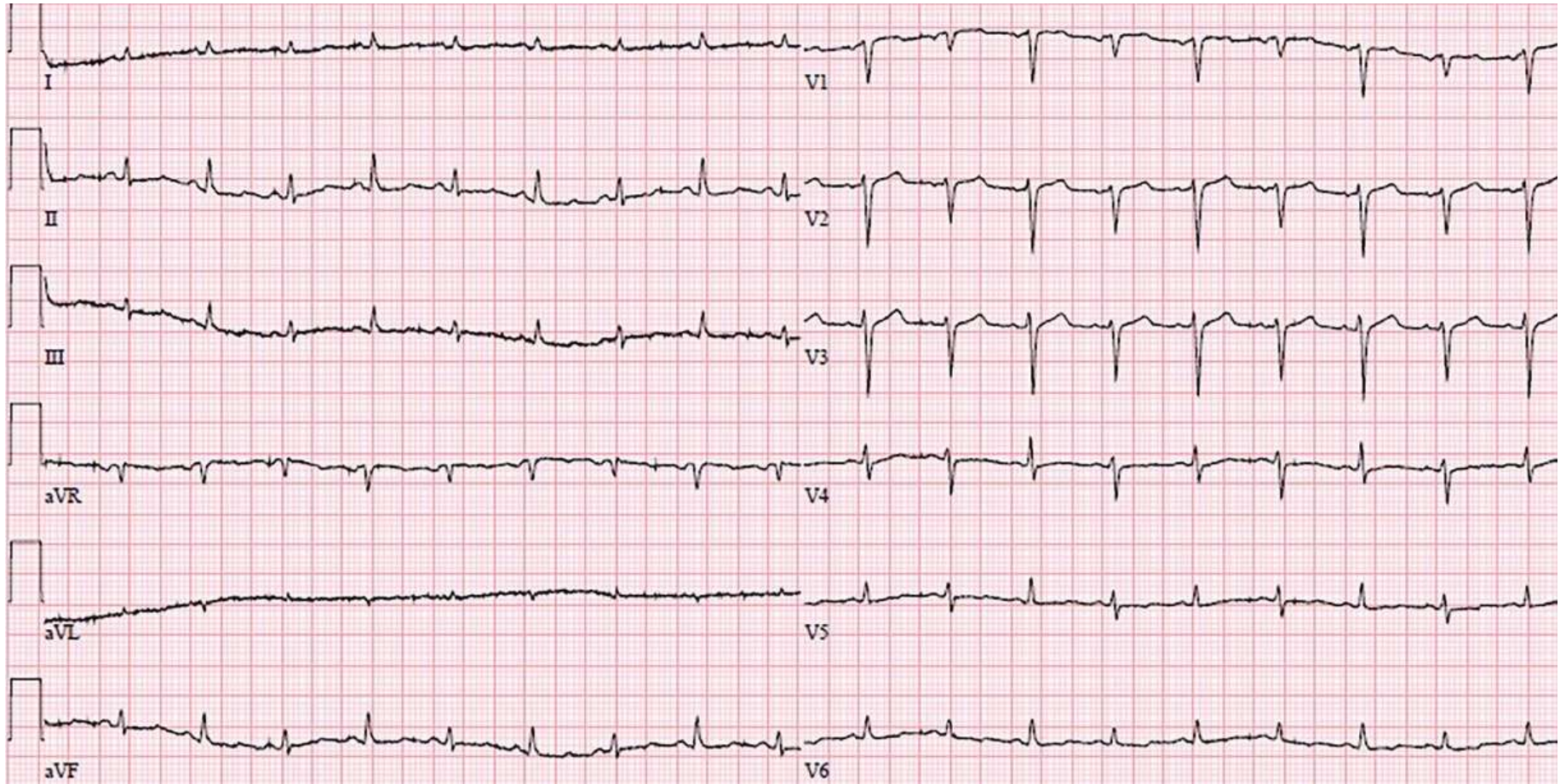


- Electrical alternans



- Alternation in the amplitude and/or direction of the QRS complexes. “Total alternans” involves the entire P-QRS-T complex and is suggestive of large pericardial effusion

Causes include:

- Pericardial effusion
- Severe heart failure
- Hypertension
- Coronary artery disease (CAD)
- Rheumatic heart disease
- SVT or VT
- Deep respirations

In pericardial effusion, electrical alternans is due to swinging of the heart in the pericardial fluid during the cardiac cycle. Only one-third of patients with QRS alternans have a pericardial effusion, and only 12% of patients with pericardial effusions have QRS alternans. If electrical alternans involves the entire P-QRS-T (“total alternans”), effusion with tamponade is often present, which is almost always associated with sinus tachycardia.