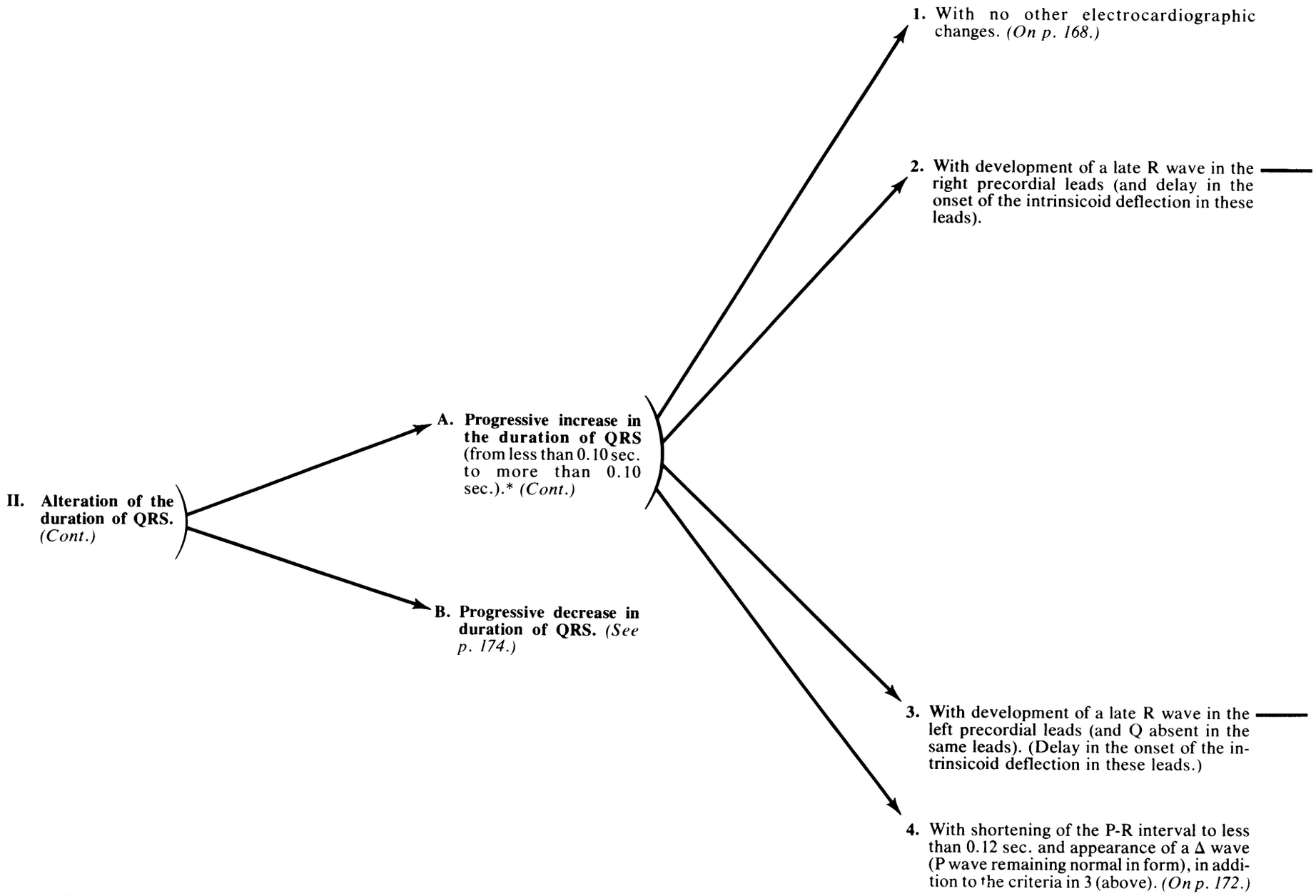
ACUTE SERIAL CHANGES:
Primarily limited to the QRS Complex (Cont.)



*Prolongation of QRS frequently leads to S-T and T changes.

