Elettrocardiogramma in età pediatrica

Agata Privitera

AOU Policlinico Catania

Cardiologia Pediatrica

Presidio San Marco

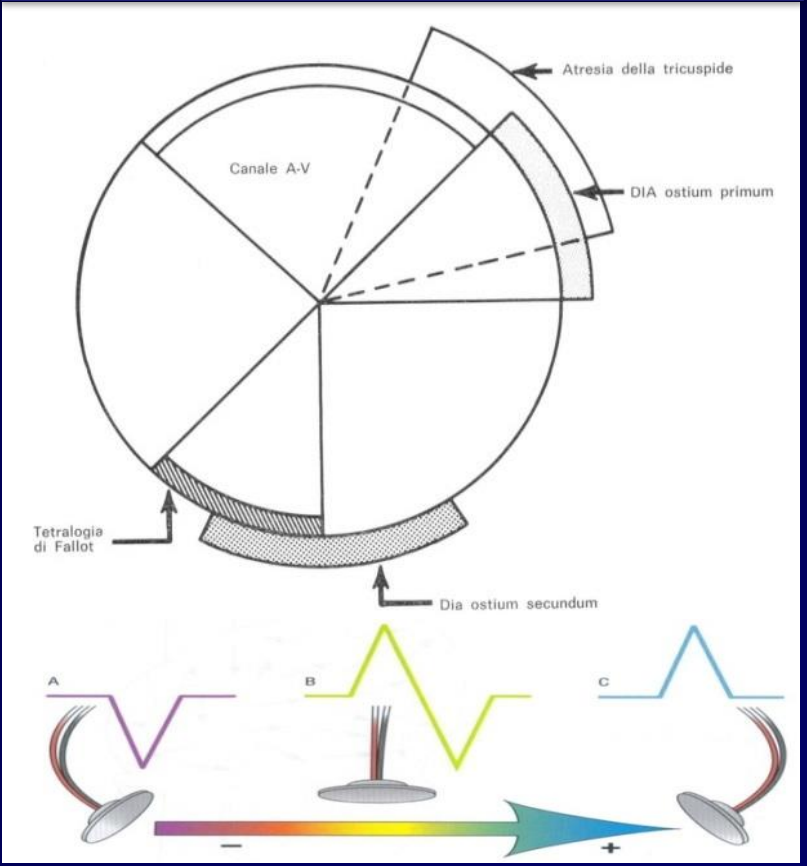
www.cardiologiapediatricact.com

Catania 11/04/2024

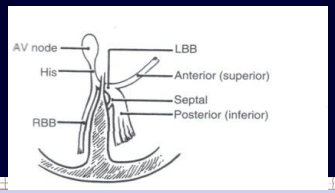
Elettrocardiogrammi Patologici

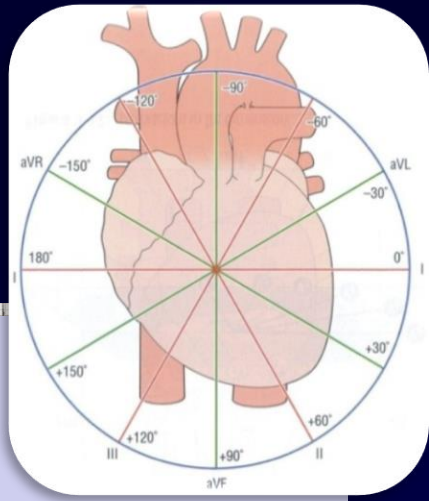
Asse Elettrico patologico

