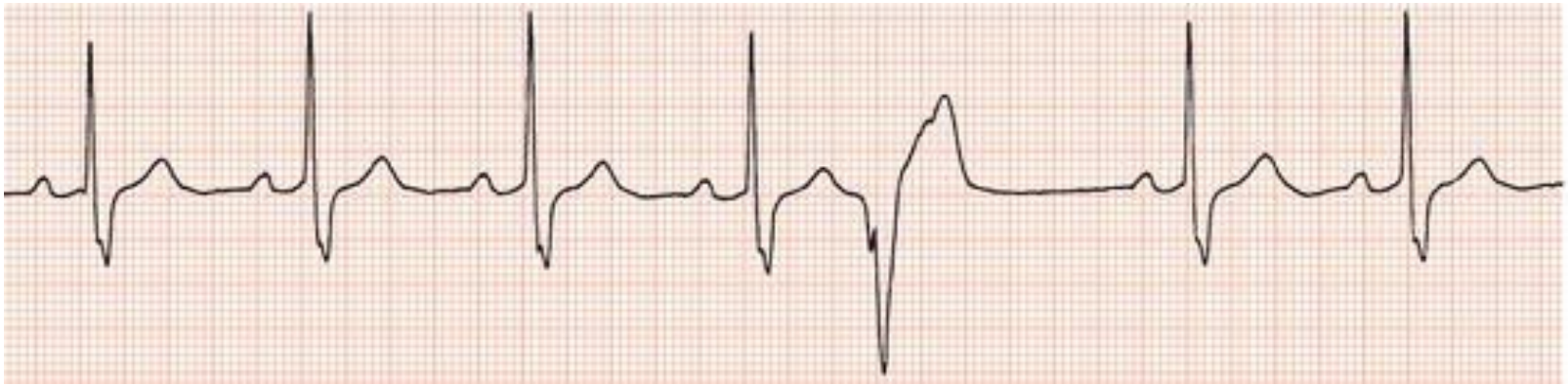
Extrasystole

Экстрасистолия

– a prematurely occurring beat of one of the chambers of the heart that leads to momentary arrhythmia but leaves the fundamental rhythm unchanged

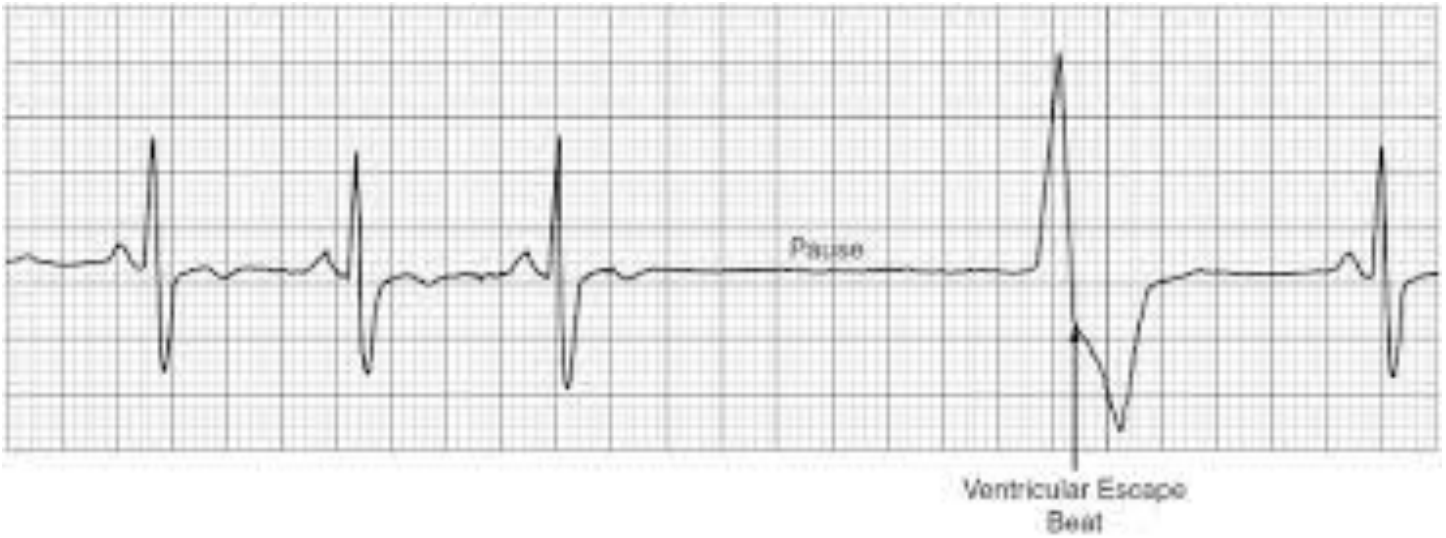


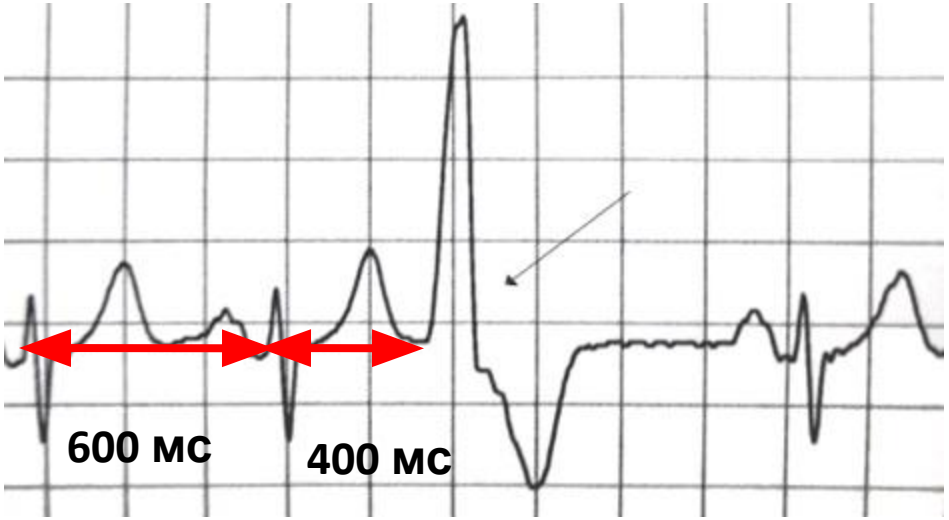
Extrasystole is a special case of ectopic beats.

Ectopic beat is myocardial excitation of non-sinus origin.

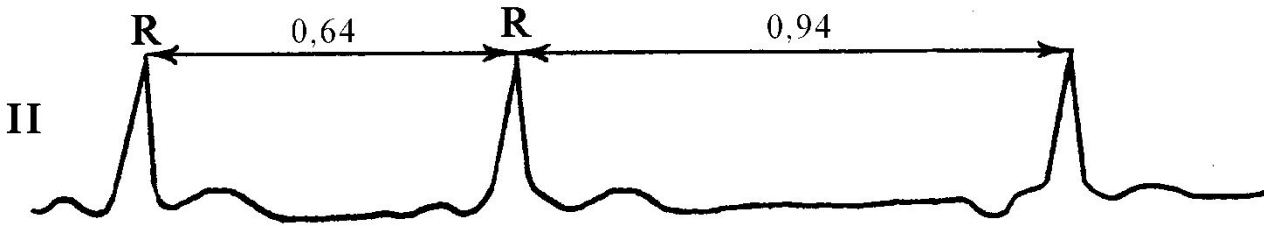
Premature ectopic beat - extrasystole (active rhythm disturbances)

Late ectopic beat is a replacement complex that saves from asystole – escape beat (passive)



