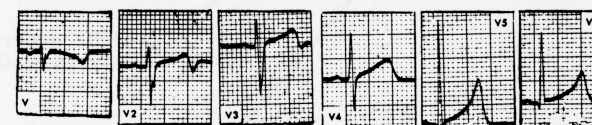
or Prinzmetal (atypical) angina. → FIG. S-T 26



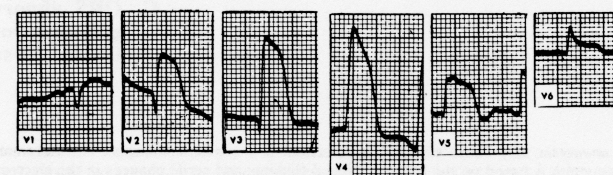
Usually acute pericarditis. → FIG. S-T 27

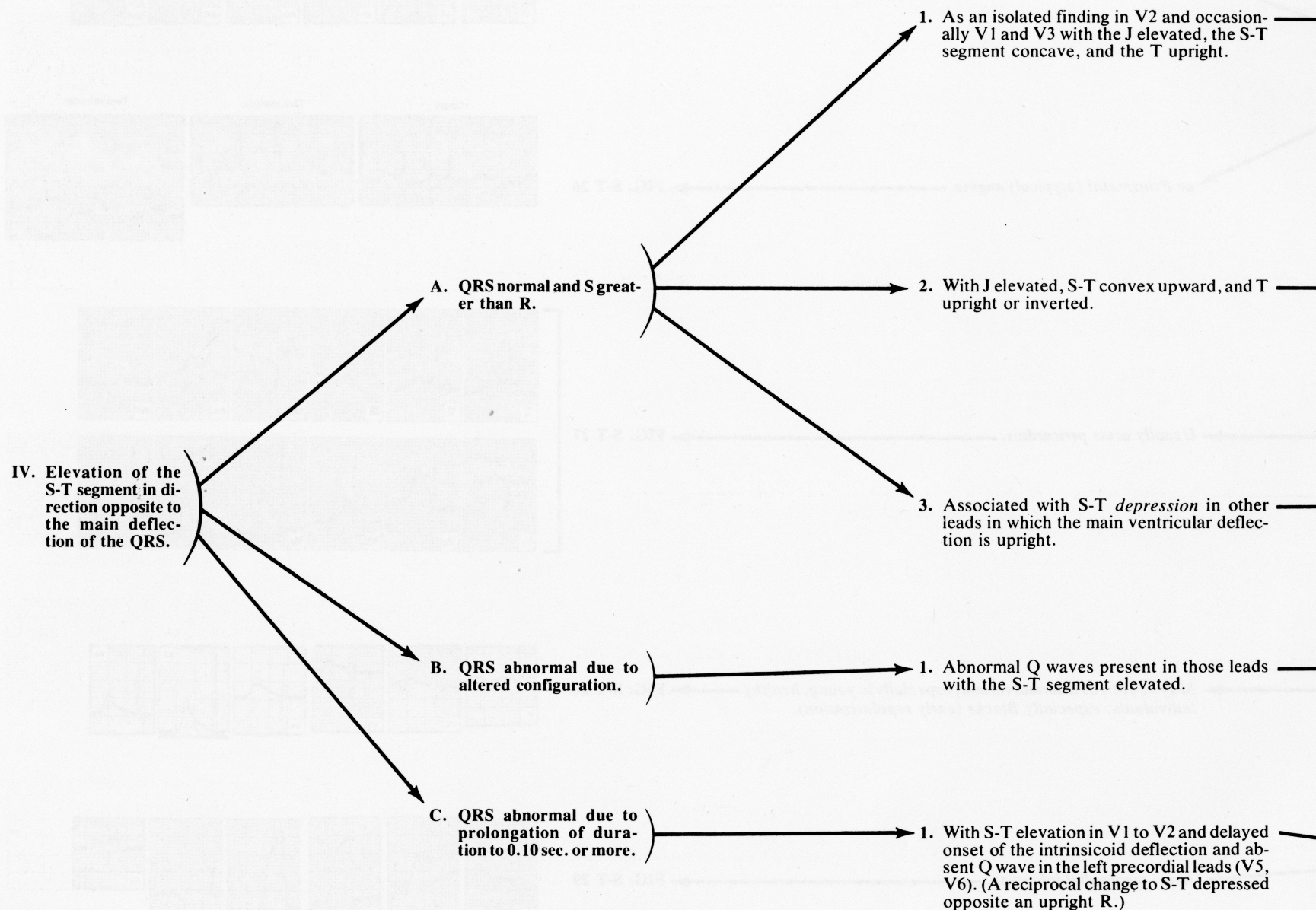


May be seen as a normal variant, especially in young, healthy individuals, especially Blacks (early repolarization). → FIG. S-T 28



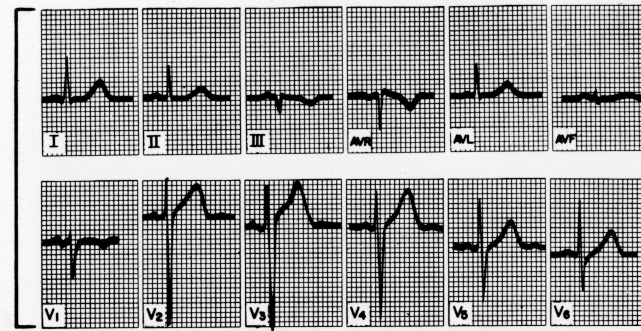
Acute myocardial infarction. → FIG. S-T 29



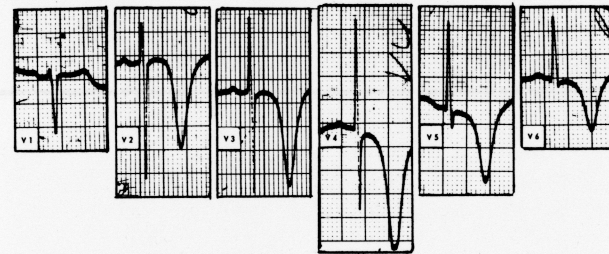


*Ventricular aneurysm may cause similar but persistent S-T segment changes. The differential diagnosis between acute myocardial infarction and ventricular aneurysm is based on the history, clinical findings and serial changes in the electrocardiogram. (See Chap. 9.)

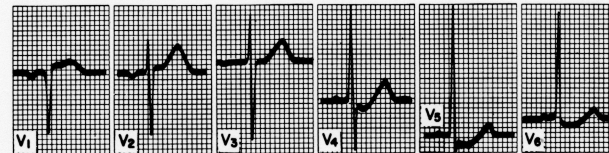
→ Normal. (Note V3.) → FIG. S-T 30



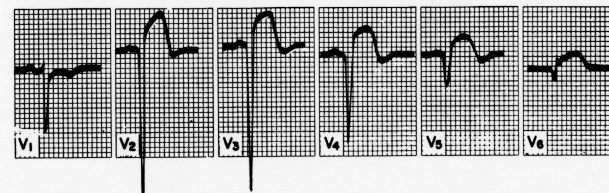
→ Usually acute myocardial infarction, rarely acute pericarditis. → FIG. S-T 31



→ Reciprocal change. The diagnosis is based on those leads where the S-T is depressed (note elevated S-T in V1 and depression V4, V5, and V6). → FIG. S-T 32



→ Myocardial infarction, usually acute; occasionally ventricular aneurysm.* (Consult Chap. 4 for localization.) → FIG. S-T 33



→ Incomplete or complete left bundle branch block. → FIG. S-T 34