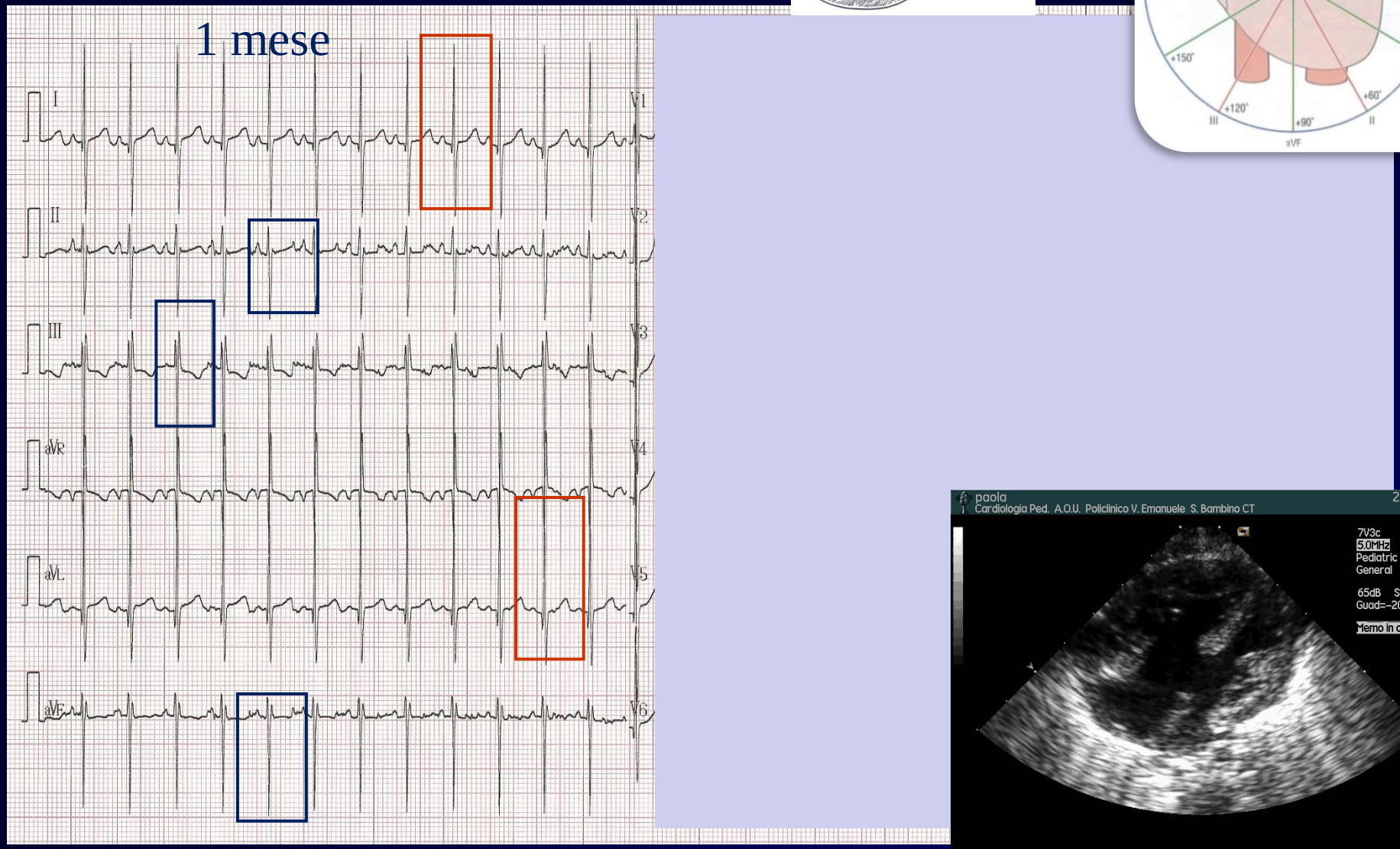
Come cambia l'asse elettrico



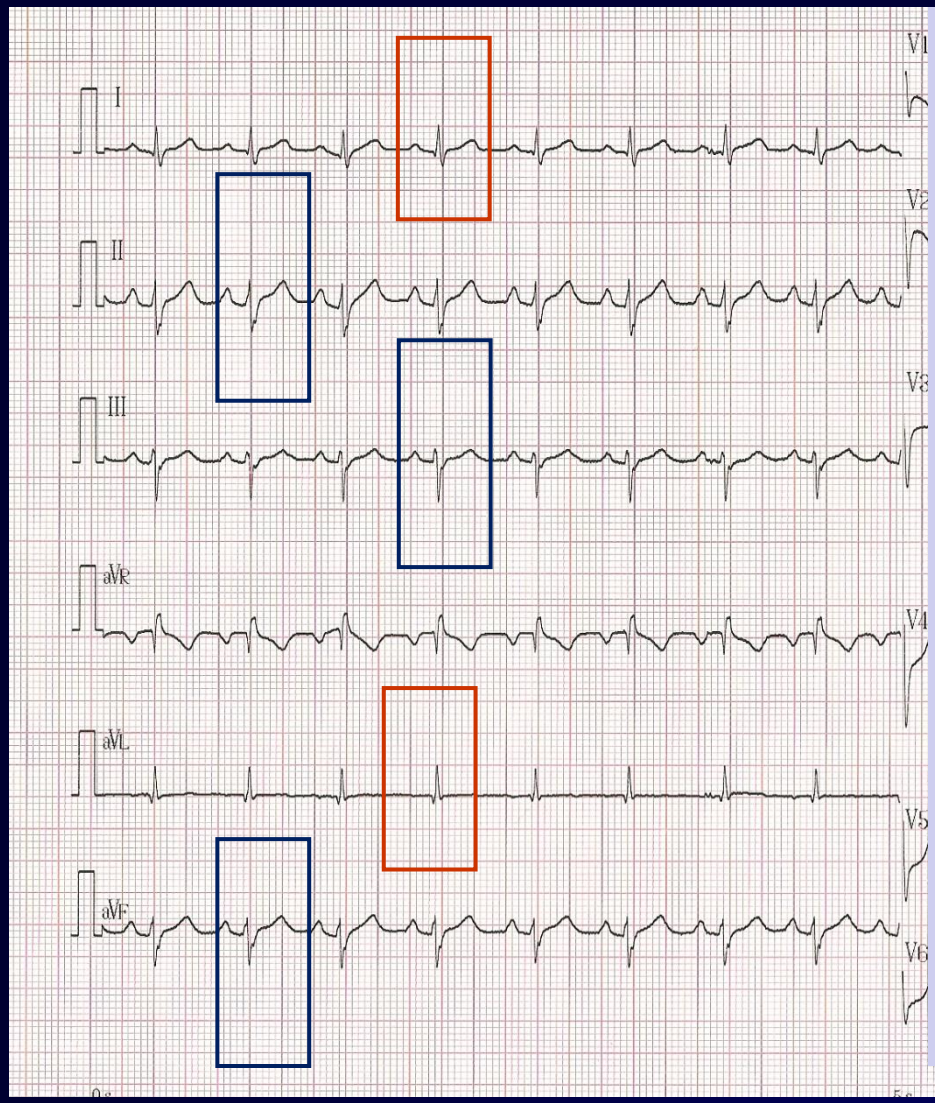
CAV posizione anomala del NAV

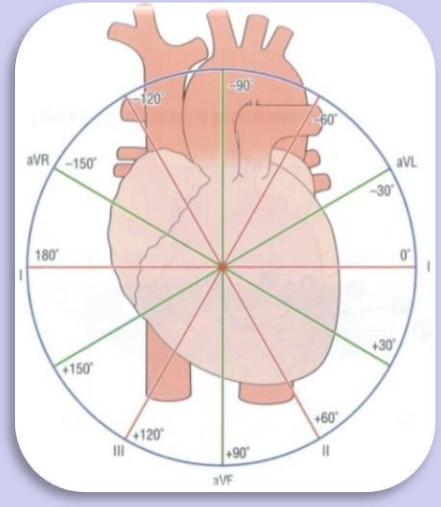






Difetto interatriale Ostium Primum





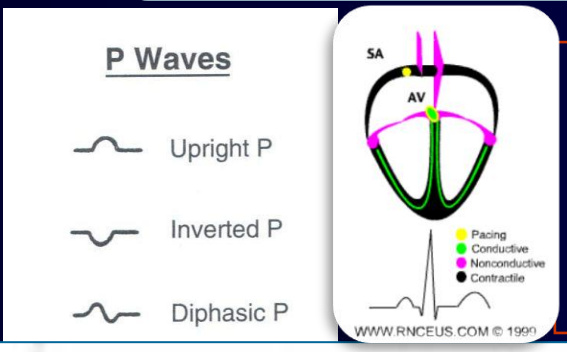
Elettrocardiogrammi Patologici

Ingrandiento atriale

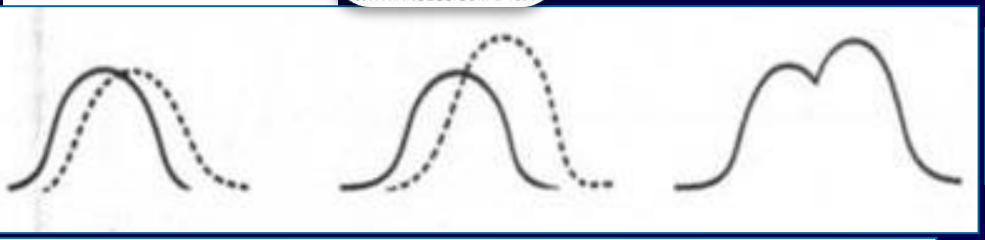