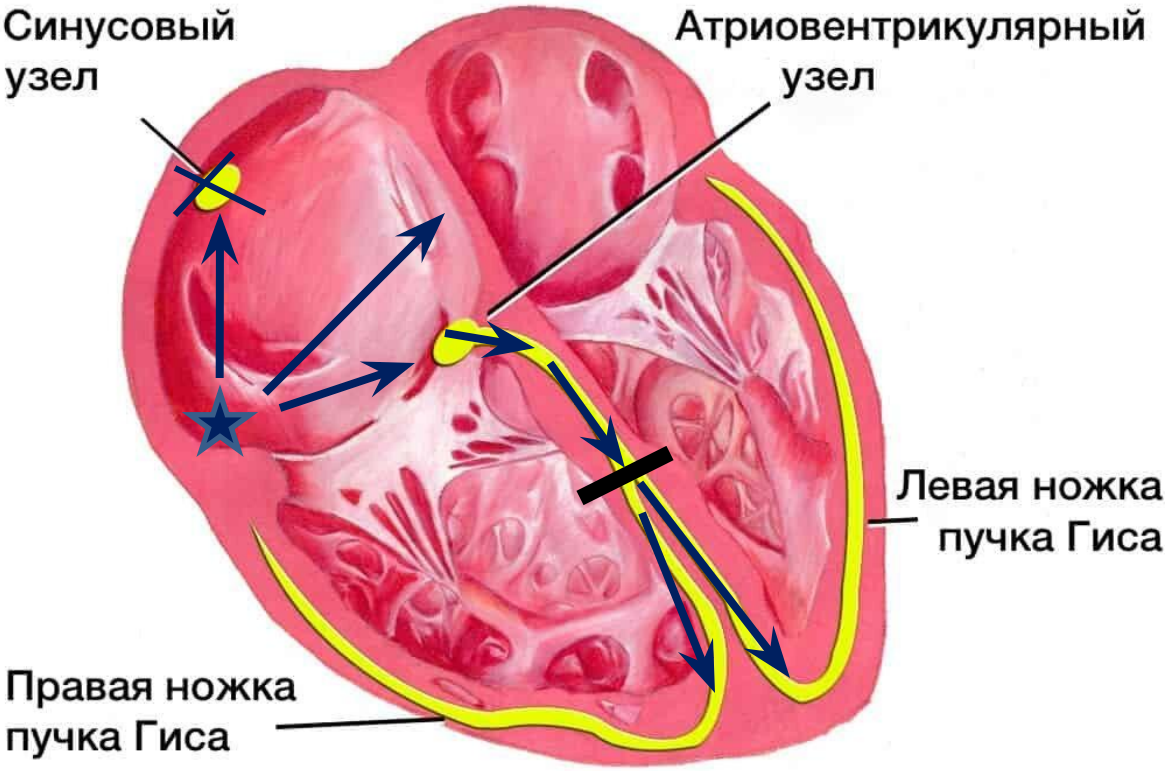


Ventricular extrasystole

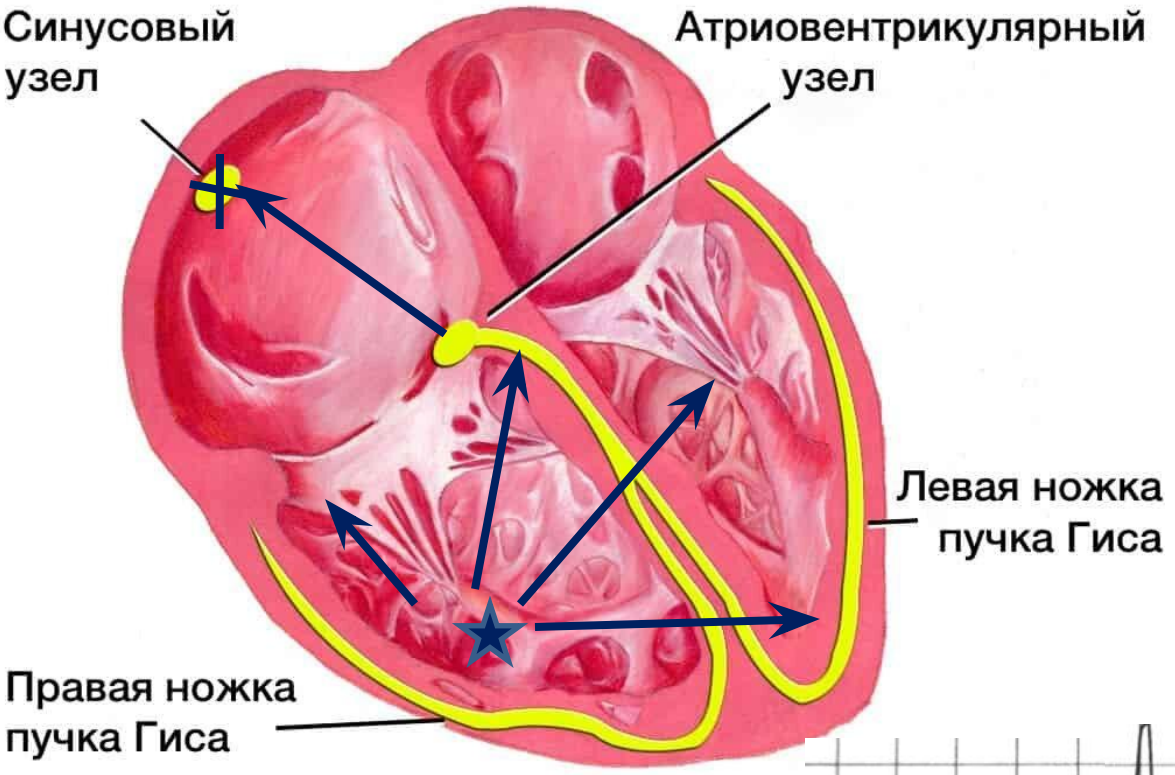


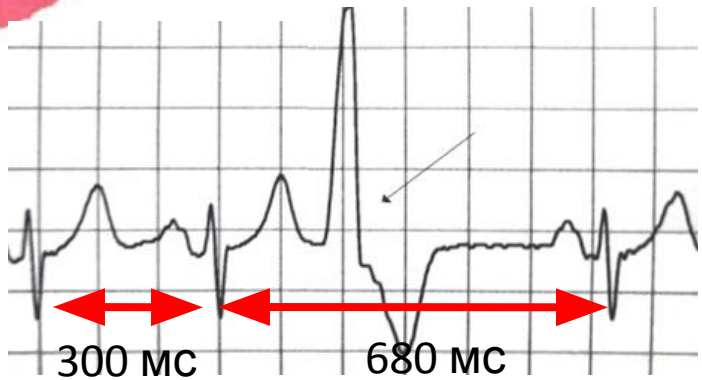
Atrial escape beat

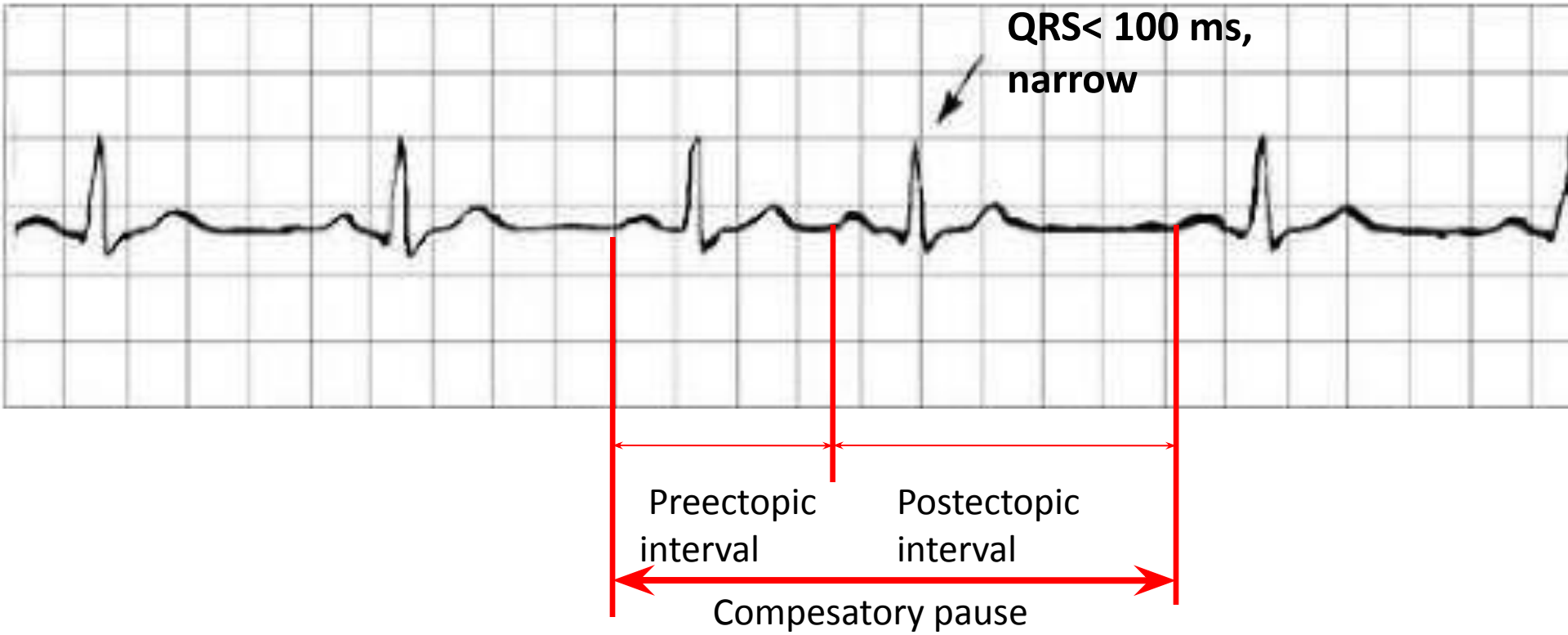
Supraventricular ES



Ventricular ES

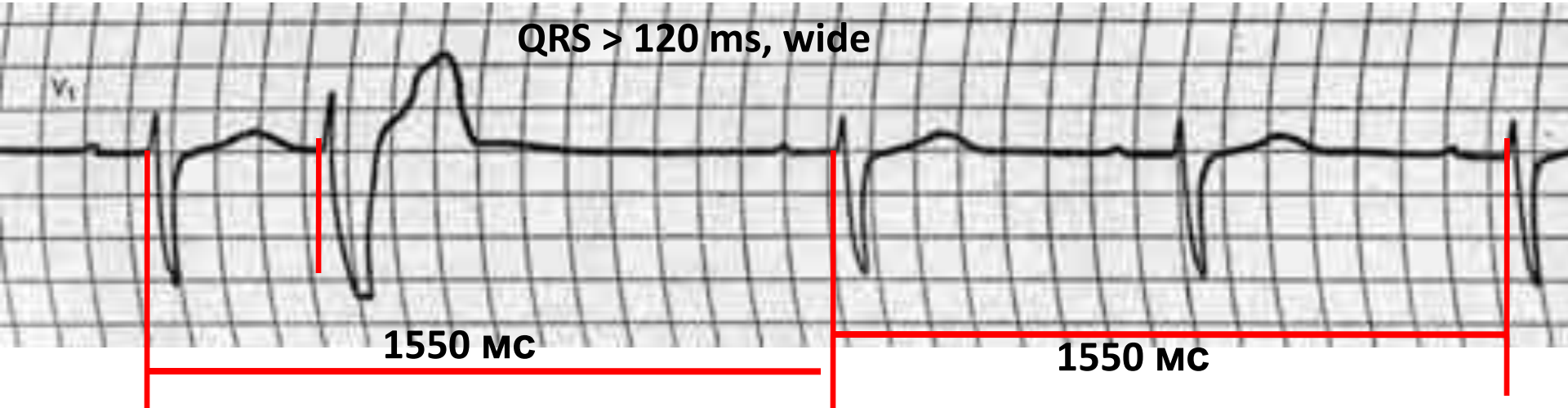




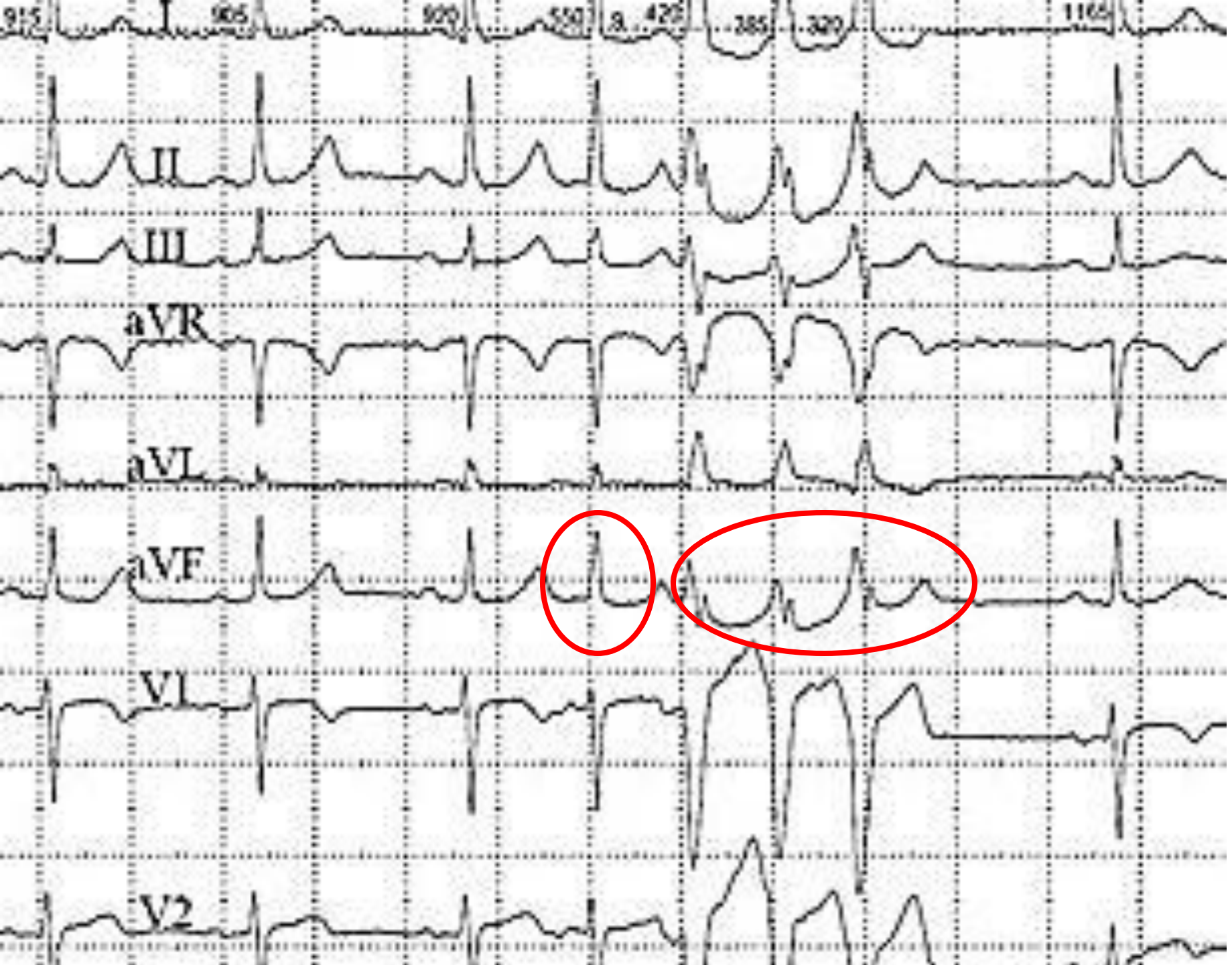


