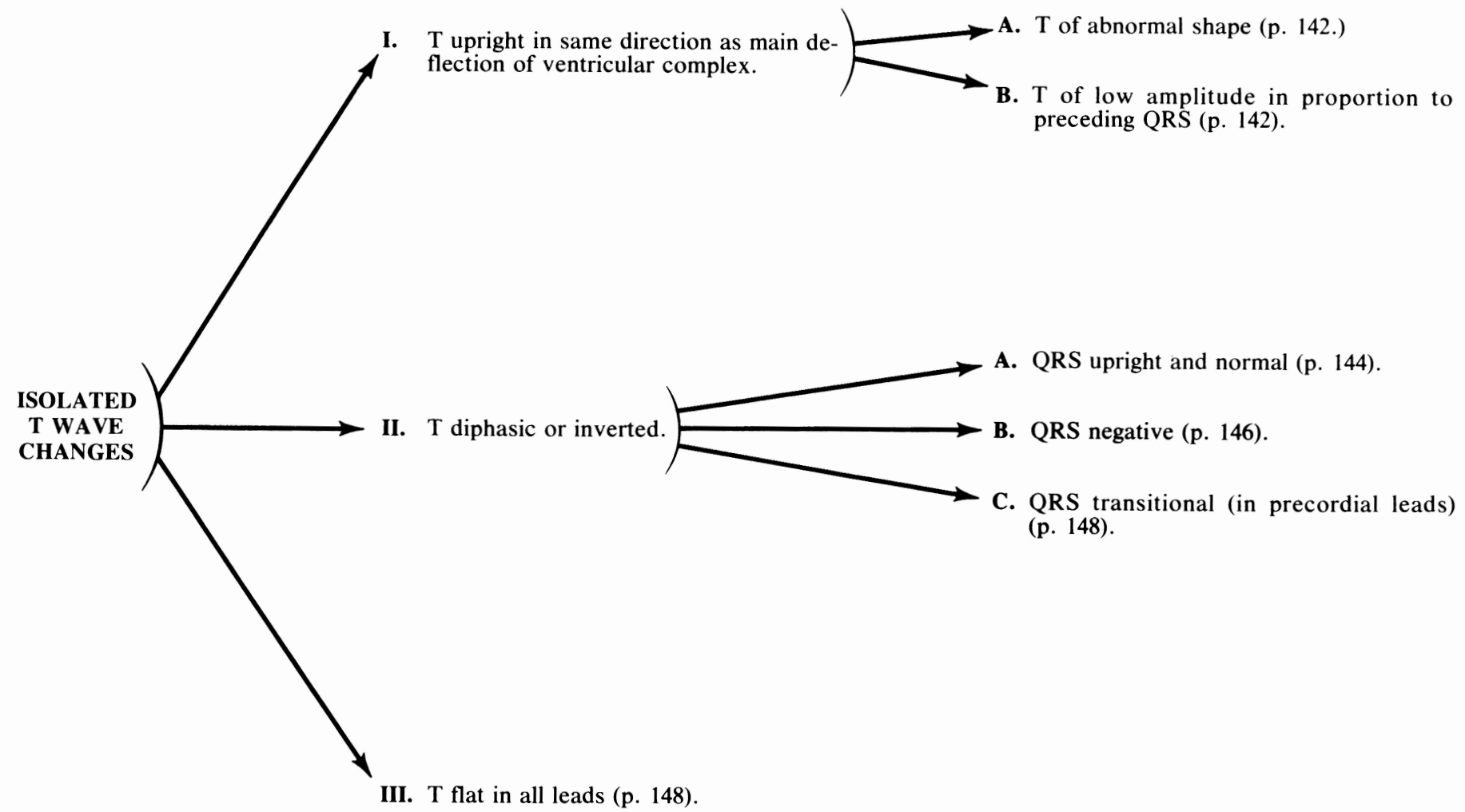


CHAPTER 7

Differential Diagnosis of the T wave

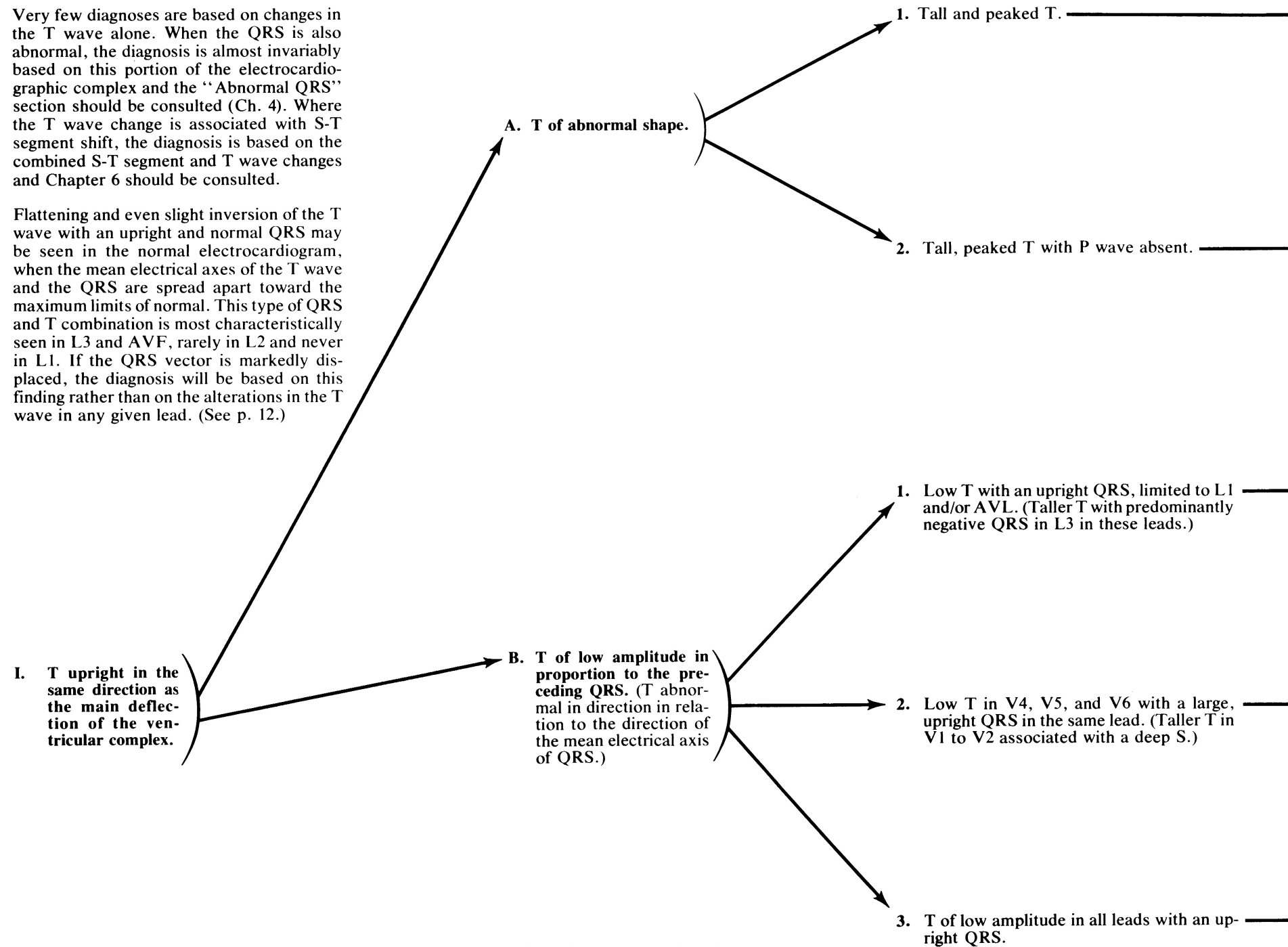
KEY PAGE—T WAVE ABNORMALITIES



ISOLATED T WAVE CHANGES

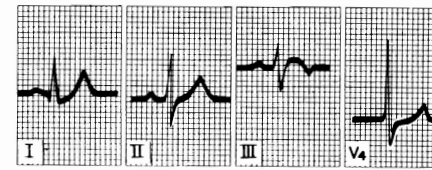
Very few diagnoses are based on changes in the T wave alone. When the QRS is also abnormal, the diagnosis is almost invariably based on this portion of the electrocardiographic complex and the "Abnormal QRS" section should be consulted (Ch. 4). Where the T wave change is associated with S-T segment shift, the diagnosis is based on the combined S-T segment and T wave changes and Chapter 6 should be consulted.