Onda P aumentata:

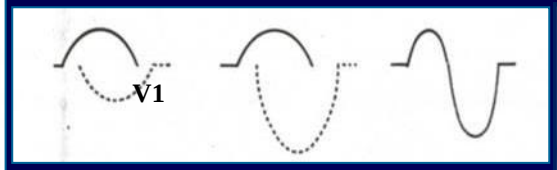
Ampiezza ≥1.5 ≤ 2.5 mm

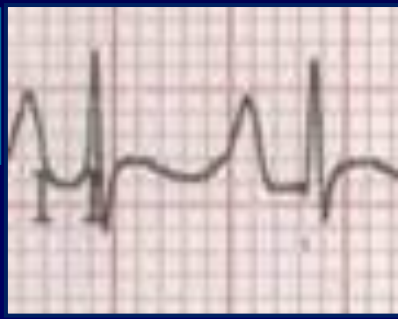
Durata 0.06-0.08 sec

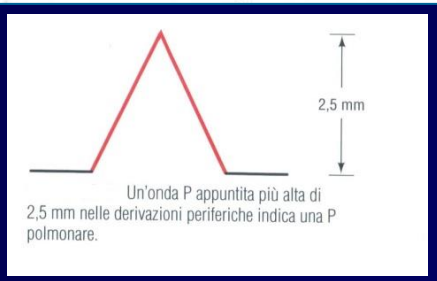


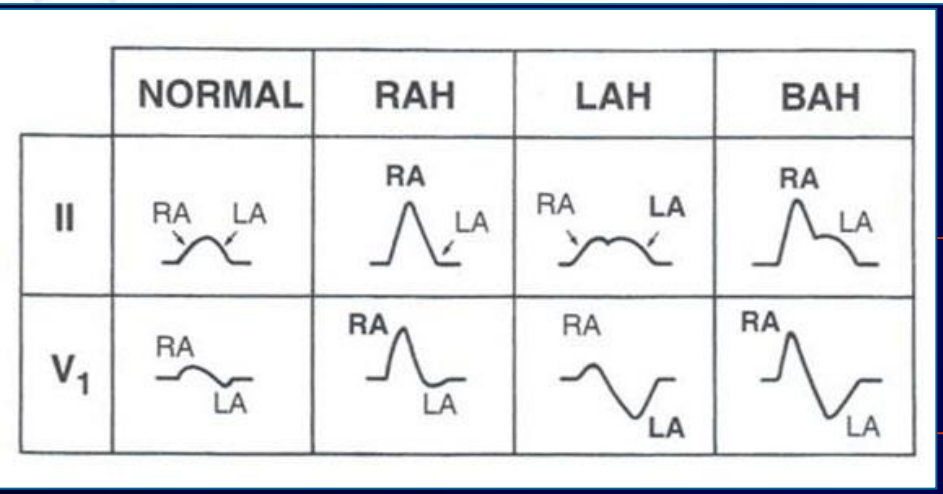
- Prima componente attivazione atriale destra
- Seconda componente attivazione atriale sinistra