CP in SVES < 2RR

CP in VES ≥ 2RR




V: 25mm/s A: 10mm

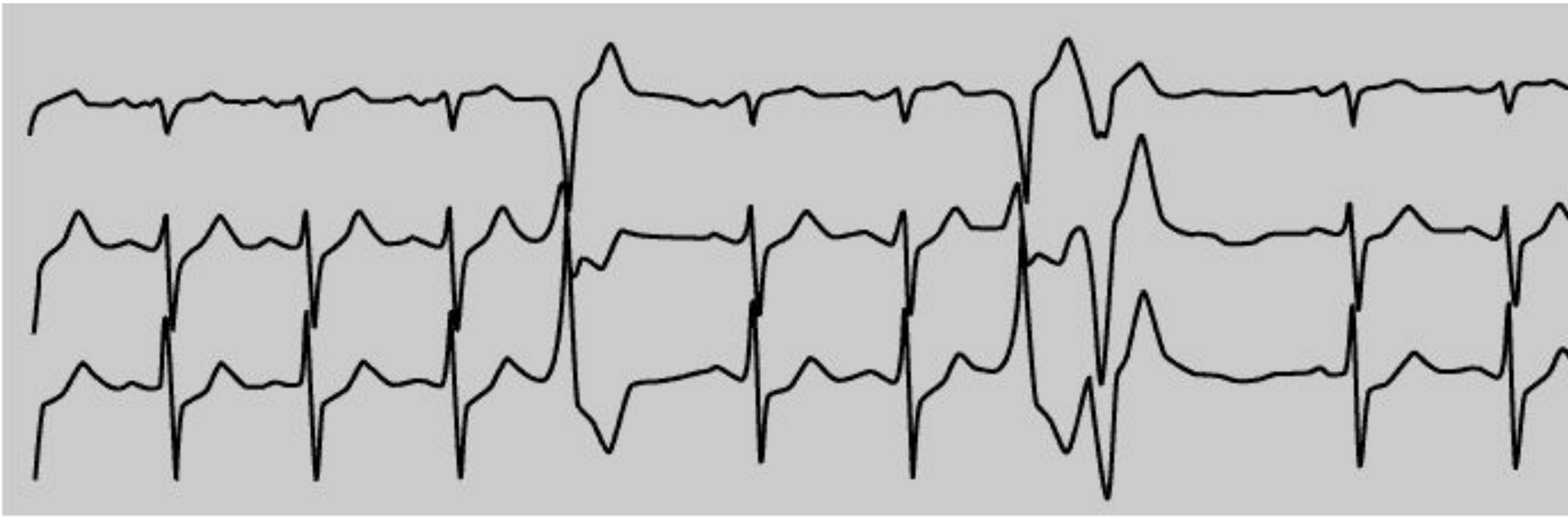

II
III
aVR
aVL
aVF
V1
V2

Ventricular ES

Classification (reference criteria):

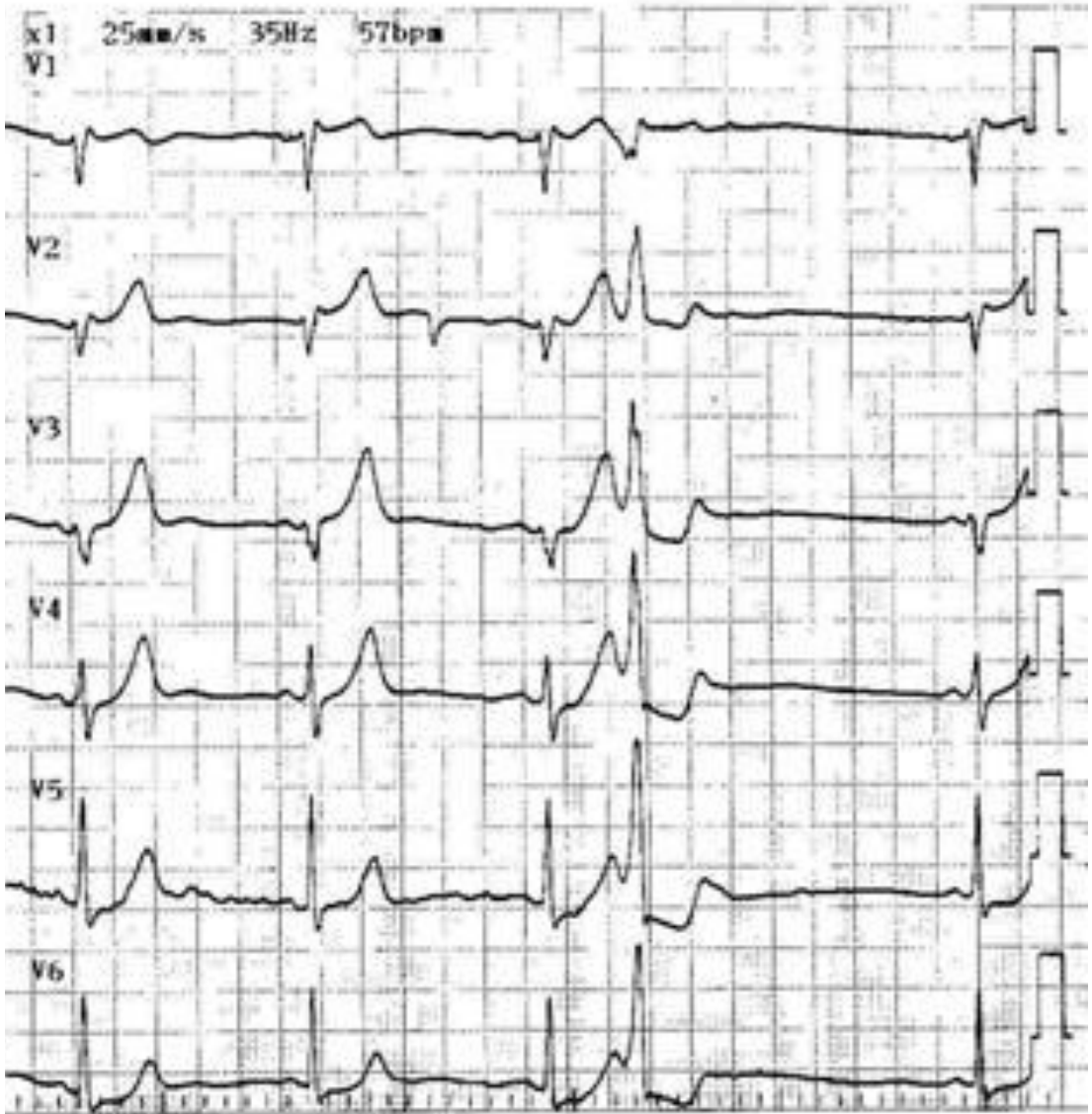
- The form
- A source
- Time of appearance
- Amount
- Allorhythmy
- Prognostic value (clinical)

The form (morphology)

