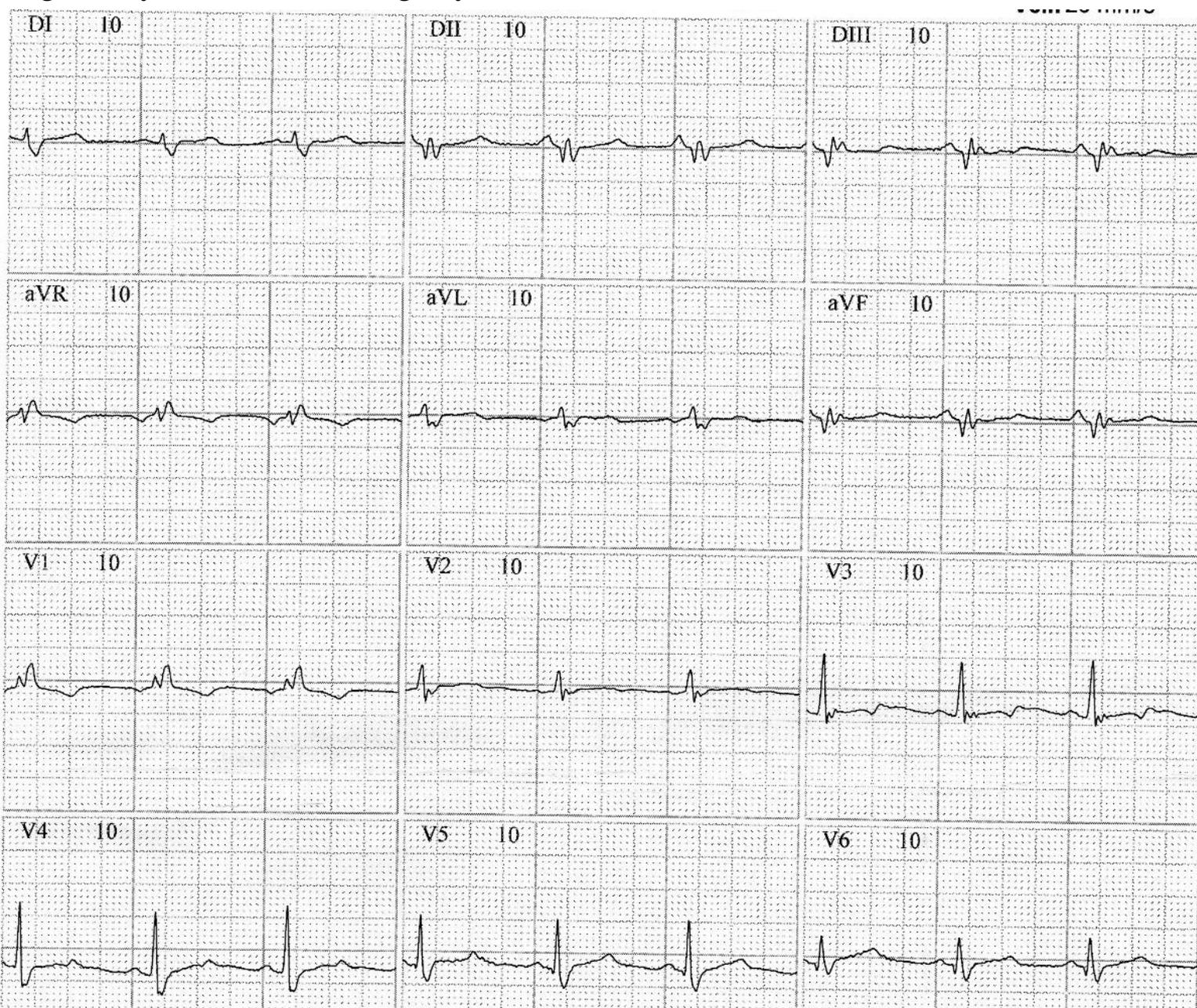


**Name:** ESR; **Age:** 72 y/o; **Weight:** 70 kg; **Height:** 1.70 m; **Ethnic group:** Caucasian; **Date:** Jan 31, 2015; **Medication in use:** metformine 850 mg 2x/day, rusovastatine 5mg/day.