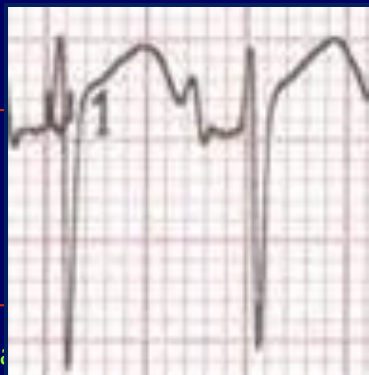


Leggenda

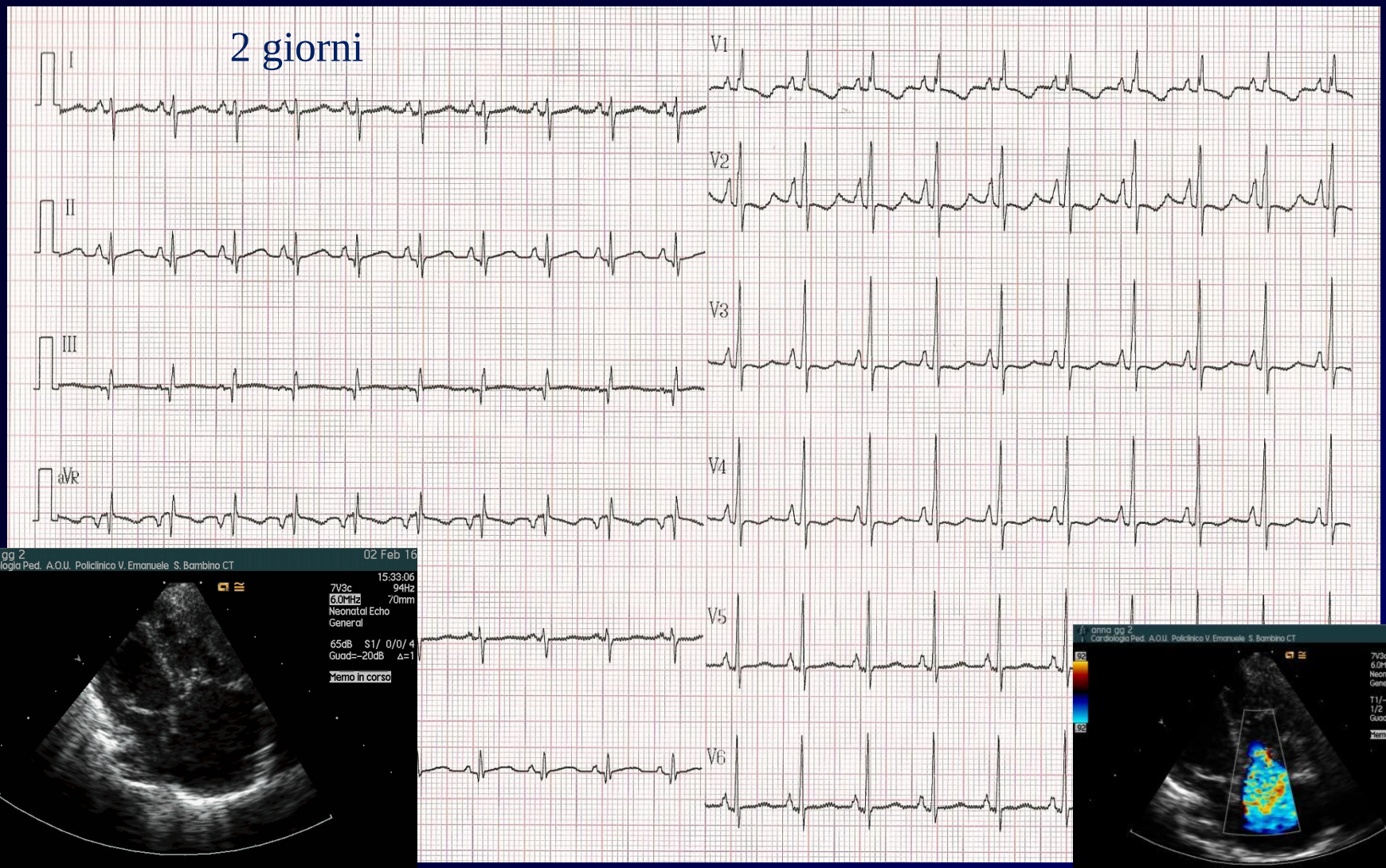
RAH= ingrandimento atriale destro

LAH= ingrandimento atriale sinistro

BAH= ingrandimento biatriale



Atriomegalia destra Insufficienza severa valvola tricuspide



A.Privitera

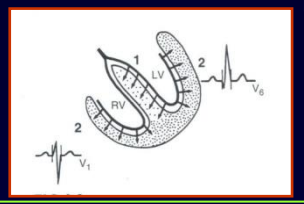
Alterazioni del complesso QRS

DURATA

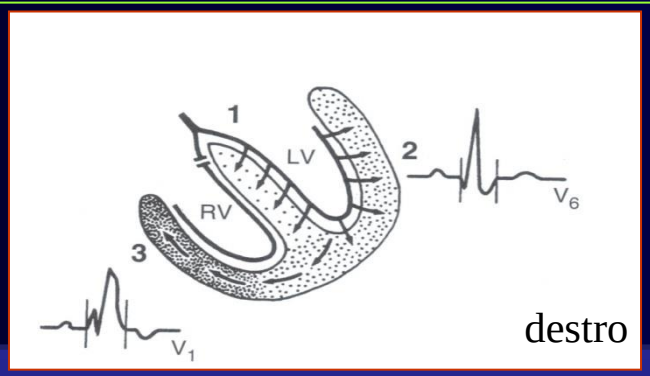
QRS allargato (> 0,08 sec)

- **Blocco di branca (dx e sn)**
- **Preeccitazione ventricolare**
- **Ritmo ventricolare**
- **Ritmo da pace maker (PM)**

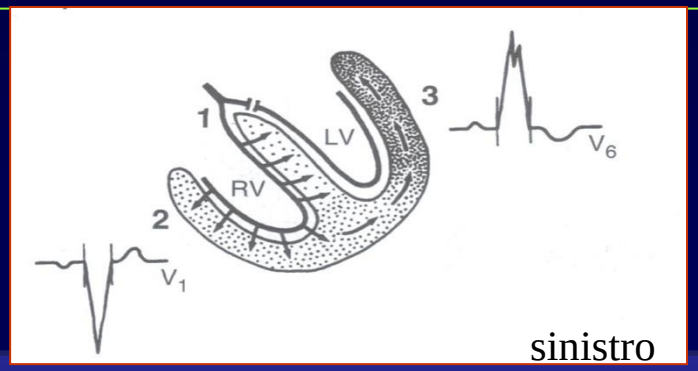
Alterazioni del QRS **Durata**
Blocco di Branca



- L'impulso viene bloccato in una delle branche
- L'impulso raggiunge il ventricolo omolaterale alla branca bloccata, più lentamente dal miocardio comune
- Il complesso QRS è ≥ 0.08 sec



destro



sinistro

In cuore normale

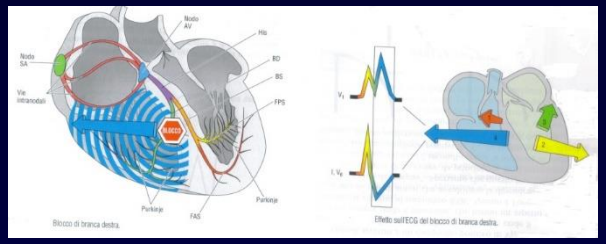
– Congenita: autosomica dominante
  – *mappata sul braccio lungo del cromosoma 19*
– *si presenta come BBD o BBS*
– *deviazione destra o sinistra dell'asse QRS*
– *blocco AV*