Flattening and even slight inversion of the T wave with an upright and normal QRS may be seen in the normal electrocardiogram, when the mean electrical axes of the T wave and the QRS are spread apart toward the maximum limits of normal. This type of QRS and T combination is most characteristically seen in L3 and AVF, rarely in L2 and never in L1. If the QRS vector is markedly displaced, the diagnosis will be based on this finding rather than on the alterations in the T wave in any given lead. (See p. 12.)

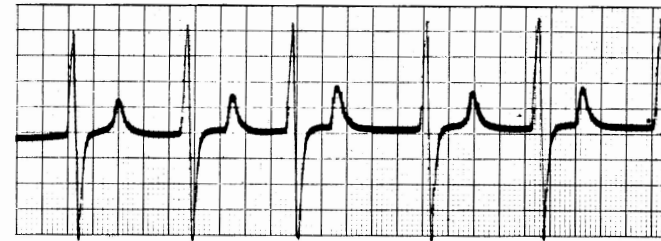


*Serial changes will frequently differentiate the normal from the abnormal T wave and help in establishing an etiologic diagnosis.
 †A low T wave may be caused by any of the conditions which result in an inverted or diphaseic T. (See p. 145.)

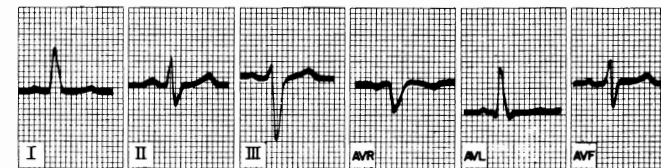
→ May be normal.* May be **hyperkalemia**. May be early stage of acute myocardial infarction. → FIG. T1



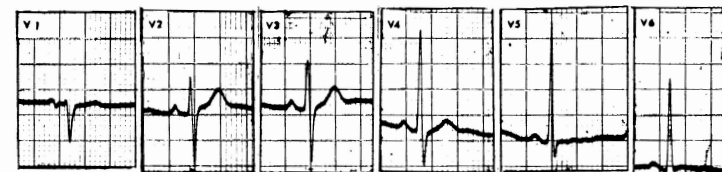
→ **Hyperkalemia**. → FIG. T2



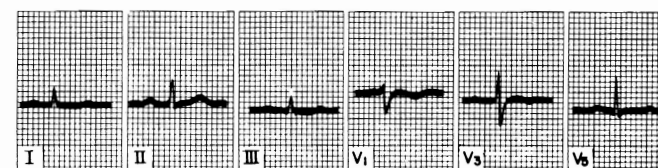
→ **Borderline nonspecific change.**† May be normal. May be seen in myocardial damage (anterior wall) and/or left ventricular hypertrophy. → FIG. T3