†Complete or imcomplete bundle branch block may appear during a run of supraventricular tachycardia or during an irregular rhythm when it exceeds a critical rate. This may be due to fatigue of either of the bundles.

Complete or incomplete ***right bundle branch block.***

May be due to:

1. *Myocardial infarction*
2. *Tachycardia†*
3. *Drug toxicity (digitalis, quinidine, procaine amide, etc.)*
4. *Acute cor pulmonale*
5. *Following right ventriculotomy*
6. *Injury or disease of the right bundle*

FIG. Ser10A
control

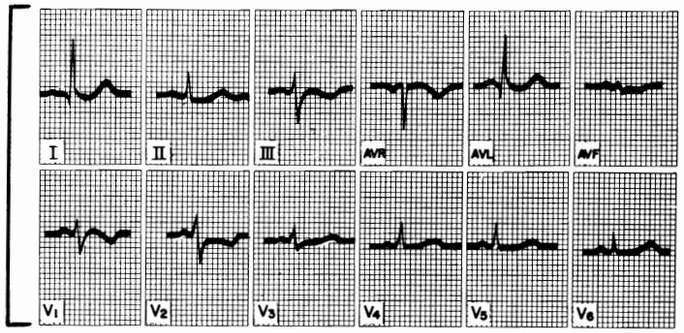
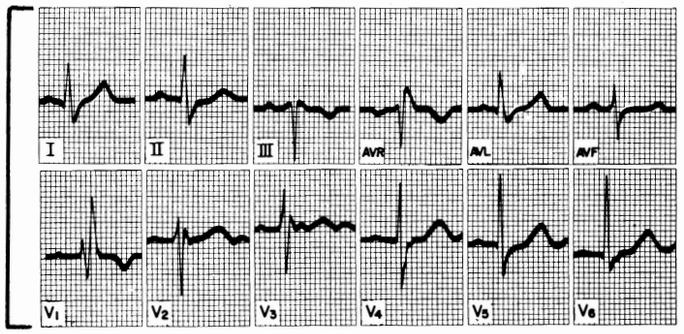


FIG. Ser10B



Complete or incomplete ***left bundle branch block.***

Most often due to:

1. *Myocardial infarction*
2. *Secondary to drug toxicity*
3. *Tachycardia†*
4. *Injury or disease of the left bundle*
5. *Electrolyte abnormalities*

FIG. Ser11A
control

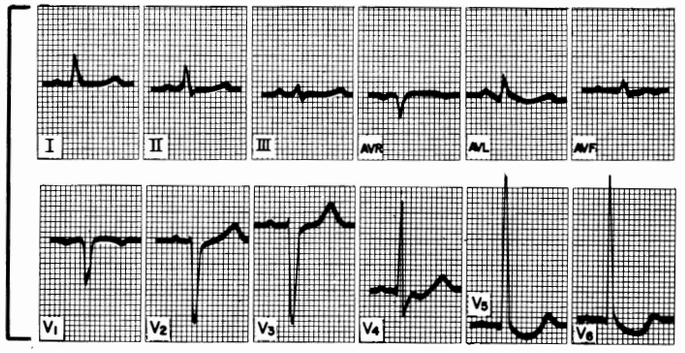
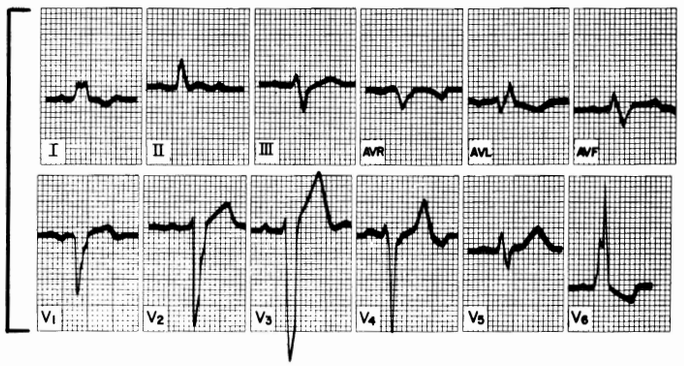


FIG. Ser11B



ACUTE SERIAL CHANGES:
Primarily limited to the QRS Complex (Cont.)