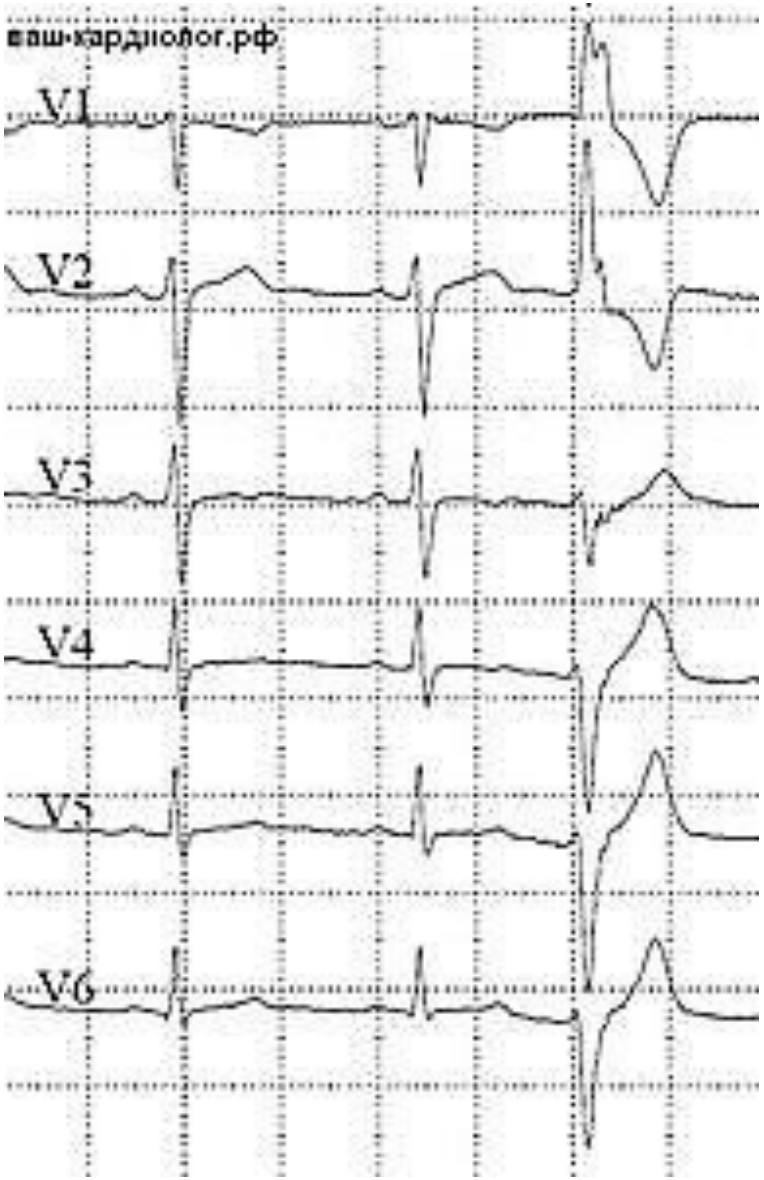


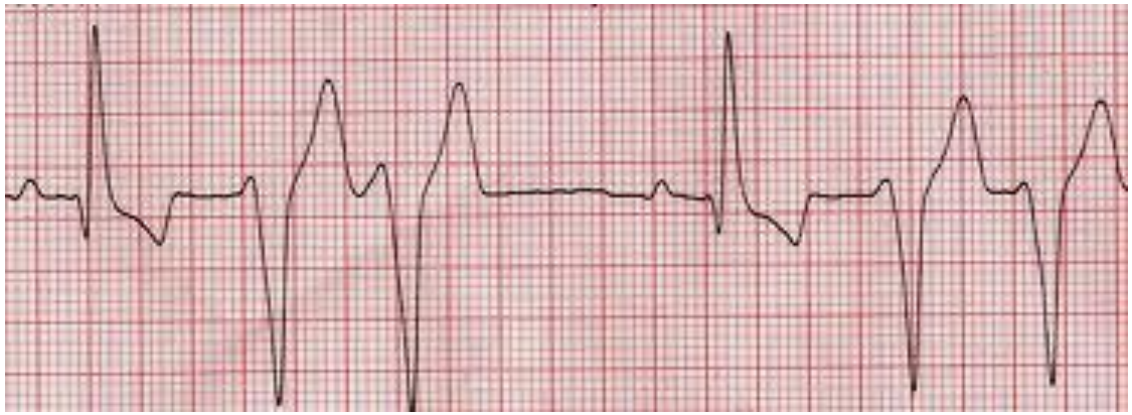

12
117
162
V
103
V1
87
113

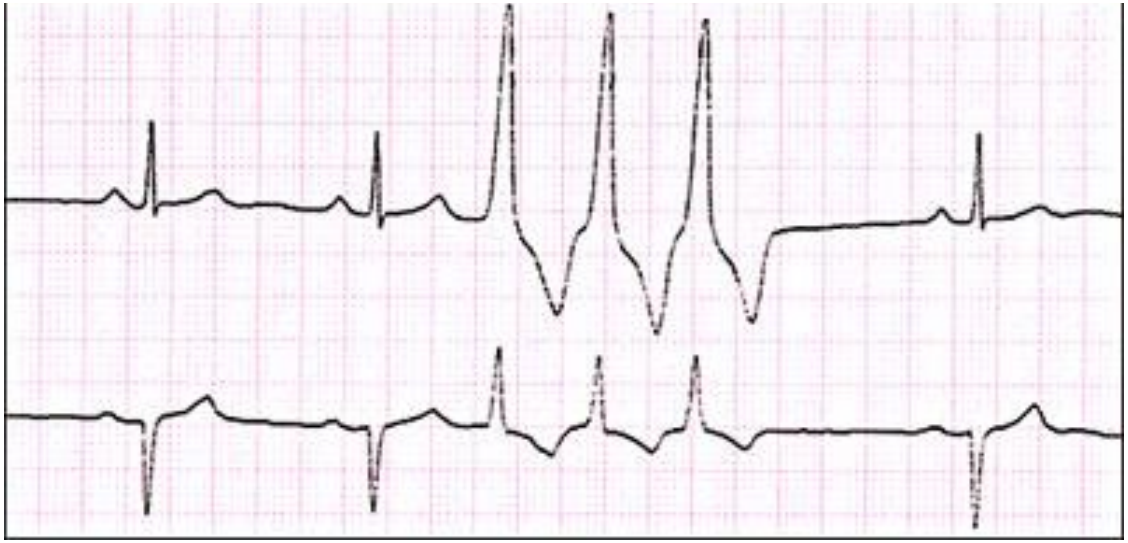
Time of appearance

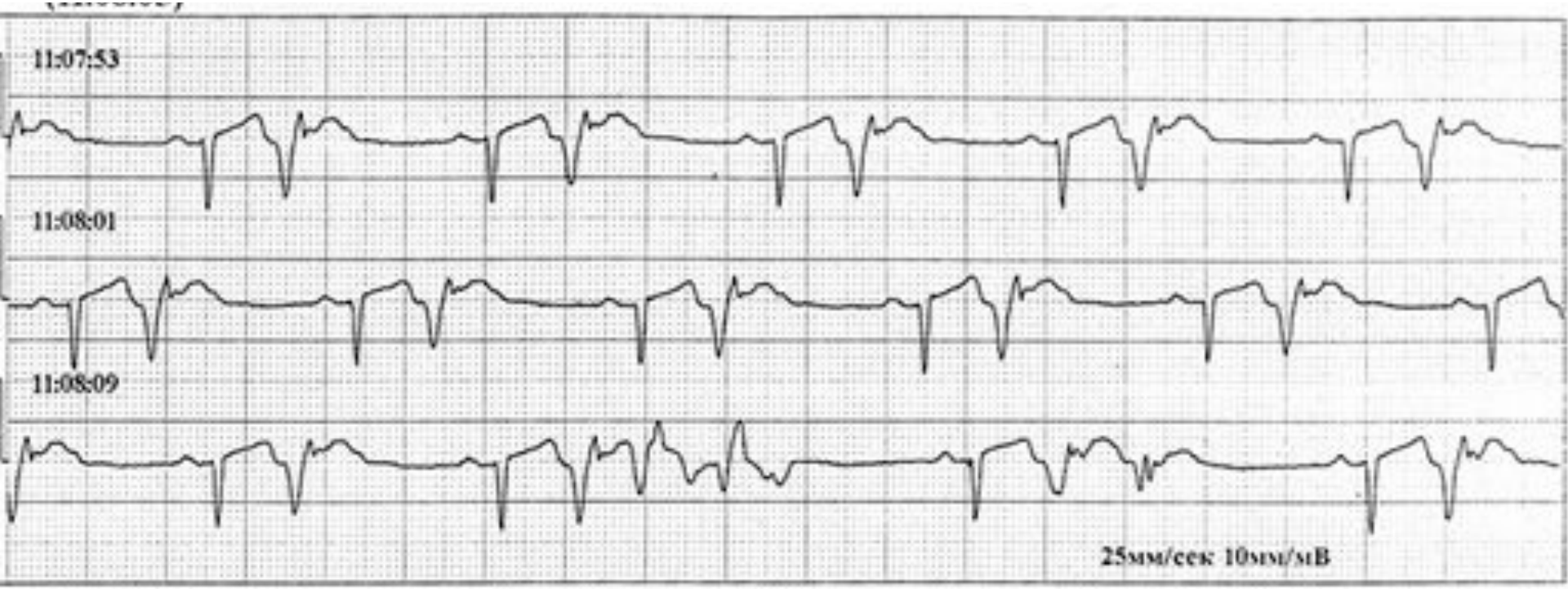


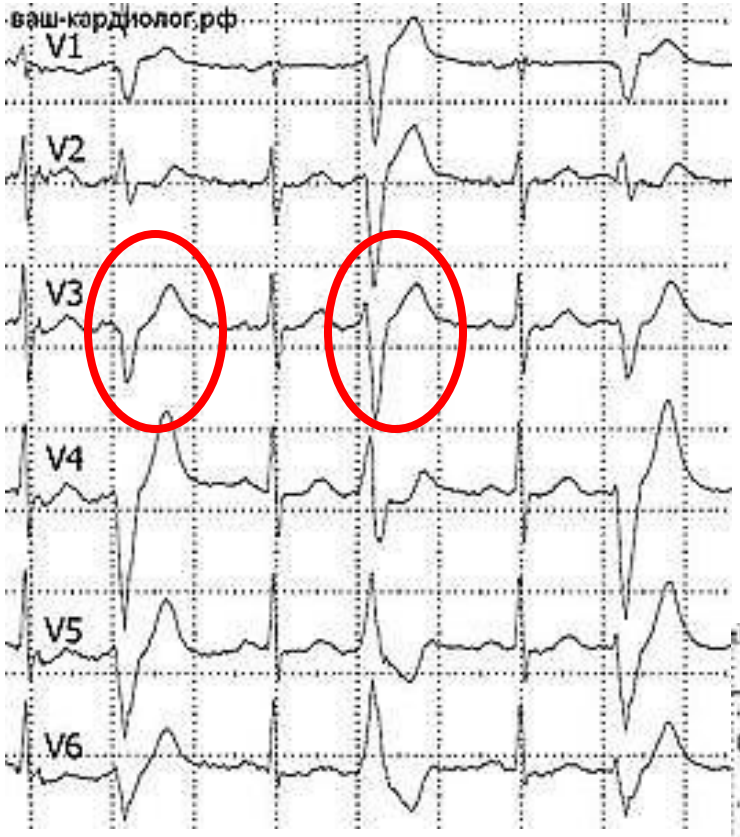
Amount:
-single
-paired





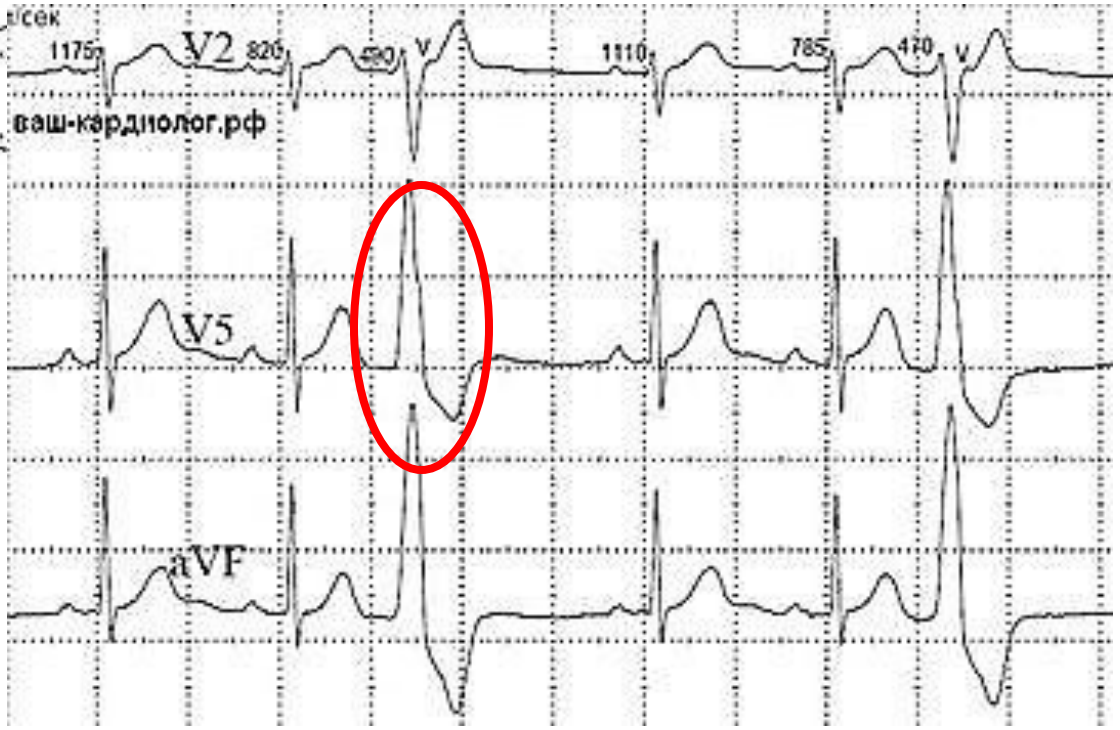



11:07:53
11:08:01
11:08:09
25мм/сек 10мм/мВ

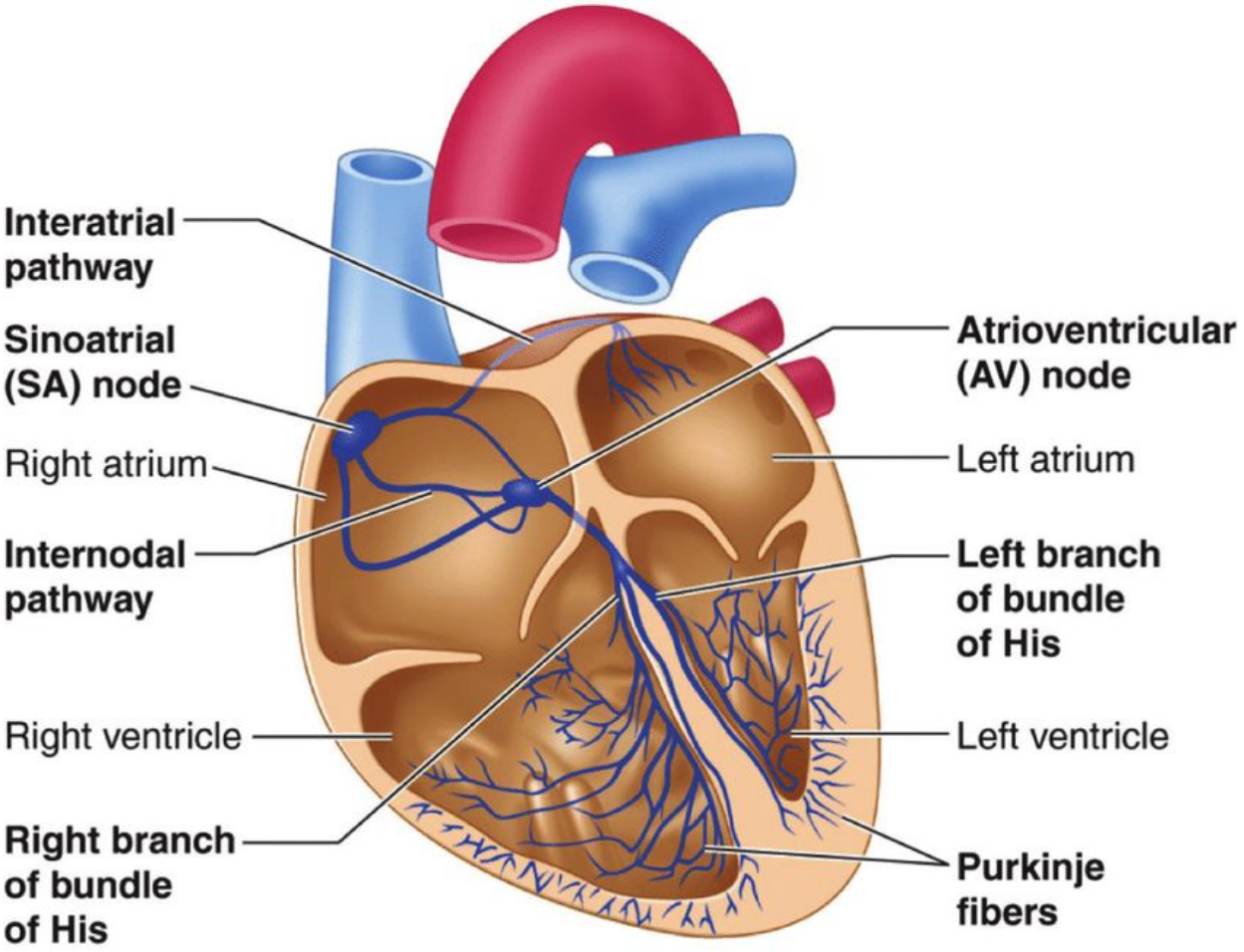


Allorhythmias

- Bigeminy
- trigeminy



Heart block


Interatrial pathway
Sinoatrial (SA) node
Right atrium
Internodal pathway
Right ventricle
Right branch of bundle of His
Atrioventricular (AV) node
Left atrium
Left branch of bundle of His
Left ventricle
Purkinje fibers