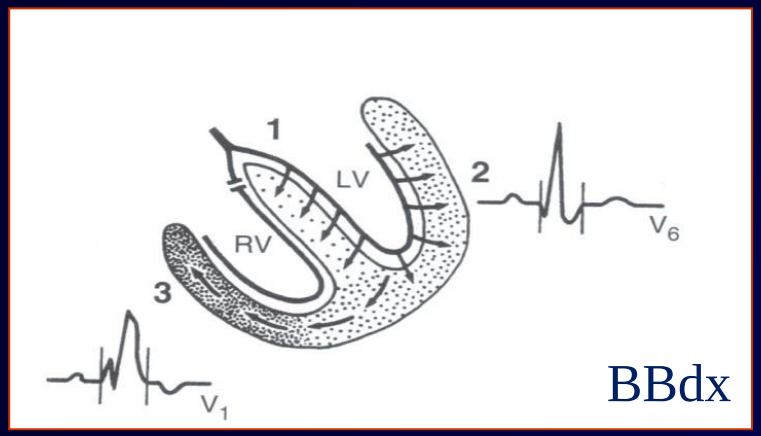
Secondari a cardiopatia

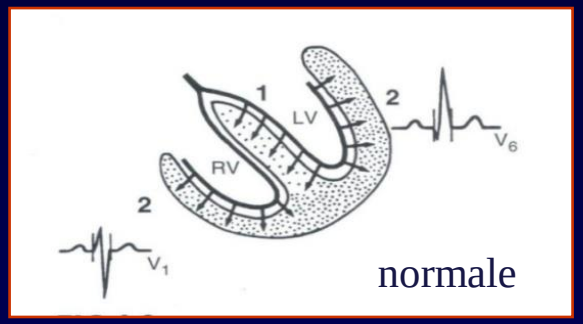
– Malattia di Ebstein *valvola tricuspide*
  – *PR prolungato e un BBD*
– difetti del canale AV e
– atresia della valvola tricuspide
  – *BBD + emiblocco anteriore sinistro*

I tre criteri per la diagnosi di BBdx

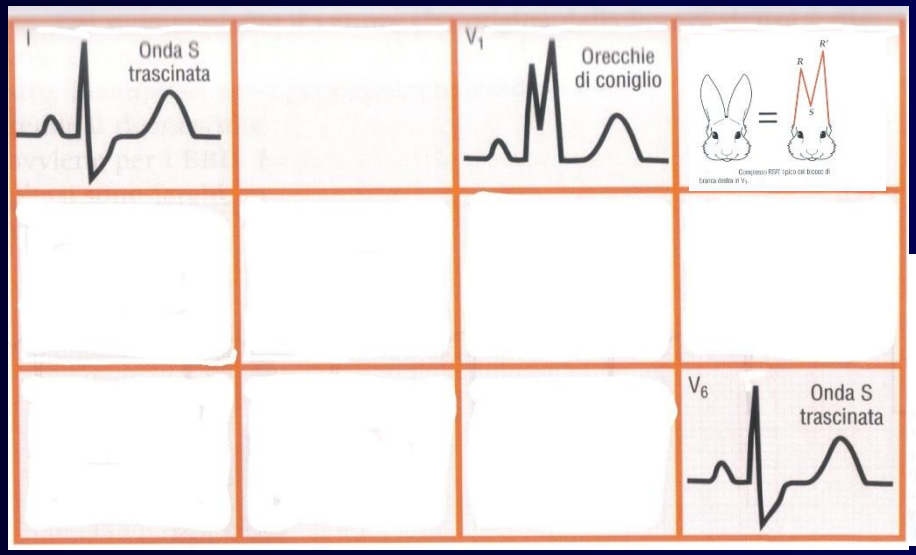
- **Blocco di Branca destro**

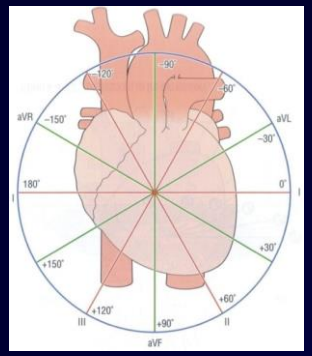


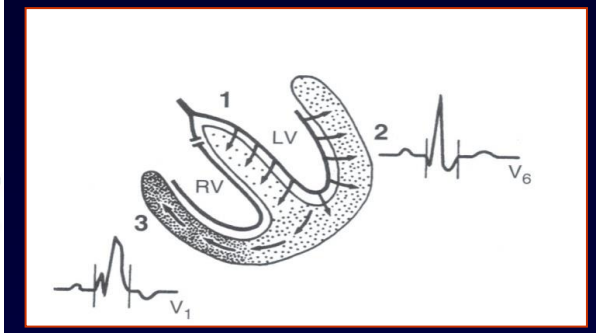




1. QRS durata
   - ≥ 0,12 sec > 16aa
   - >100 msec 4-16aa
   - > 90 msec < 4 aa
2. Complessi positivi o RSR' in V1
3. Onde S trascinate nelle derivazioni I e V6







QRS 0.16 sec

V1 complesso rR’ con R’>r

I, V6 onda S profonda e larga

Anni 9

I aVR V1 V4

II aVL V2 V5

III aVF V3 V6

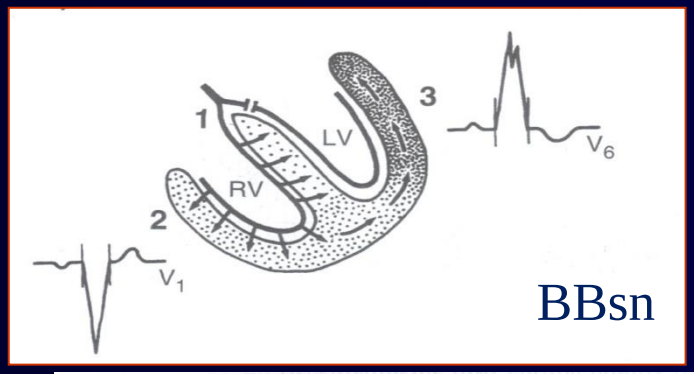
V1

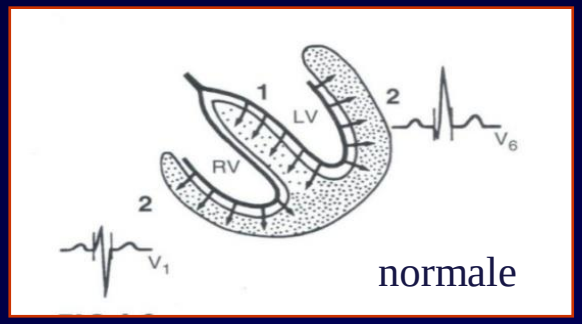
PROV00000-0000 Veloc. :25 mm/sec Arti:10 mm/mV Torace:10 mm/mV F 50∿ 0,05-100Hz 35413