II. Alteration of the duration of QRS. *(Cont.)*

A. Progressive increase in the duration of QRS (from less than 0.10 sec. to more than 0.10 sec.).* *(Cont.)*

1. With no other electrocardiographic changes. *(On p. 168.)*
2. With development of a late R wave in the right precordial leads (and delay in the onset of the intrinsicoid deflection in these leads). *(On p. 170.)*
3. With development of a late R wave in the left precordial leads (and Q absent in the same leads). (Delay in the onset of the intrinsicoid deflection in these leads.) *(On p. 170.)*
4. With shortening of the P-R interval to less than 0.12 sec. and appearance of a Δ wave (P wave remaining normal in form), in addition to the criteria in 3 (above).

B. Progressive decrease in duration of QRS. *(See p. 174.)*

→ *Development of* ***Wolff-Parkinson-White syndrome.*** *(Shift from normal conduction to pre-excitation pathway.)*

FIG. Ser12A

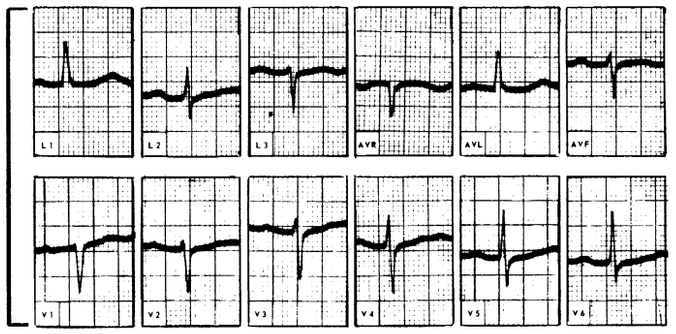
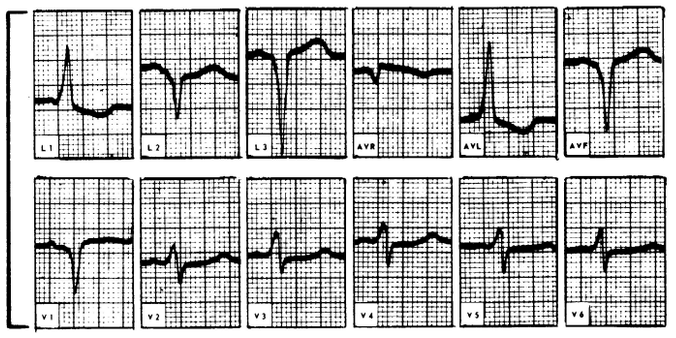
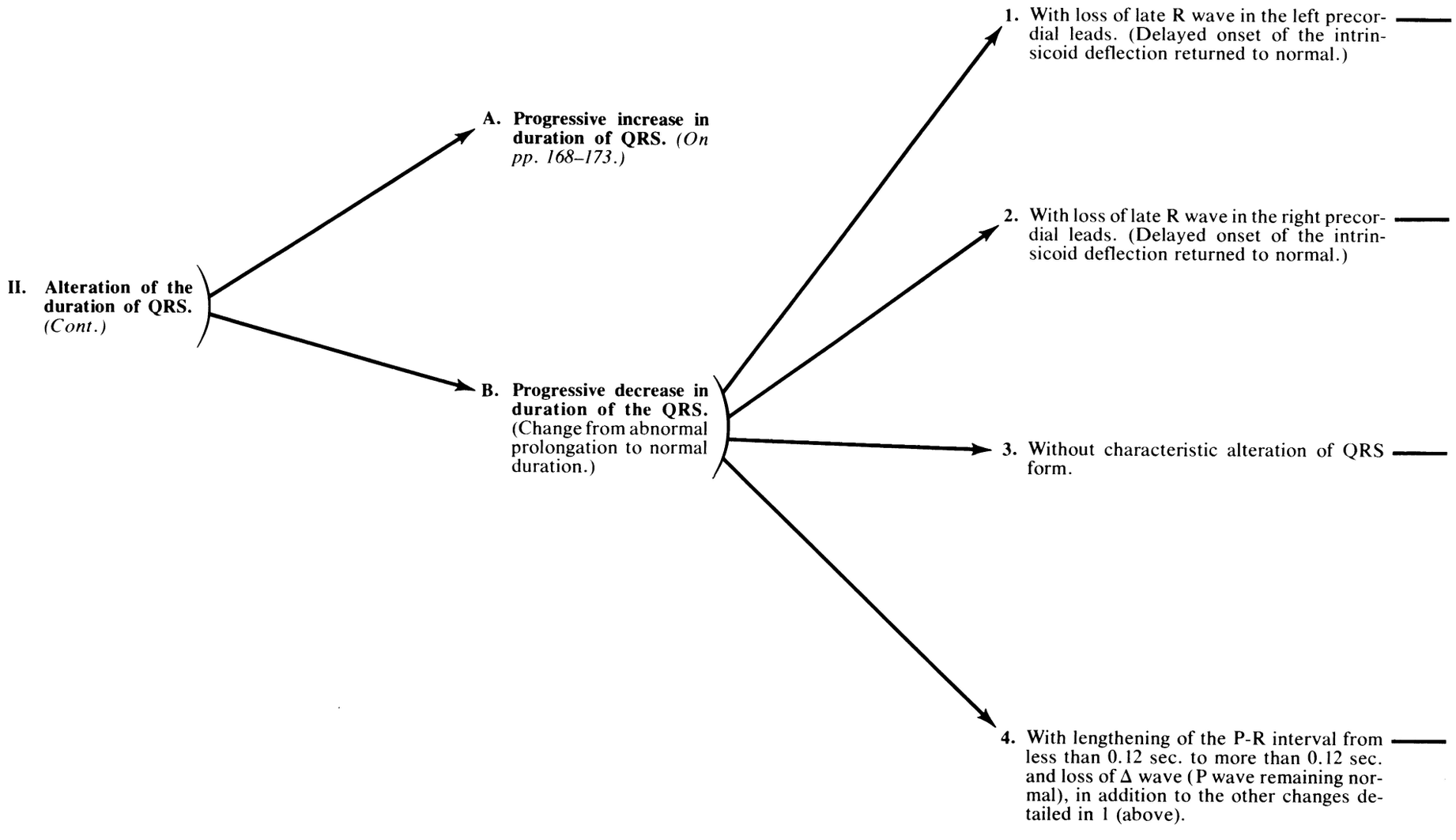


FIG. Ser12B



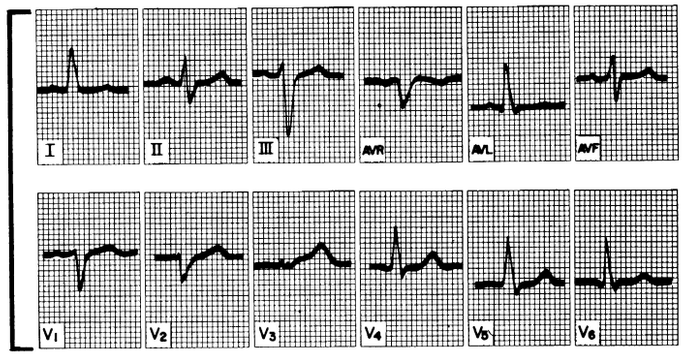
ACUTE SERIAL CHANGES:
Primarily limited to the QRS Complex (Cont.)



*Complete or incomplete bundle branch block may appear during a run of supraventricular tachycardia. This may be associated with fatigue of the bundles. See Chapter 2.