Heart blocks

Classification:

By localization:

- **Sinoatrial block**
- Intra and inter atrial
- **Atrioventricular block:**

  proximal (AVN)

  distal (His Bundle)
- **Bundle branch block**

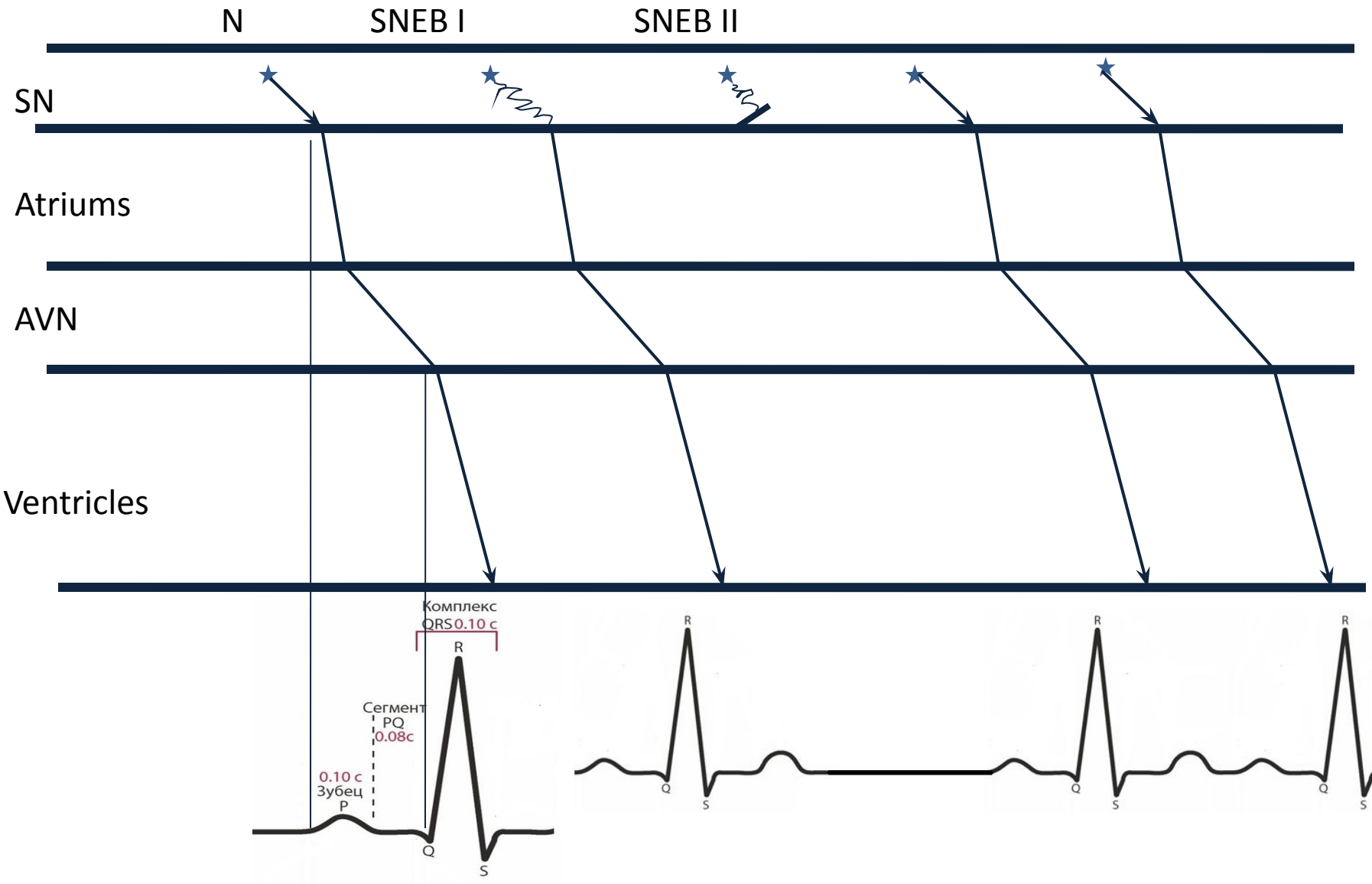
By duration: transitory and permanent

By origin: Structural and autonomic

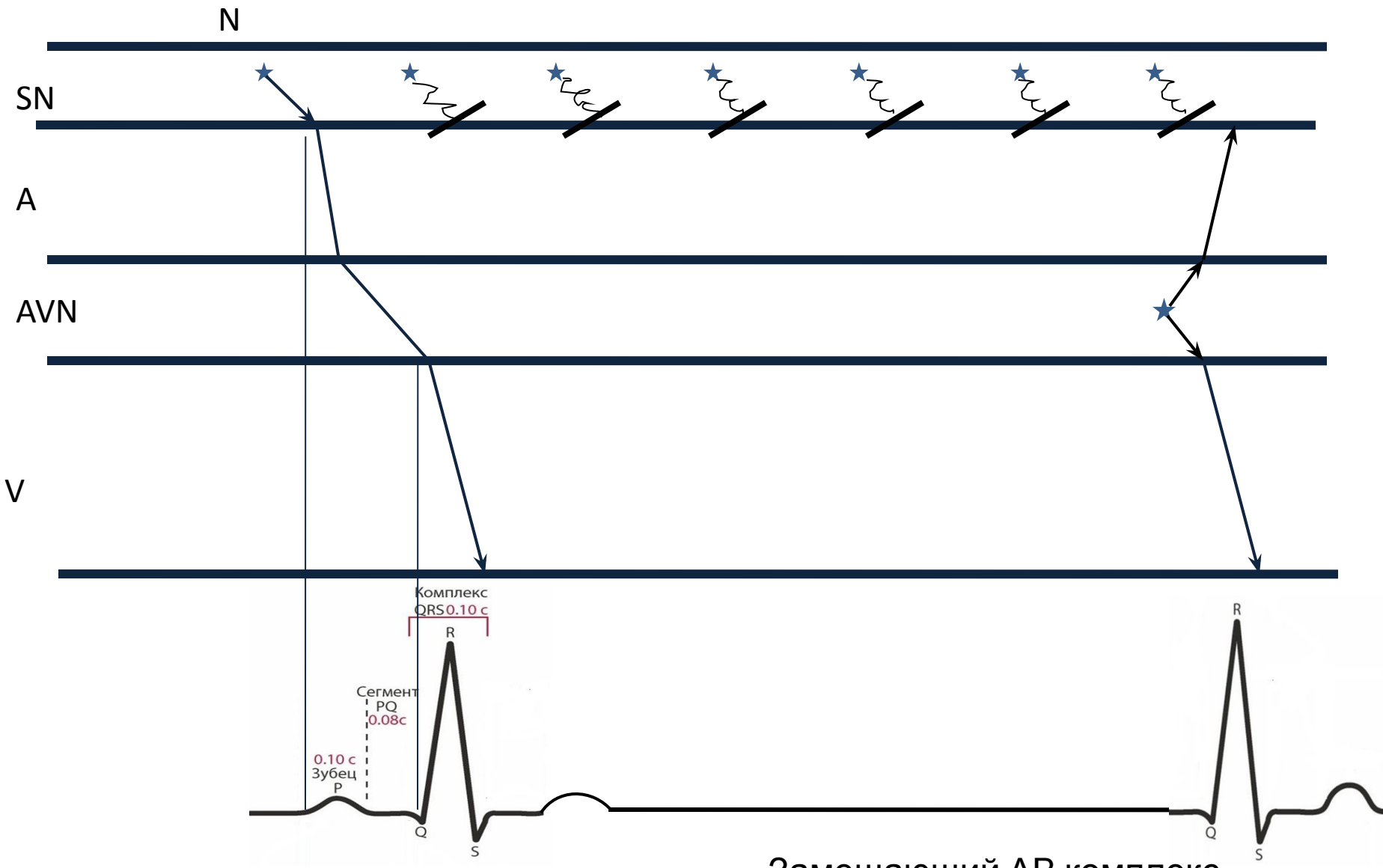
SN exit block

Sinus node exit block occurs when the action potential initiated by the sinoatrial node is suppressed or completely blocked before it leaves the SN and reaches the atrium - therefore, the SN block is an **exit block**

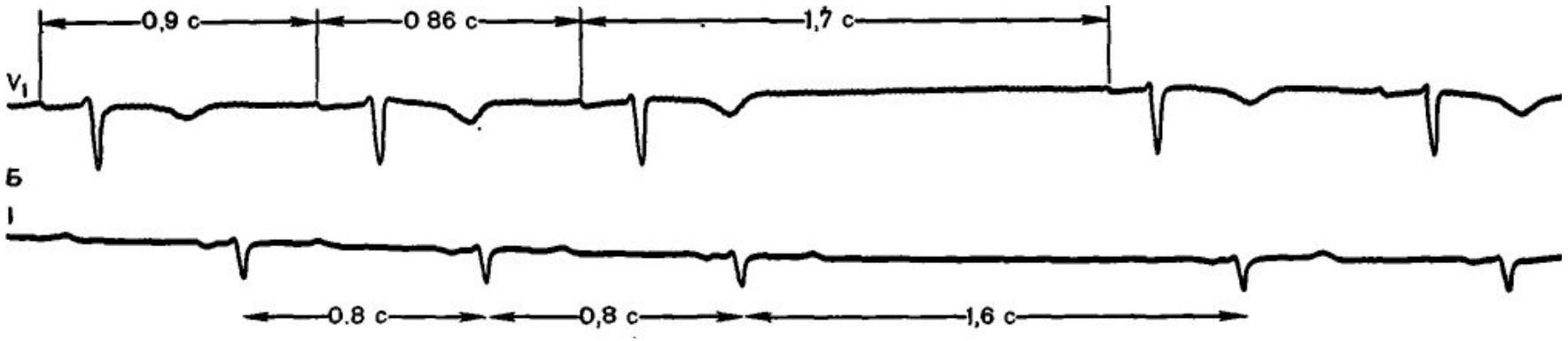
SN exit blocks (SNEB)