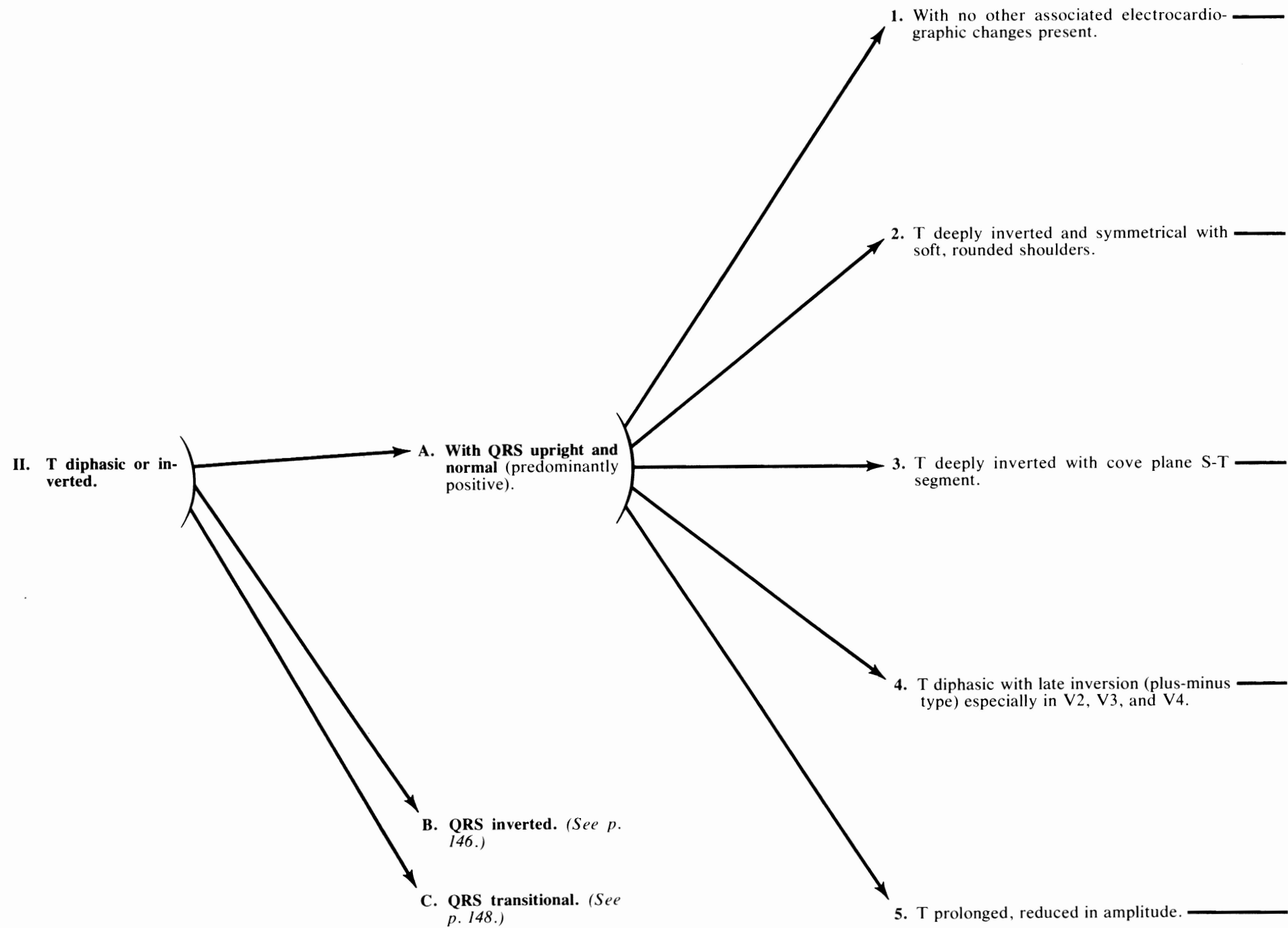
→ **Borderline nonspecific change.**† May be normal. Possibly associated with lateral wall infarction and/or left ventricular hypertrophy. → FIG. T4



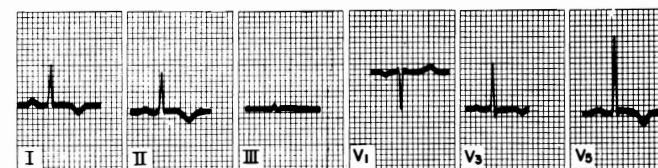
→ May be normal. A **borderline nonspecific change**. → FIG. T5



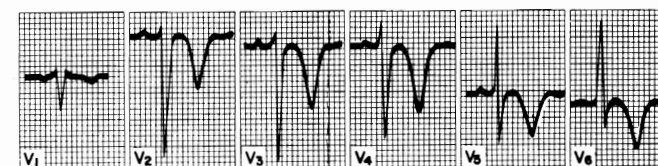
ISOLATED T WAVE CHANGES (Cont.)



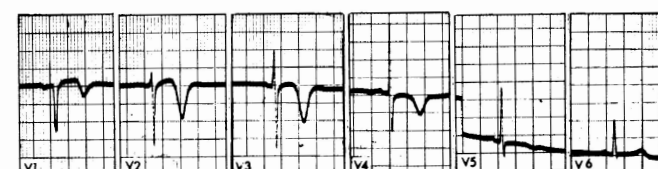
→ **A nonspecific finding.** Usually abnormal. If localized to a few contiguous leads, may result from myocardial damage. If diffuse, may be late stage of pericarditis, diffuse myocardial disease, a metabolic disturbance, or a drug effect, especially digitalis, quinidine, or phenothiazine. → **FIG. T6**



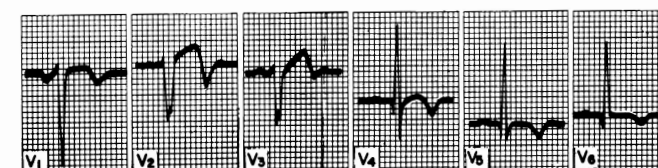
→ **Abnormal and suggestive of myocardial infarction.** → **FIG. T7**