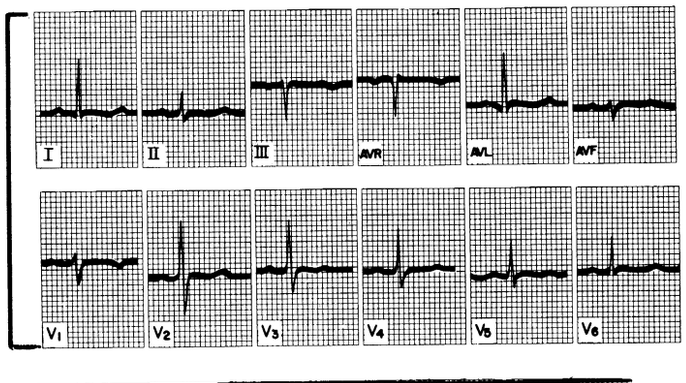
*Revision of **left bundle branch block** to normal conduction. Occasionally seen during recovery from an **acute myocardial infarction.** More commonly seen following cessation of toxic action of drugs or the termination of a **tachycardia*** *(Fig. Ser 11 in reverse–B to A).*

FIG. Ser13A
control



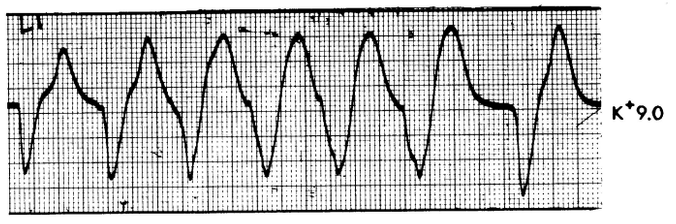
*Revision of **right bundle branch block** to normal conduction. Most commonly seen following the cessation of toxic action of drugs or the cessation of tachycardia* or during recovery from an acute cor pulmonale. Occasionally seen during recovery from acute myocardial infarction (Fig. Ser 10 in reverse–B to A).*

FIG. Ser13B



*Reversion of **intraventricular conduction defect to normal.** Seen with cessation of drug therapy, **correction of electrolyte imbalance,** or termination of tachycardia. On occasion seen during the healing of a **myocardial infarct.***

FIG. Ser14A



*Change in atrioventricular conduction in **Wolff-Parkinson-White syndrome** from pre-excitation to normal.*

FIG. Ser14B

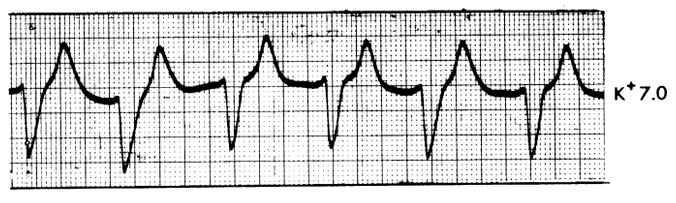


FIG. Ser14C

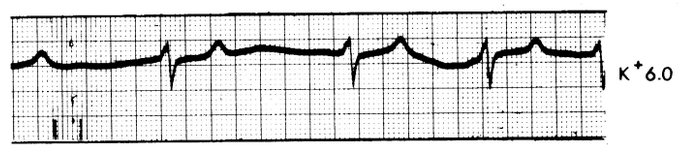
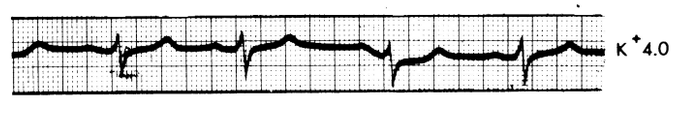


FIG. Ser14D



ACUTE SERIAL CHANGES:
Primarily limited to the QRS Complex (Cont.)

III. Progressive changes in the voltage of QRS.

- **1.** Progressive lowering of voltage.
- **2.** Progressive increase of voltage.