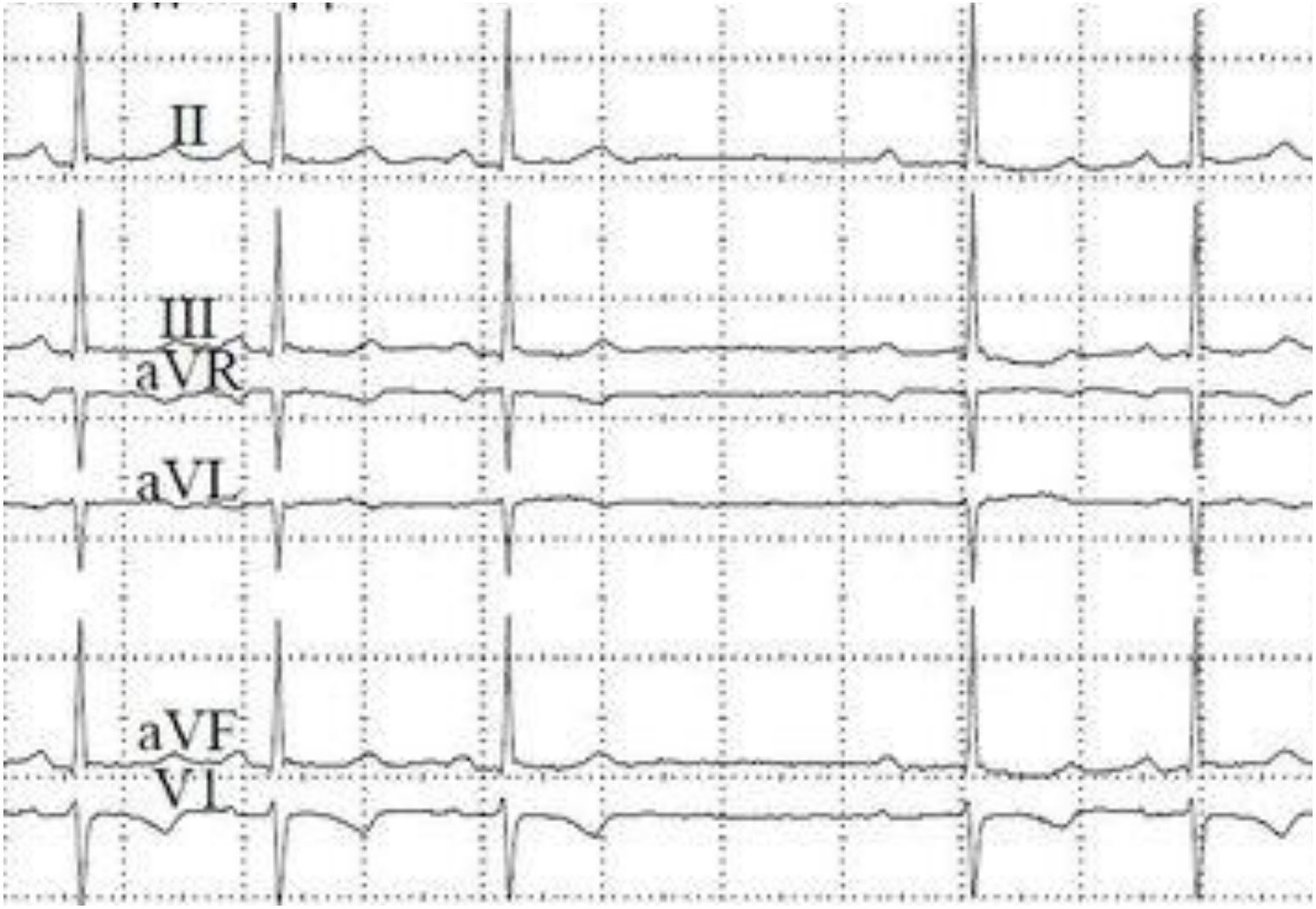


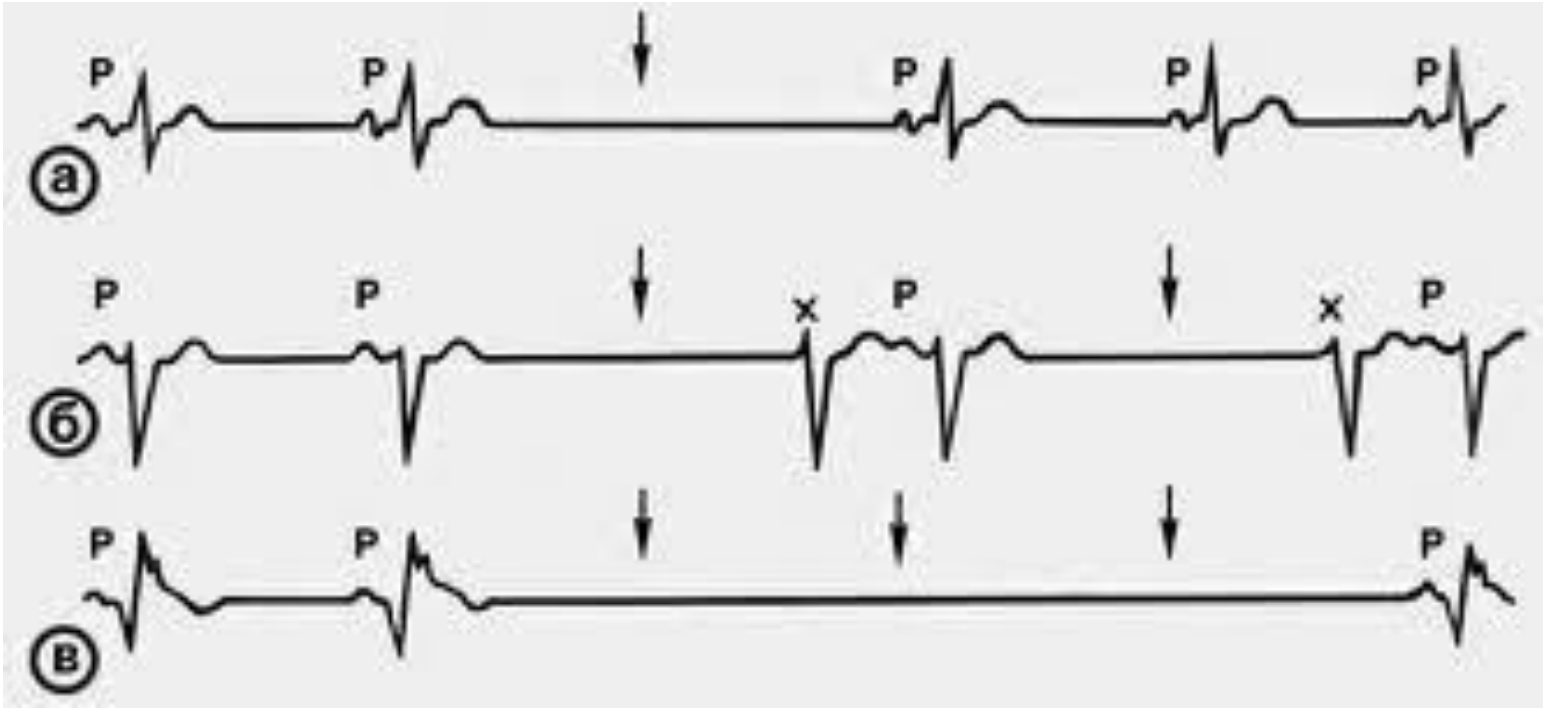
SNEB III degree



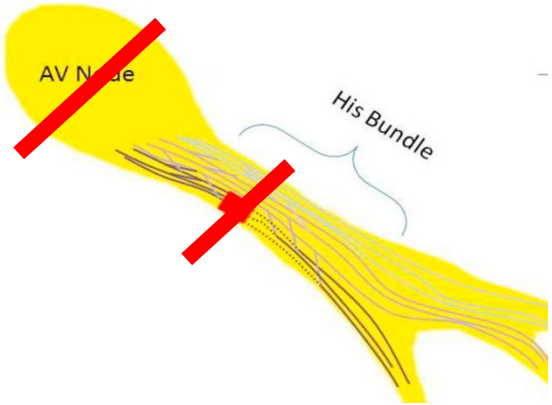
Замещающий АВ комплекс


0,9 с
0 86 с
1,7 с
V1
Б
I
0.8 с
0,8 с
1,6 с


II
III
aVR
aVL
aVF
V1


а
P
P
P
P
P
б
P
P
P
P
в
P
P
P

AV blockade



1. Proximal, nodular (benign).
2. Distal, bundle (irreversible).

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1. Transient (usually nodular): lower AMI, myocarditis, drugs, hyper K+.
2. Persistent (often bundle): anterior AMI, idiopathic fibrosis.

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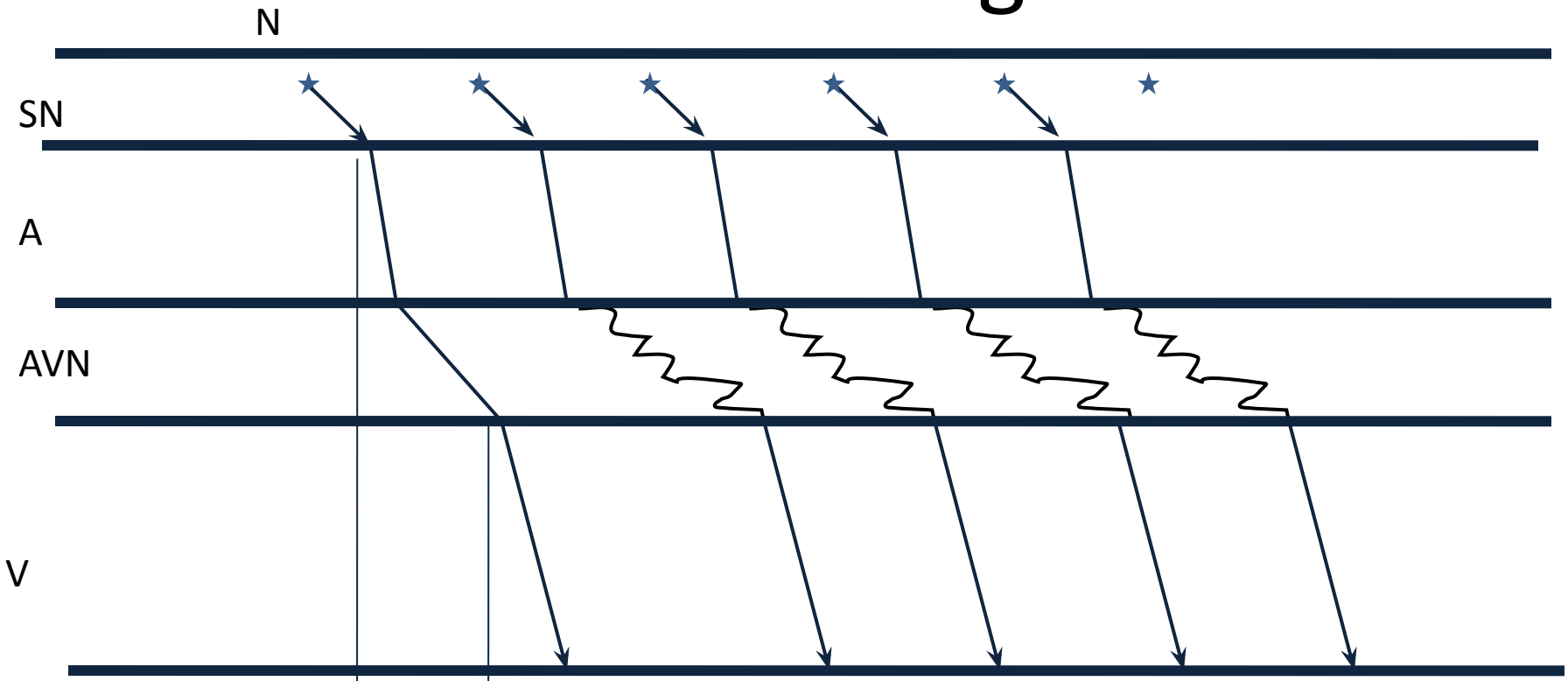
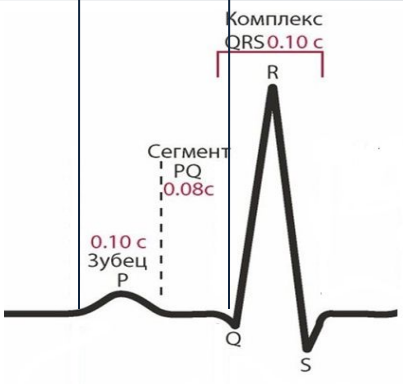
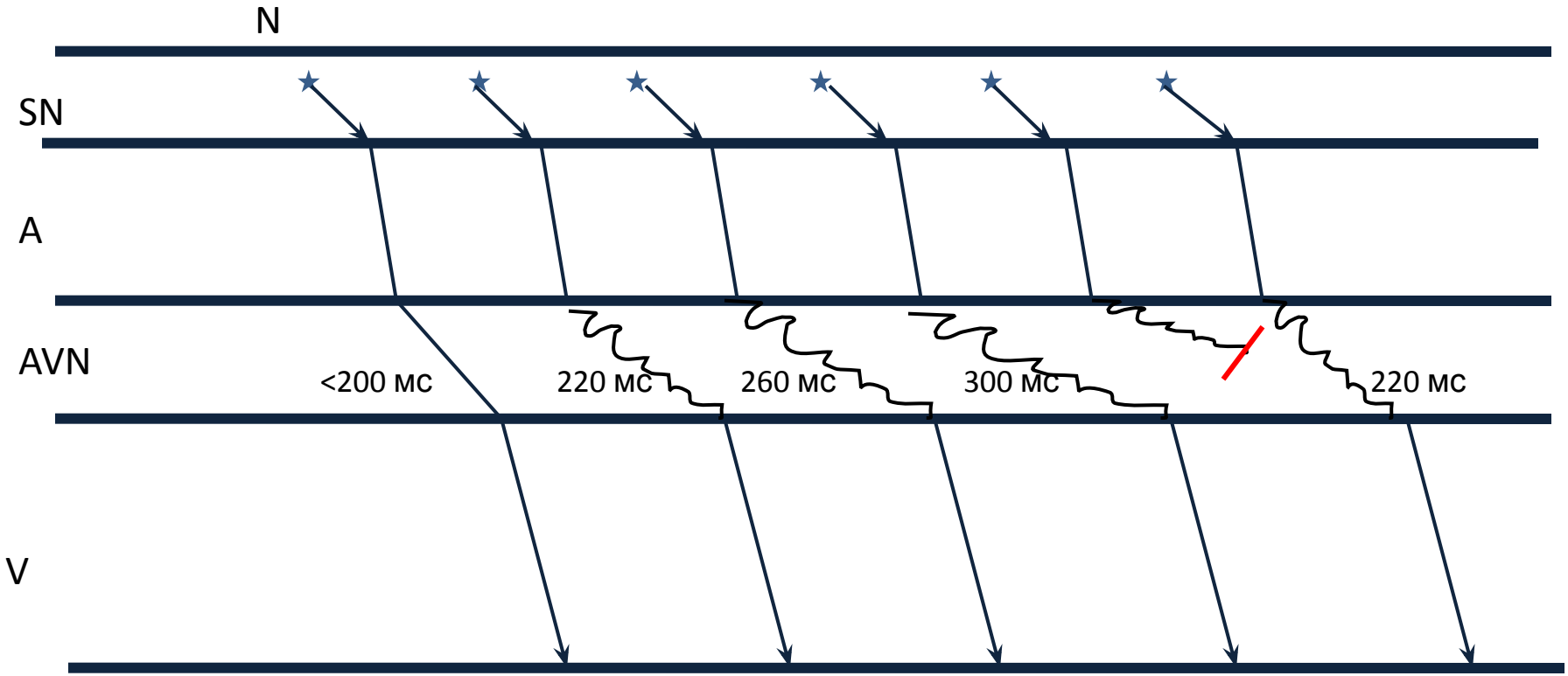
1. Functional (usually nodal and up to II degree type 1) - vagotonic, in athletes.
2. Structural (AMI, myocarditis, cardiomyopathy).