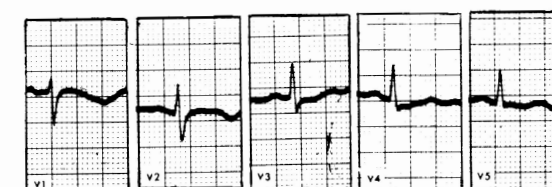
→ **Abnormal and suggestive of myocardial infarction.** → **FIG. T8**



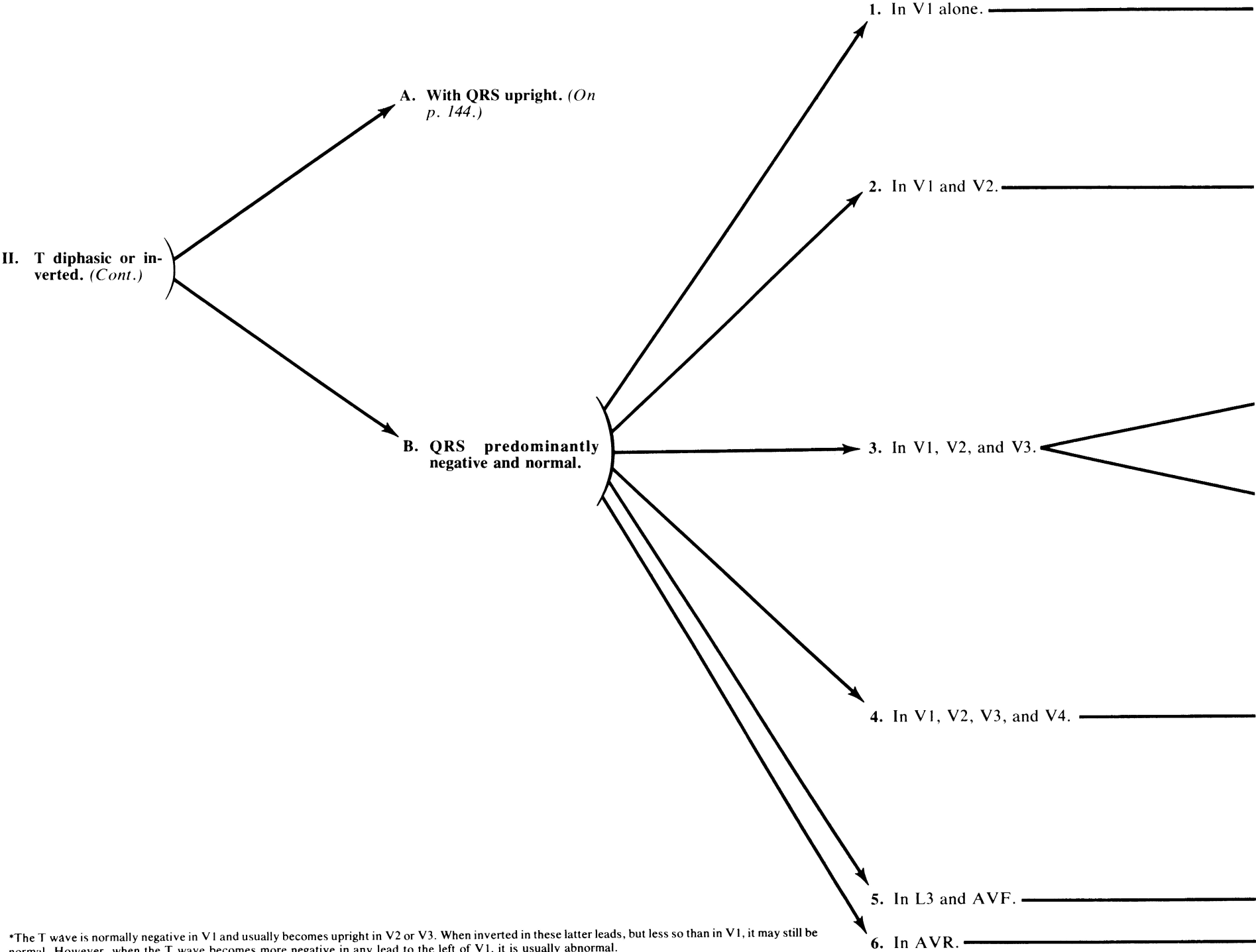
→ **Suggestive of myocardial infarction (leads V2 to V3).** → **FIG. T9**



→ **Suggestive of drug effect, such as quinidine or the phenothiazines.** → **FIG. T10**

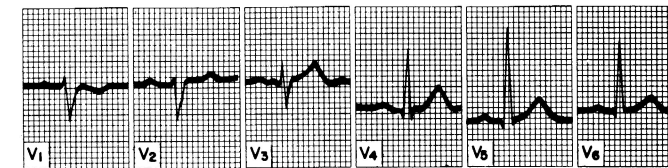


ISOLATED T WAVE CHANGES (Cont.)