ACUTE SERIAL CHANGES:
Primarily limited to the S-T Segment

I. S-T segment shift in those leads where the QRS is upright. (R greater than S.)

- **A. S-T segment shift from isoelectric to elevated** (in the same direction as the QRS).
  - **1.** In all leads with an upright QRS.
  - **2.** Limited to several contiguous leads.
- **B. S-T segment shift from elevated to the isoelectric line.**
- **C. S-T segment shift from isoelectric to depressed.** *(See p. 178.)*
- **D. S-T segment shift from depressed to isoelectric.** *(See p. 178.)*

→ *Pericardial effusion; massive pleural effusion; occasionally seen during the course of an acute myocardial infarction, but other changes are usually more characteristic.* ***Improper standardization*** *of the ECG machine.*

FIG. Ser15A
control

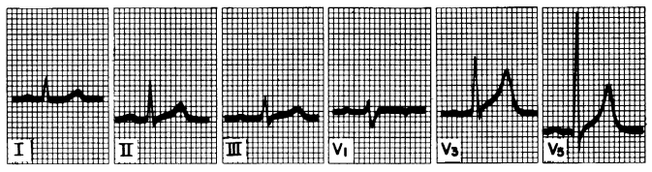
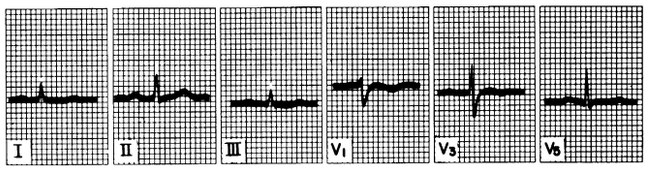


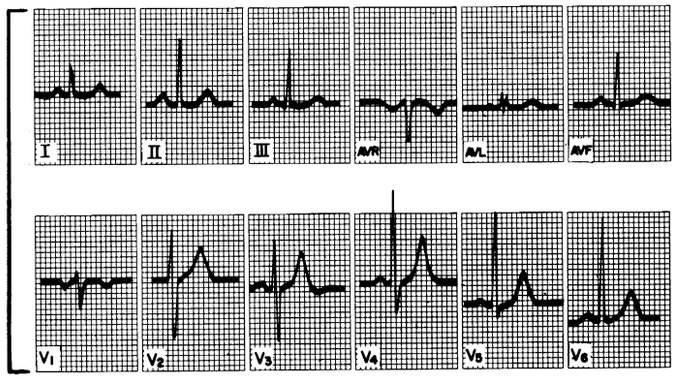
FIG. Ser15B



→ *With recovery from myocardial infarction; with absorption or removal of pericardial effusion; in rapid correction of myxedema.* ***Improper standardization*** *of the ECG machine.*