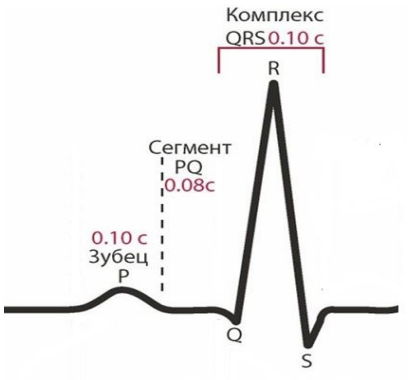
AV block I degree



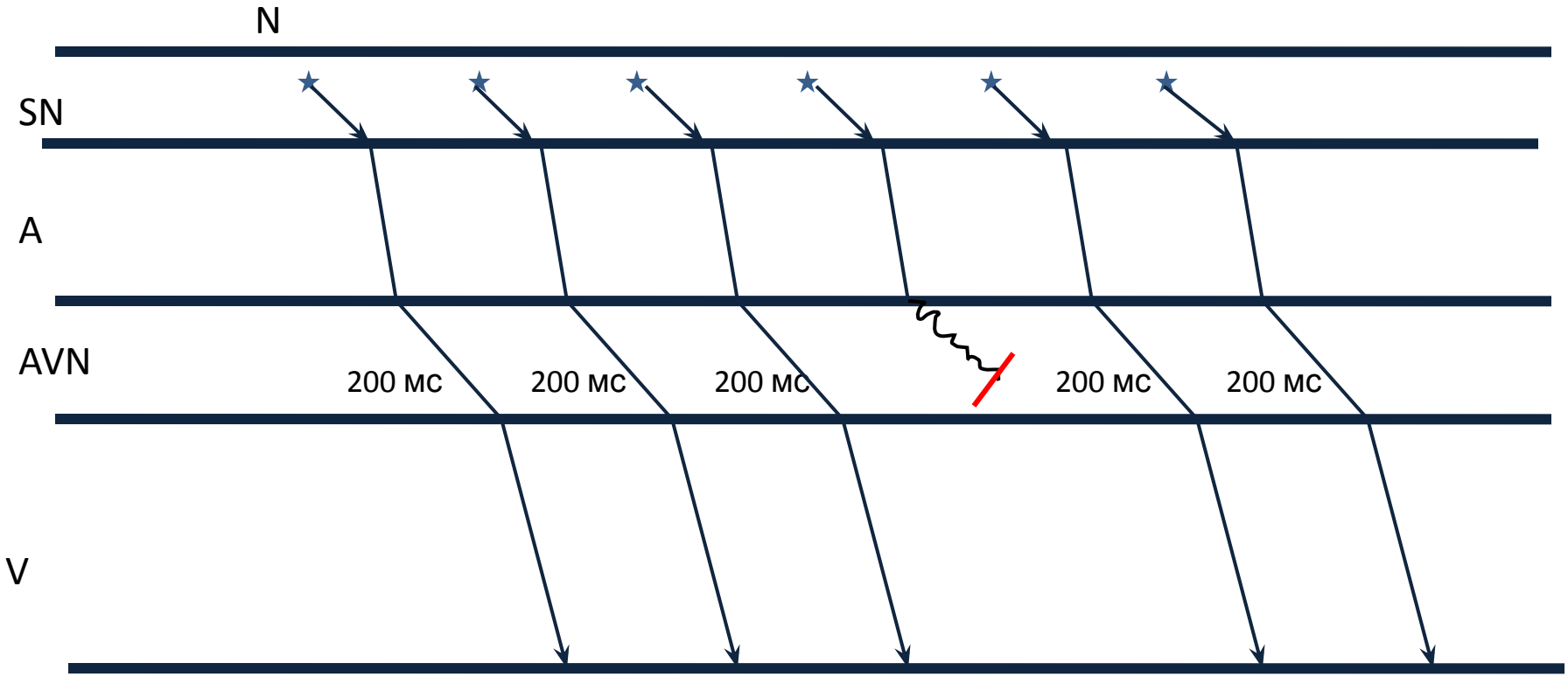


AV block II degree 1 type





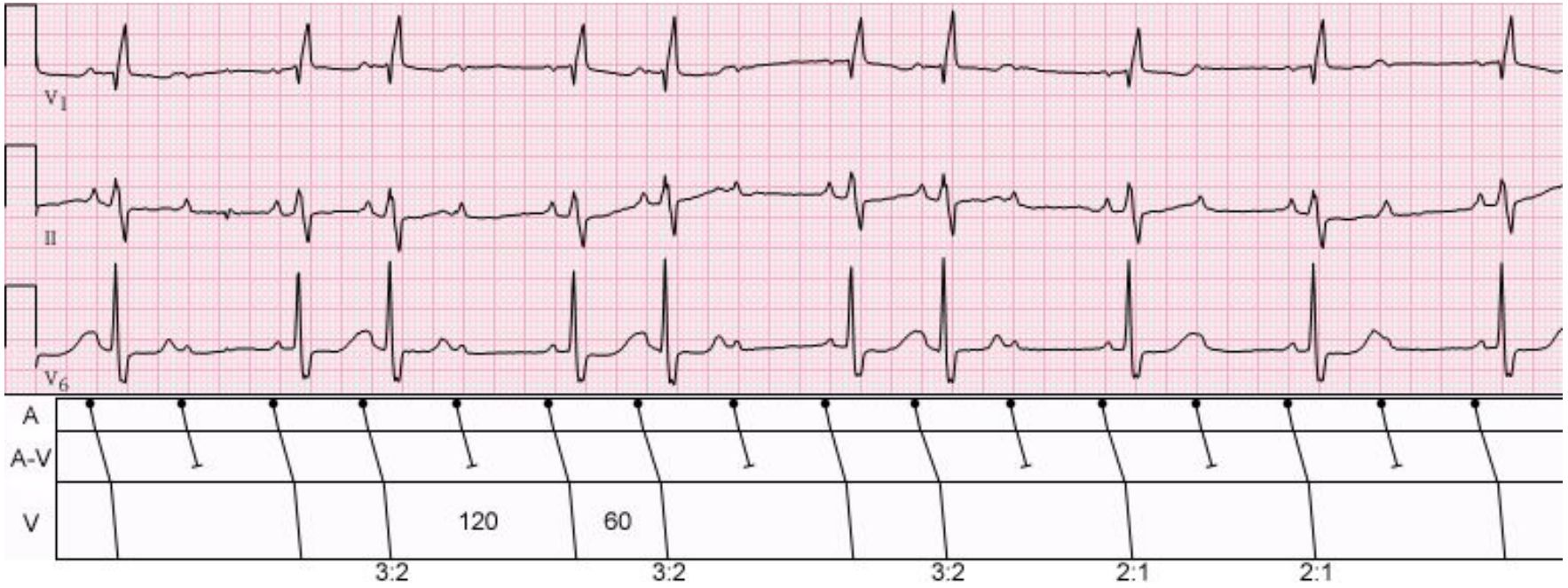
AV block II degree 2 type



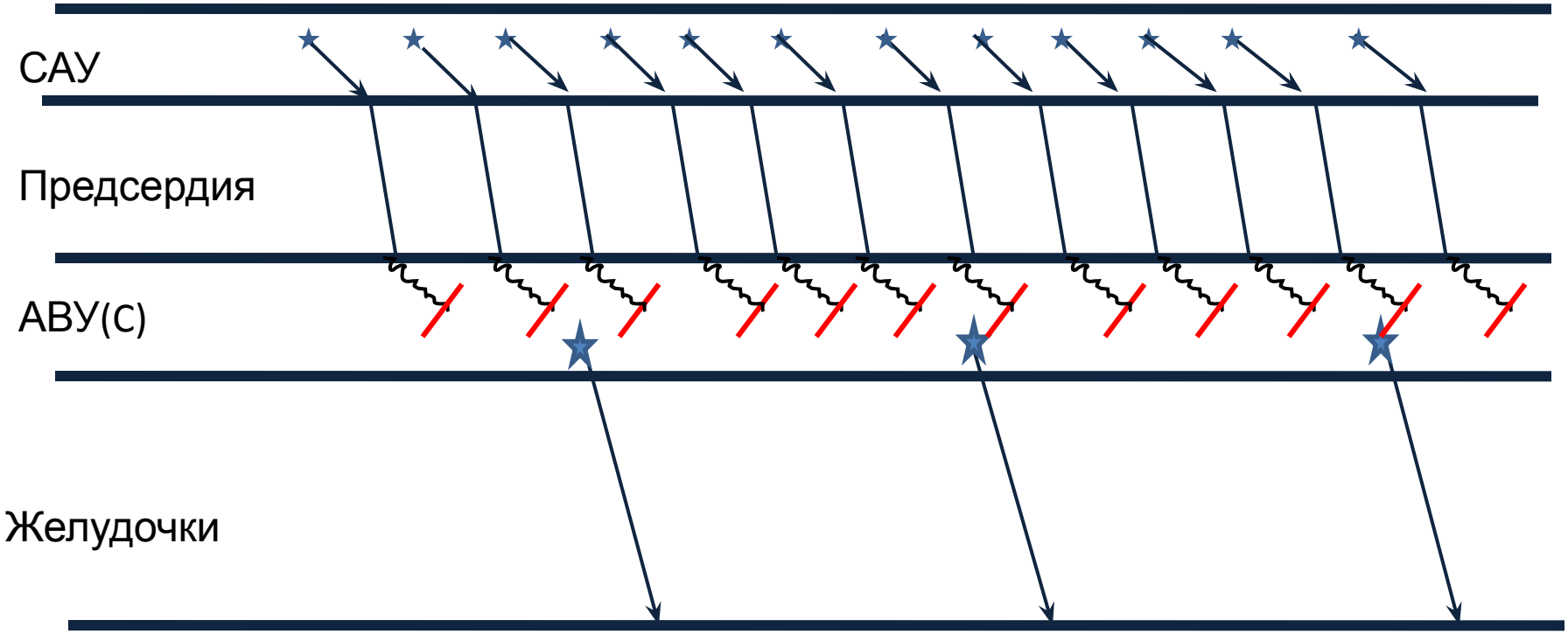
AV block II degree 2:1

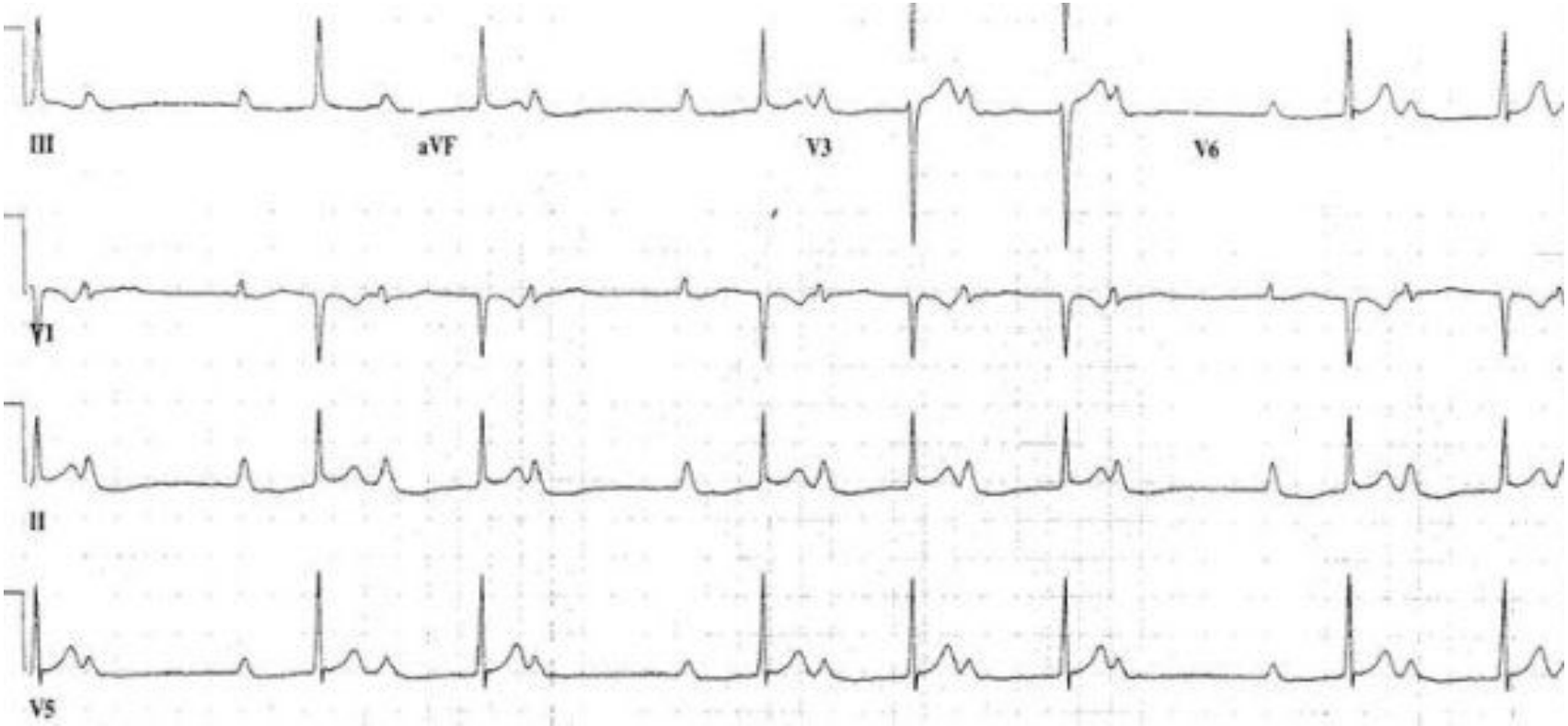
1

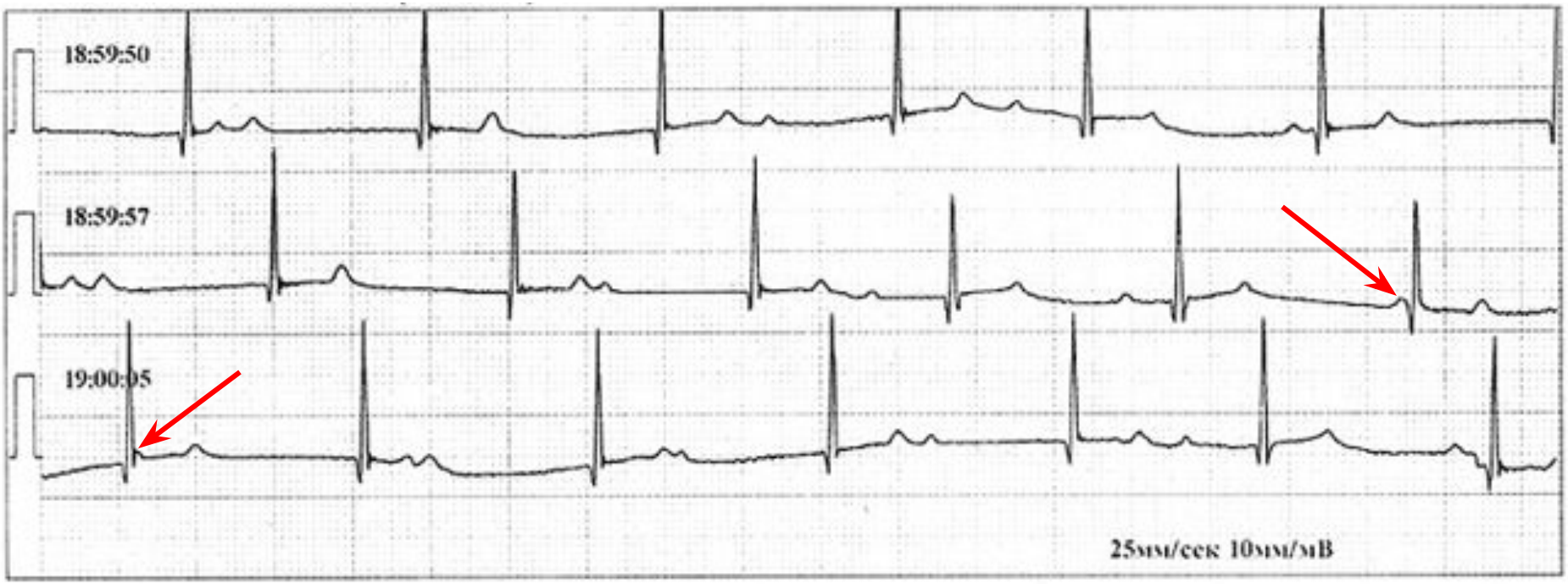
2



AB block III degree (complete)



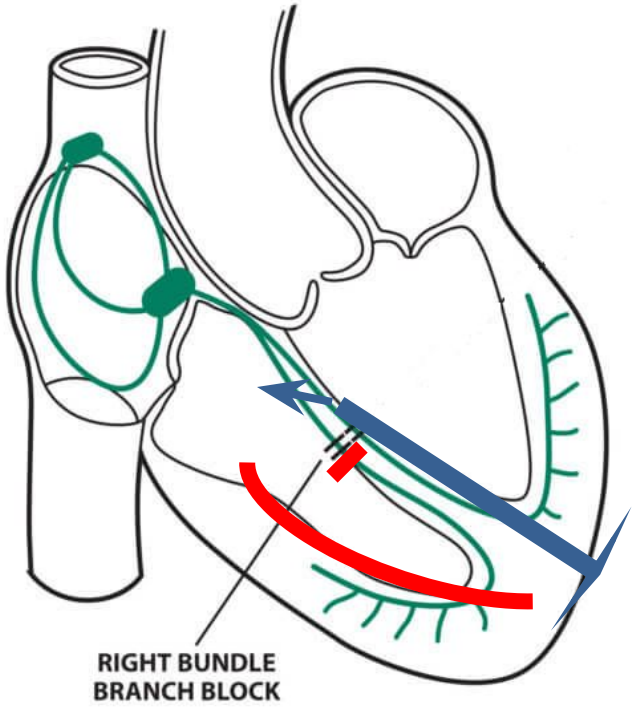

III
aVF
V3
V6
V1
II
V5


18:59:50
18:59:57
19:00:05
25мм/сек 10мм/мВ