**Clinical diagnosis:** diabetes mellitus type 2, hypercholesteromia, pre-operative evaluation for prostatectomy consequence of localized prostatic carcinoma.

**ECG diagnosis:** Sinus rhythm, HR = 71 bpm,  $\hat{S}\hat{A}\hat{P} = +65^\circ$ , PR interval = 130 ms, QRS duration = 120 ms, hard QRS axis determination, initial Q wave in the inferior leads, low QRS voltage in limb leads (the amplitudes of all the QRS complexes in the limb leads are  $< 5$  mm), triphasic pattern type rsR' in V1, broad final S wave in lateral leads.

**Conclusion:**

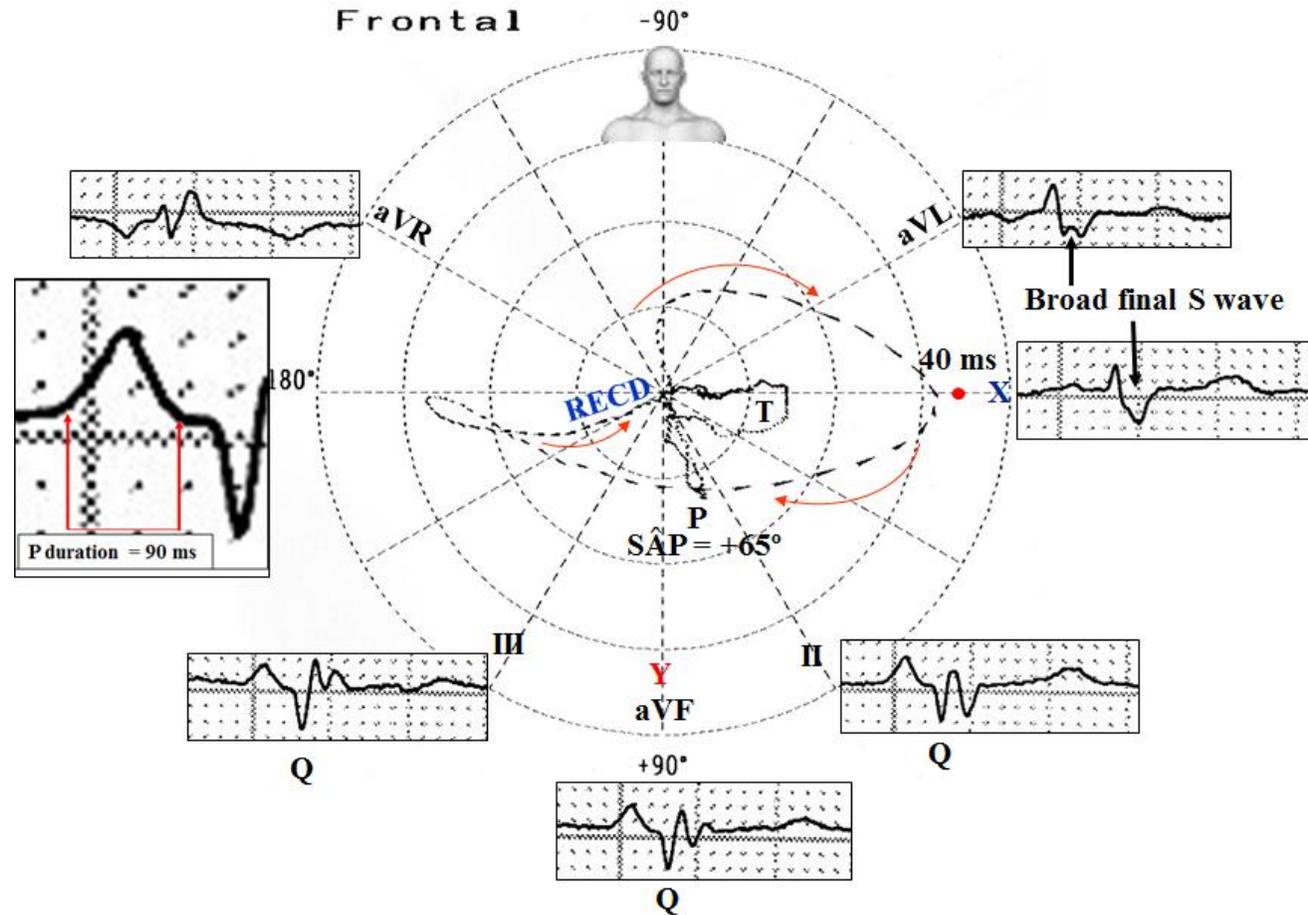