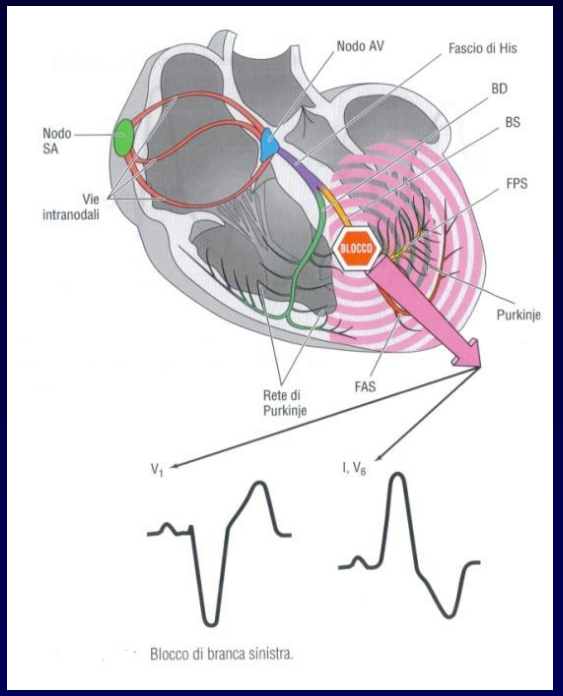
PHILIPS REORDER # M1709A

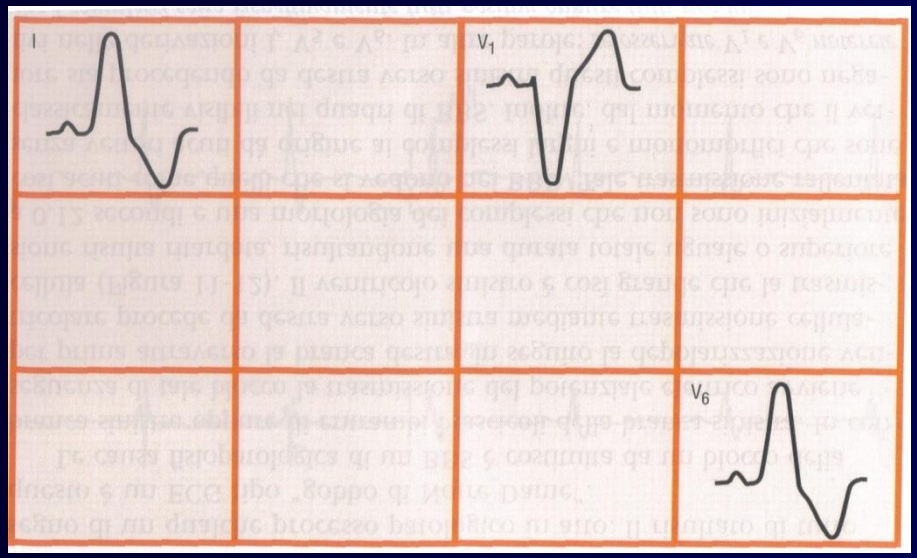
I tre criteri per la diagnosi di BBsn

- **Blocco di Branca sinistro**







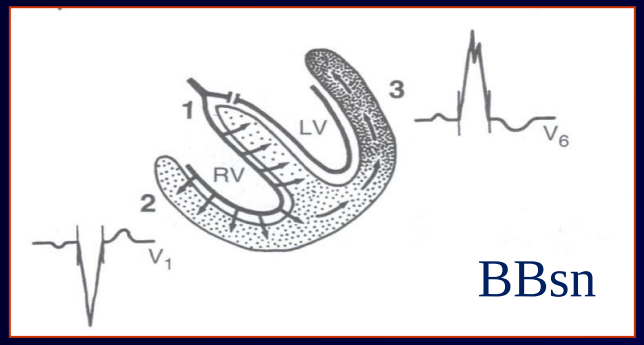


QRS durata

–	≥ 0,12 sec	> 16aa
–	>100 msec	4-16aa
–	> 90 msec	< 4 aa

1. Onde R larghe, monomorfe in I e V6
2. Onde S larghe, monomorfe in V1: possono avere una piccola onda r

Blocco di Branca Sinistra

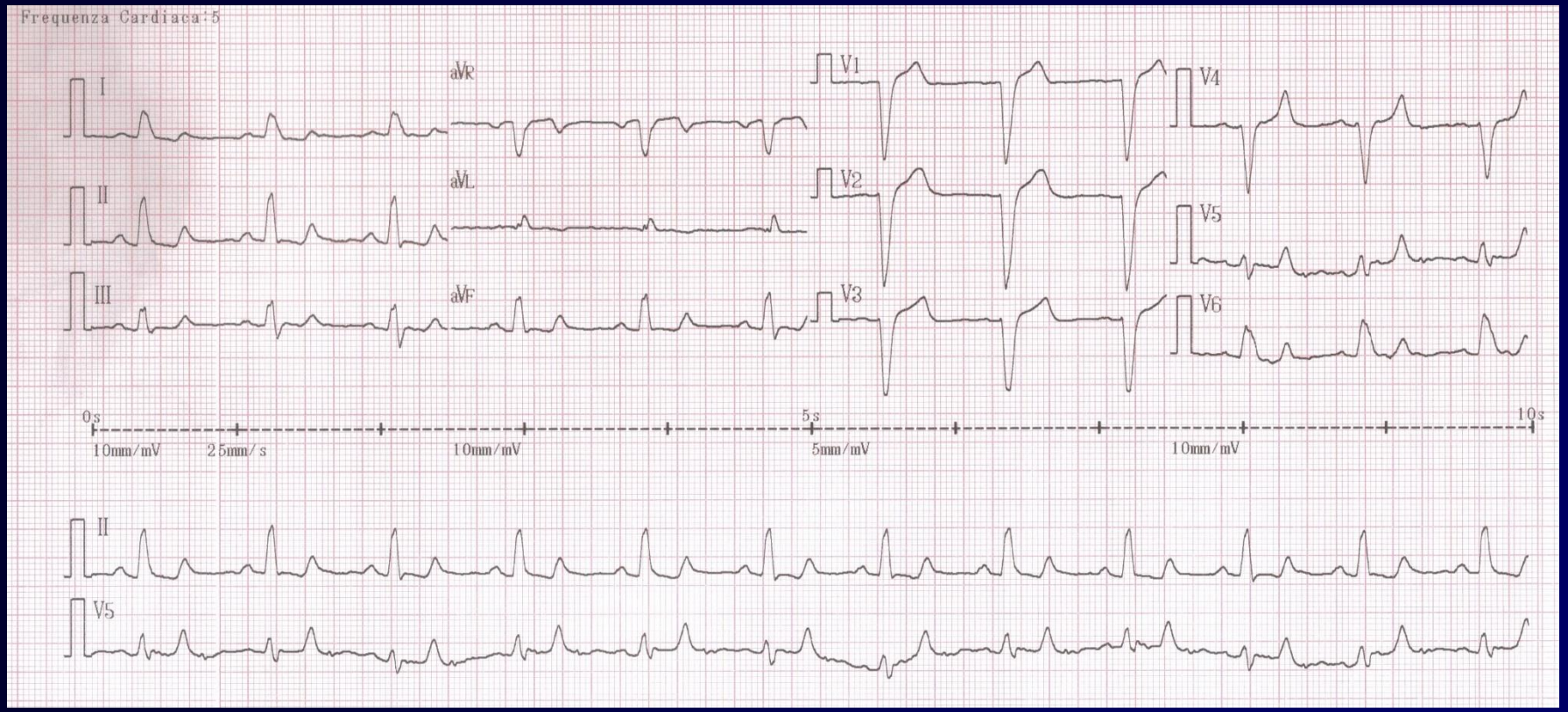