→ *Acute pericarditis.*

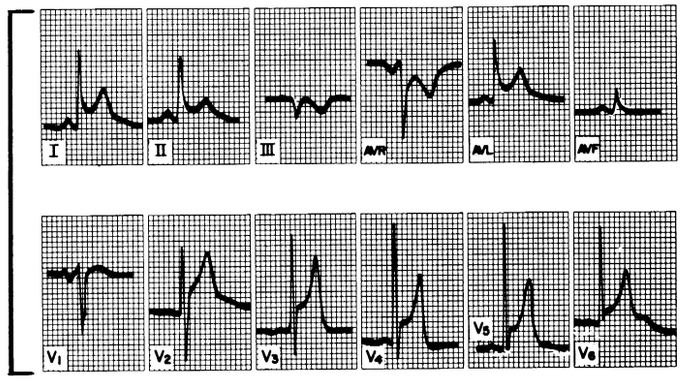
FIG. Ser16A
control



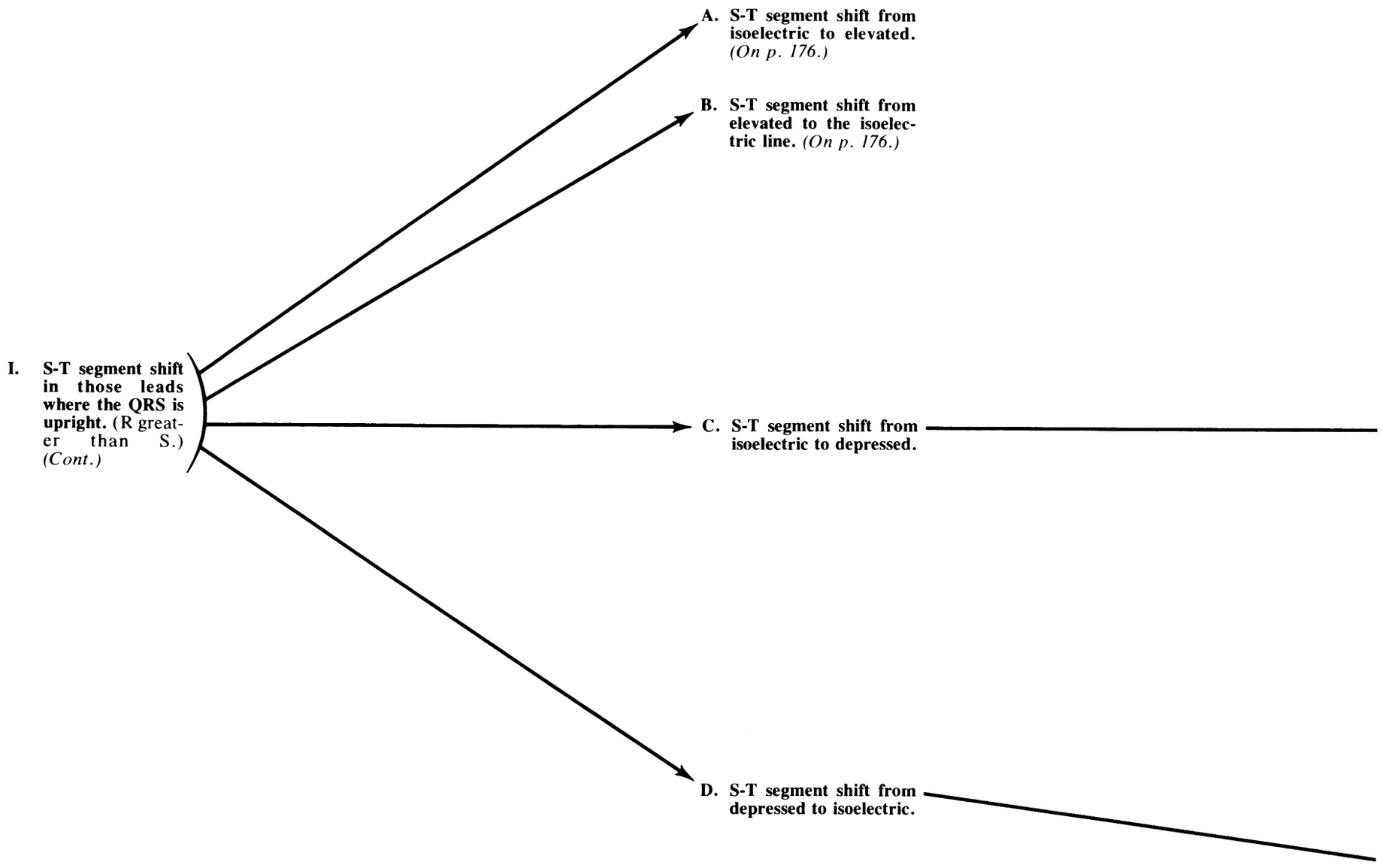
→ *Possible early phase in the development of the electrocardiographic pattern of* ***myocardial infarction.*** ***Variant*** *form of* ***angina pectoris.*** *Possible localized* ***acute pericarditis.***

→ *Serial change secondary to previously elevated S-T segment. Healing stage of pericarditis, termination of angina attack, etc.*

FIG. Ser16B



ACUTE SERIAL CHANGES:
Primarily limited to the S-T Segment (Cont.)