Inferior myocardial infarction

Complete RBBB

Low QRS voltage confined to limb leads. This phenomenon could be caused by:

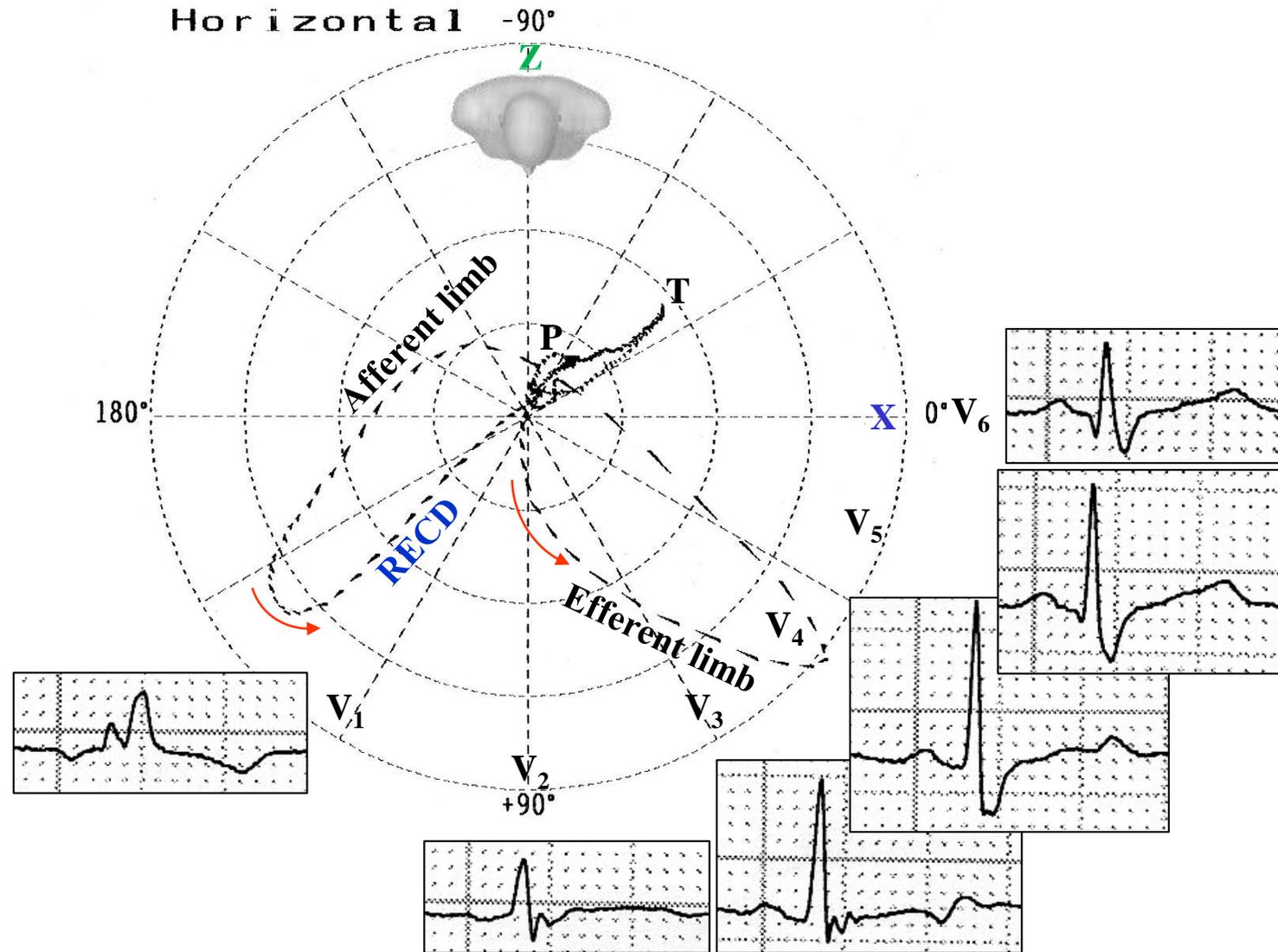
- The “damping” effect of increased layers of fluid, fat or air between the heart and the recording electrode (pericardial or pleural effusion, emphysema, pneumothorax).
- **Loss of viable myocardium.**
- End-stage of dilated cardiomyopathy.
- Diffuse infiltration or myxoedematous involvement of the heart.