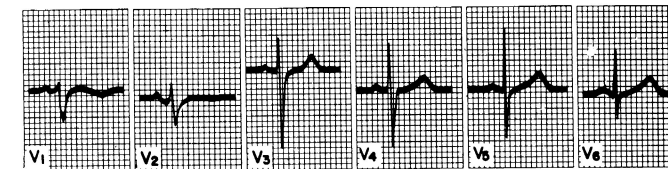


*The T wave is normally negative in V1 and usually becomes upright in V2 or V3. When inverted in these latter leads, but less so than in V1, it may still be normal. However, when the T wave becomes more negative in any lead to the left of V1, it is usually abnormal.

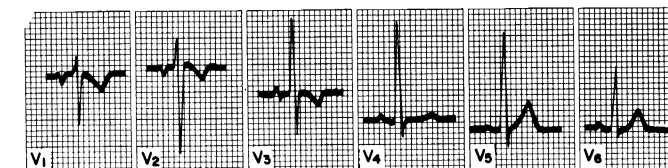
→ Normal. → FIG. T11



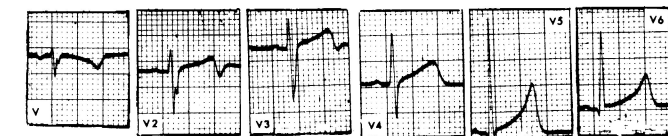
→ Normal in children. May be normal in young adults, particularly young adult Blacks. Occasionally seen in older adults.* → FIG. T12



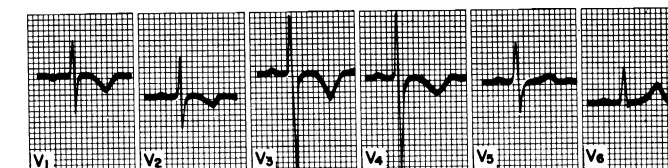
→ Normal in children. → FIG. T13



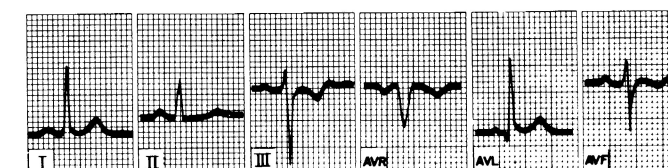
→ May be normal in young adults, especially Blacks,* especially with late inversion of the T wave. → FIG. T14



→ Usually normal in young children. May be normal in adolescents and young adults, especially if T is asymmetrical. In adults, usually abnormal but nonspecific finding, especially if T is symmetrically inverted. The diagnosis is based on the entire electrocardiogram and the clinical findings.* → FIG. T15