QRS 0.14 sec

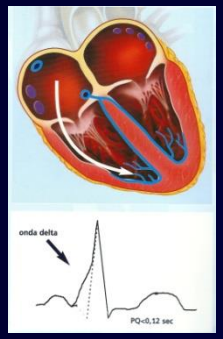
V1 complesso QS

I, V6 onda R con incisura

Alterazione del tratto ST-T secondari



Alterazioni del QRS **Durata**
Wolf Parkinson White

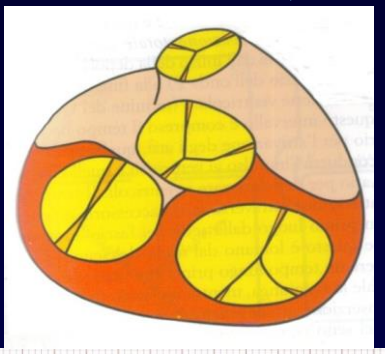


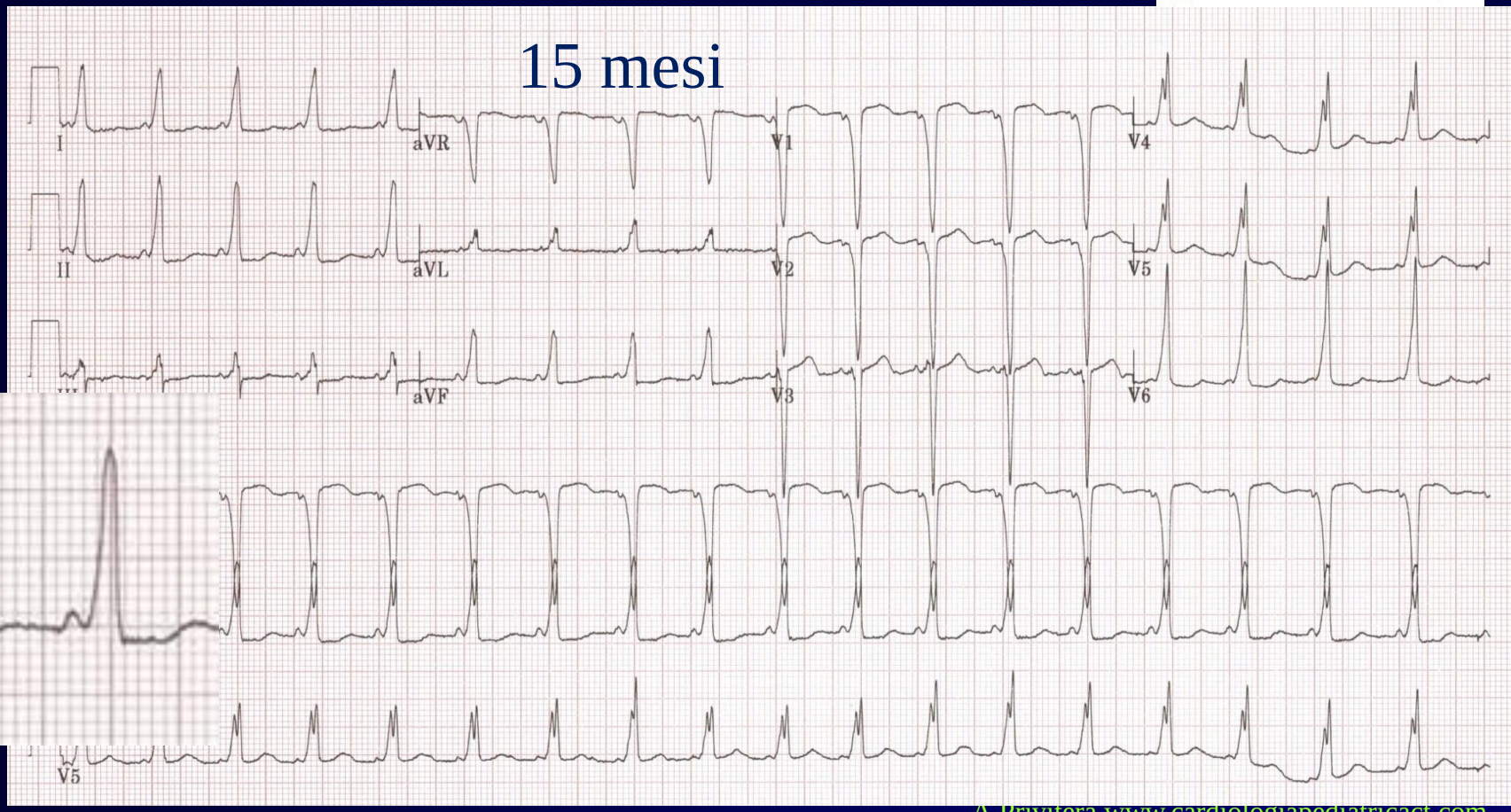
PR corto < 0.075 sec

Onda Delta, QRS> 0.06 sec

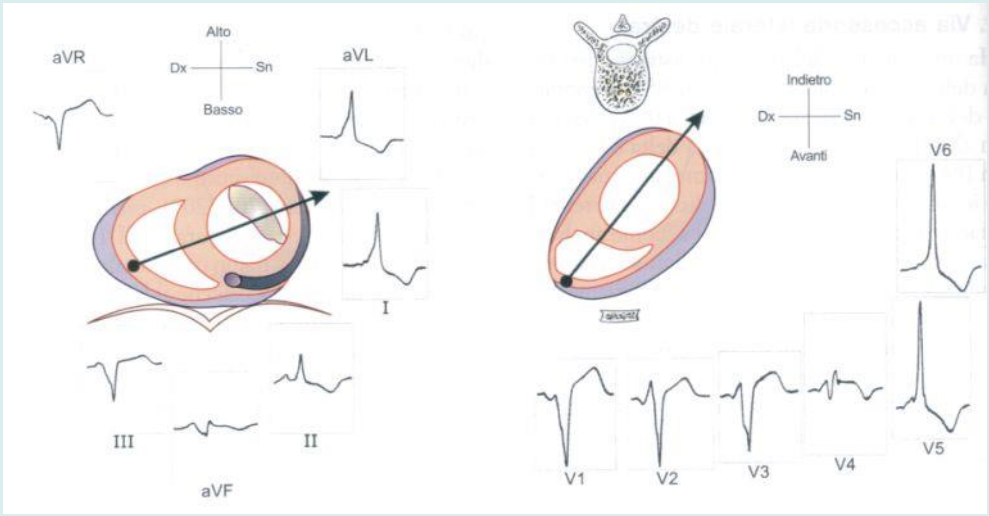
Alterazione del tratto ST-T

Asse elettrico determinato dalla sede della via