# ECG/VCG correlation in the frontal plane



P loop with  $S\hat{A}P = +65^\circ$ , QRS loop with initial efferent limb of clockwise rotation, heading from right to left and located above the orthogonal X lead (40 ms above orthogonal X lead). Abnormal superior dislocation of the initial 40 ms vectors. The time from the zero point up to the intersection with the orthogonal X lead  $> 25$  ms: inferior myocardial infarction. Afferent limb located on right inferior quadrant with significant right end conduction delay (RECD): complete RBBB. Initial broad Q wave in inferior leads (II, III and aVF): inferior myocardial infarction. Broad final S wave in I and aVL and broad final R' in aVR: RBBB.

# ECG/VCG correlation in the horizontal plane

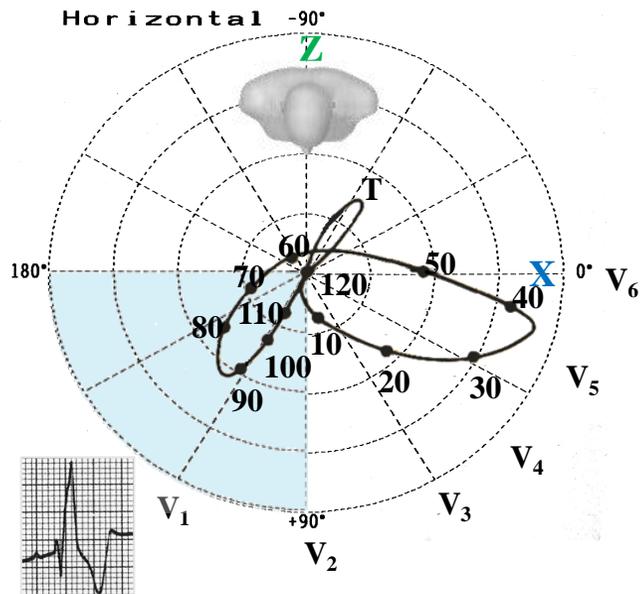


QRS loop with  $\geq 60$  comets (120 ms), initial vector directed to front, QRS loop with CCW rotation, efferent limb to front related to orthogonal X lead, afferent limb behind orthogonal X lead, with terminal appendix (RECD) in "glove finger" (finger-like terminal appendix) located on anterior right quadrant, T loop with CW rotation and directed to back and leftward.