His bundle branch block

RHBBB

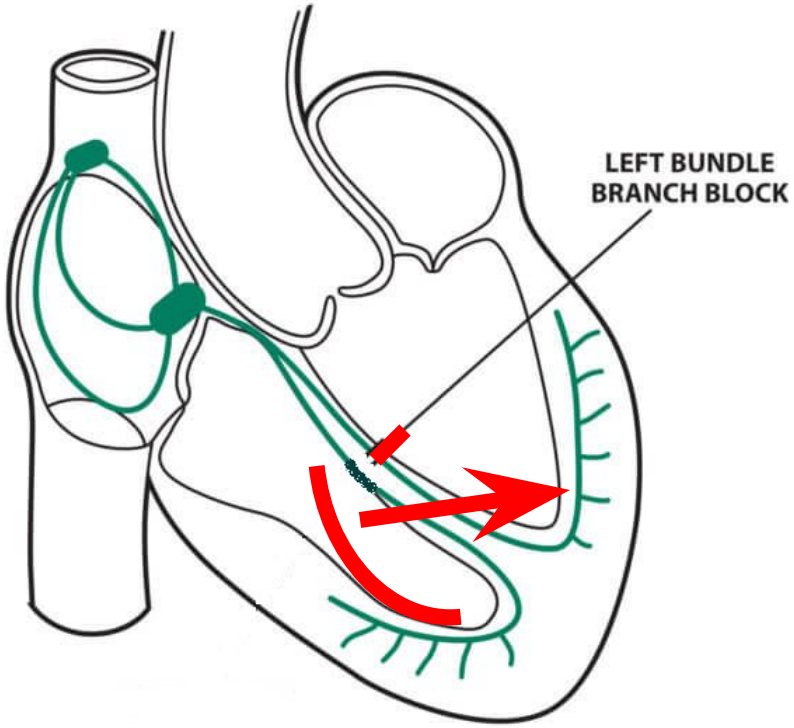
Sign of block: deformity of QRS
Completeness attribute: QRS width >120 ms

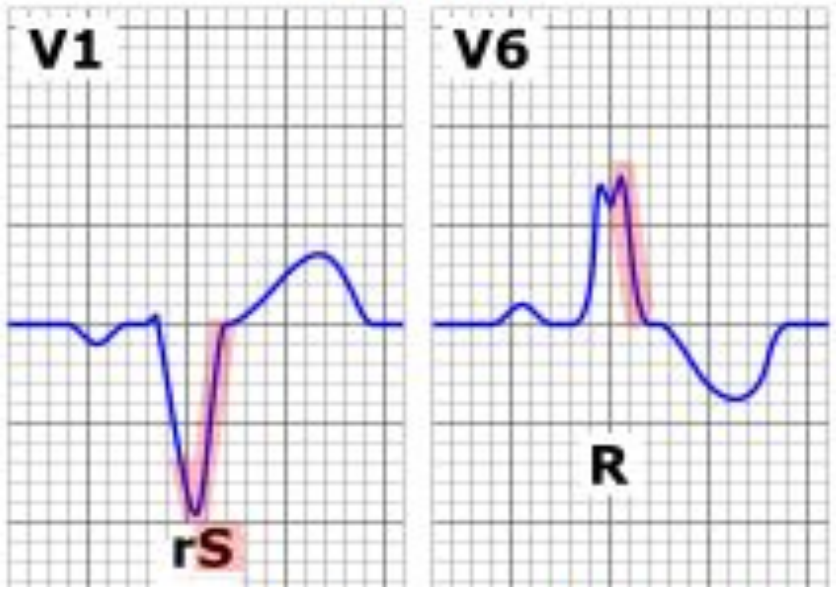


Causes of RBBB

- Congenital heart disease
- Coronary arteryt disease
- PE
- COPD
- Pulmonary hypertension
- Cardiomyopathies
- Degenerative damage to the cardiac conduction system (with aging)

LBBB





Causes of LBBB:

- AH
- CAD
- LVH
- Myocarditis
- Valve defects
- Cardiopathies
- Degenerative damage to the conducting system