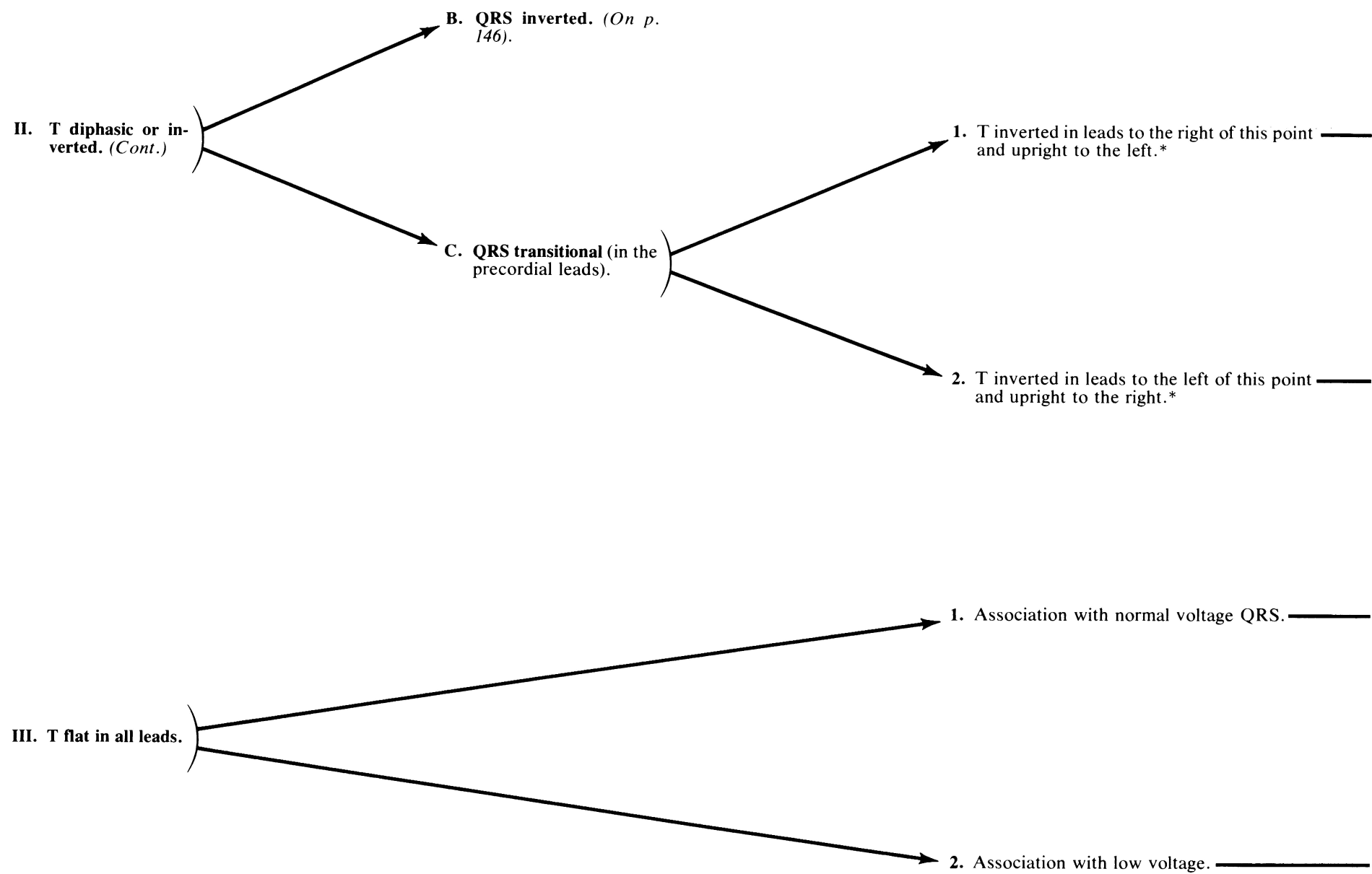


→ Normal finding. → FIG. T16



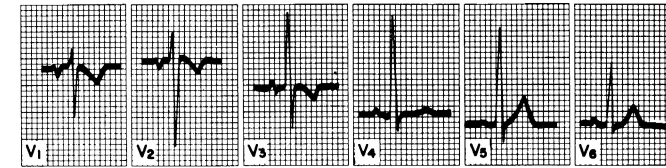
→ Always normal.

ISOLATED T WAVE CHANGES (Cont.)

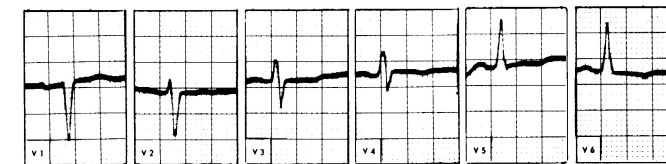


*Right and left here refer to the *patient's* right or left.

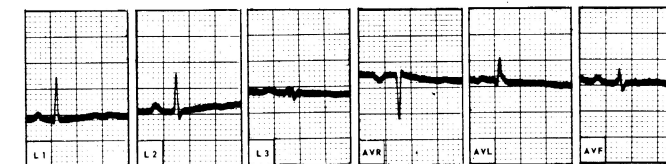
→ Normal in children and young adults. May be normal or a nonspecific T wave change. → FIG. T17



→ An abnormal nonspecific T wave change. → FIG. T18



→ A nonspecific change. → FIG. T19



→ A nonspecific change may be associated with:
 1. Pericardial effusion
 2. Myxedema
 3. Pleural effusion → FIG. T20