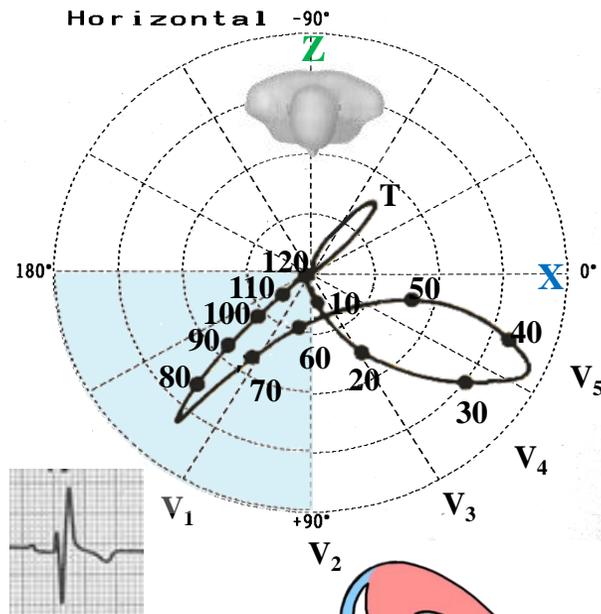
**Conclusion:** Complete RBBB Grishman type or Kennedy type I. See next slide.

**In three patterns the terminal vector of  $60 \geq 120\text{ms}$  in "glove finger" (finger-like terminal appendix) located in the right anterior quadrant**

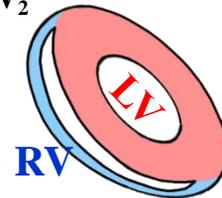
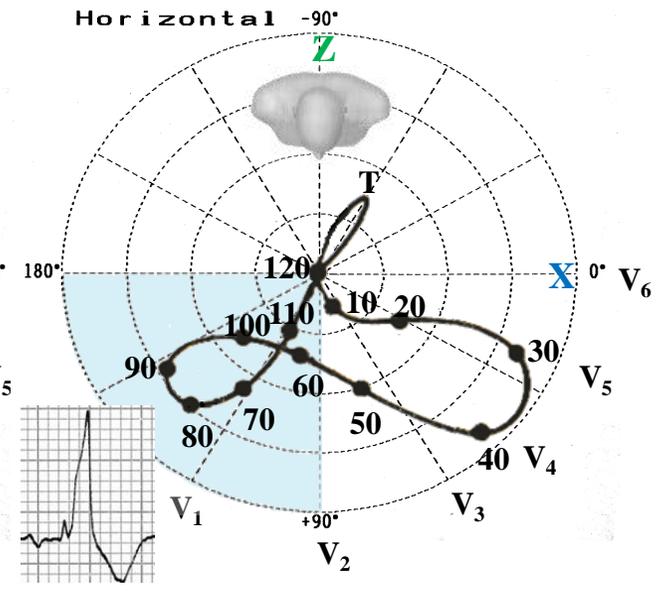
**Grishman or Kennedy type I**