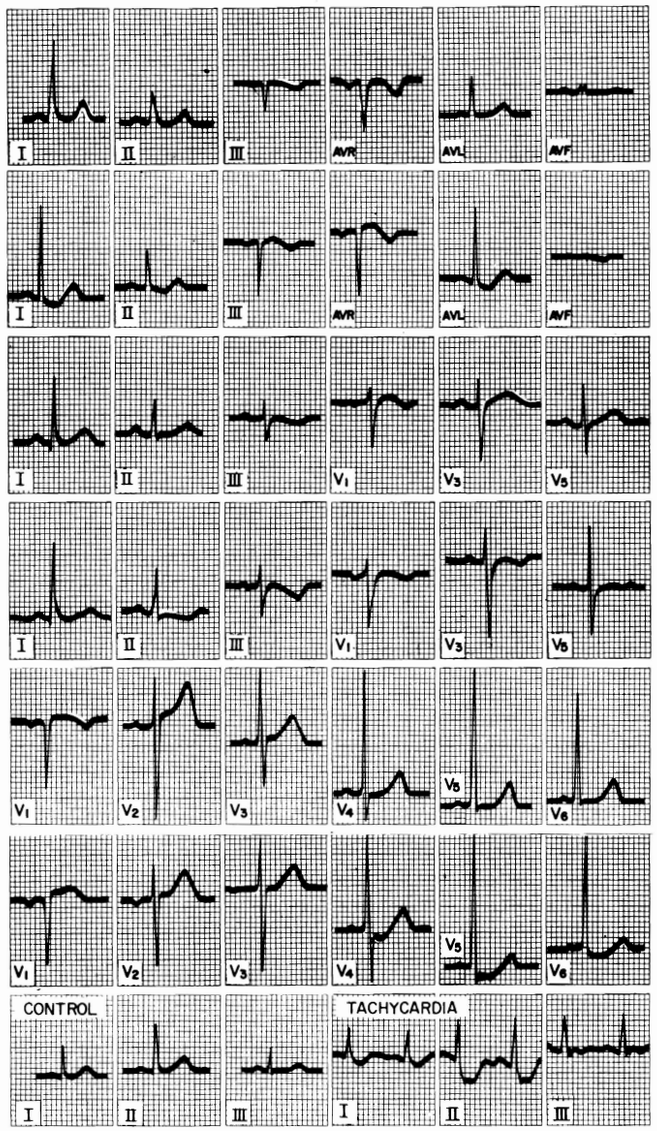
*The differential diagnosis of the patterns of myocardial ischemia depends to a great extent on the clinical findings, the associated electrocardiographic changes, and the duration of these abnormalities.

A nonspecific change which may be found in any of the following clinical conditions:

1. *Digitalis effect.*
   (During the administration of digitalis any diagnosis of other conditions as a cause of the depressed S-T, with or without T inversion, should be made with caution.)

FIG. Ser17A control

FIG. Ser17B



2. *Hypokalemia.*

FIG. Ser18A control

FIG. Ser18B

3. *Myocardial ischemia* secondary to:*
   a. *Angina pectoris (S-T segment changes persist for a few minutes to a half hour)**
   b. *Coronary insufficiency (S-T changes usually persist for several hours to one or two days)**
   c. *Subendocardial infarction (S-T changes usually persist several days or more)**

FIG. Ser19A control

FIG. Ser19B

4. *Tachycardia.*

FIG. Ser20A **FIG. Ser20B**

5. *Acute cor pulmonale. (See Fig. Ser2.)*
6. *Drugs: quinidine, procaine amide, etc.*
7. *Defect in ECG machine (overdamped) or monitor tracing, compared with standard tracing.*

FIG. Ser21A

8. *Nonspecific; anemia, shock, cerebrovascular accidents, etc.*

FIG. Ser21B

A serial change secondary to a previously depressed S-T segment. Recovery from, correction, or cessation of any of the above causes is followed by the return of the S-T segment to normal.