**Cabrera or Kennedy type II**



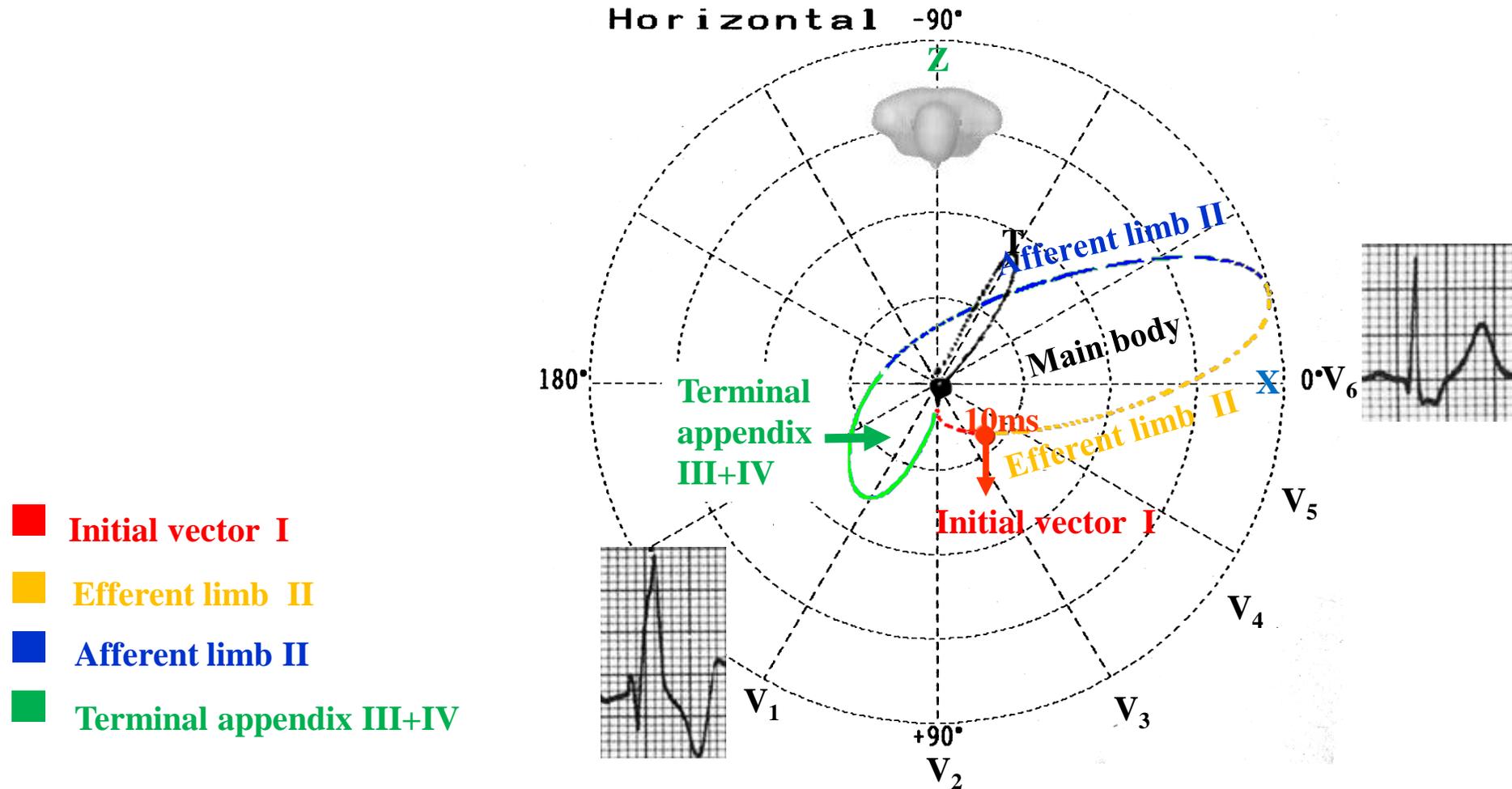
**Kennedy type III or C**



■ Right anterior quadrant

**Observation:** The numbers are expressed in milliseconds

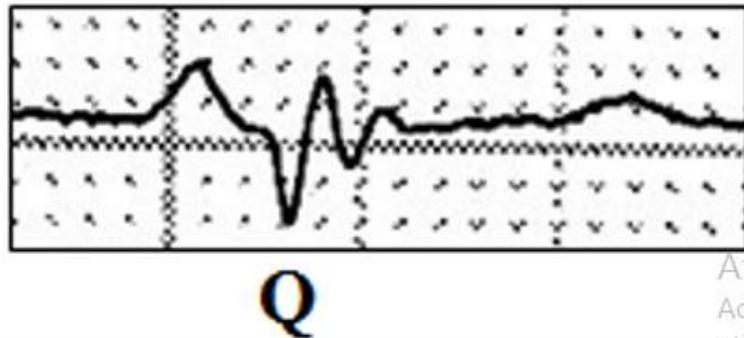
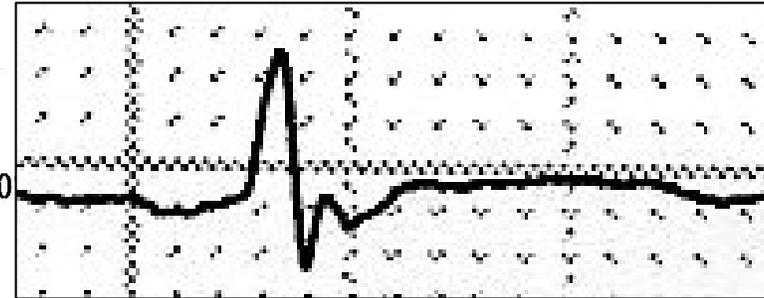
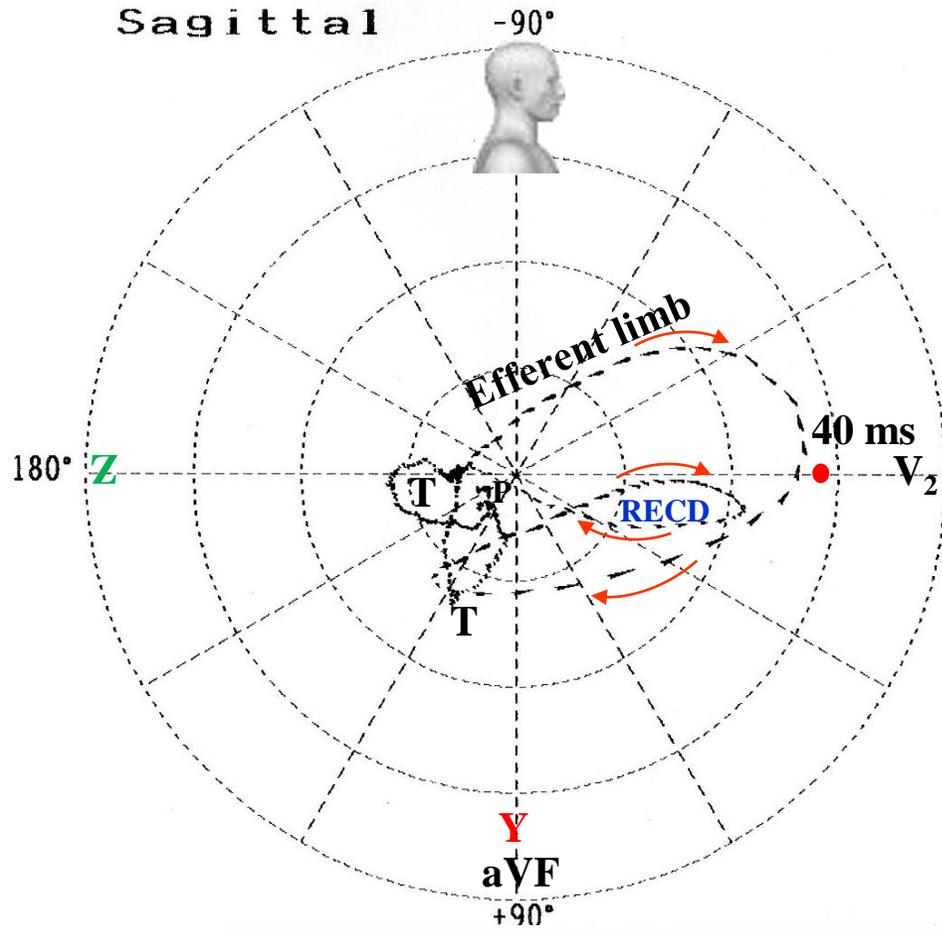
# The four components of the QRS loop in right bundle branch block



Right precordial leads ( $V_3R, V_1$  or  $V_1$  and  $V_2$ ) rSR' type or rsR' or with broad R' wave and eventually with notched: triphasic QRS complex called "M" complex.

Left precordial leads with final wide S wave.

# ECG/VCG correlation in the right sagittal plane



Complete RBBB: finger-like terminal appendix located in the anterior quadrant (RECD) and the efferent limb directed to front and 40 ms above the orthogonal Z lead, inferior myocardial infarction.