WPW



Fascio laterale destro

– Asse a sinistra 0 gradi

– Onda Delta negativa o comunque con complesso QRS prevalentemente negativo in V1-V2

–Transizione V3-V4

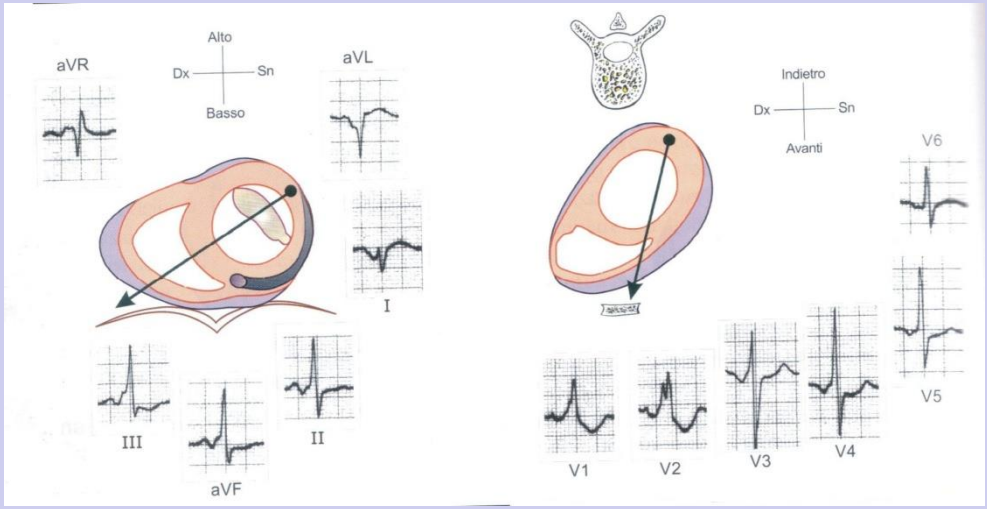
Fascio laterale sinistro

– Asse inferiore e destra

– onda Delta positiva in V1

–Transizione V2-V4

–Onda R decresce nelle precordiali sinistre



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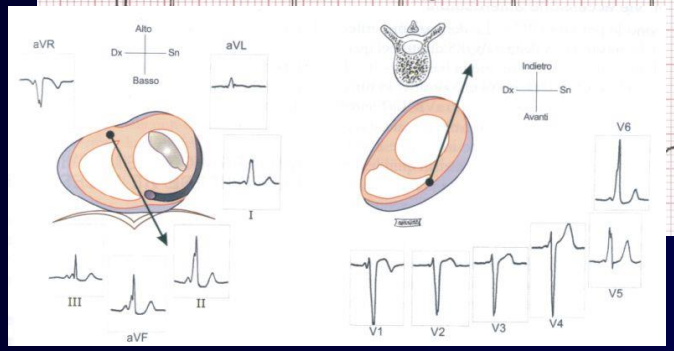
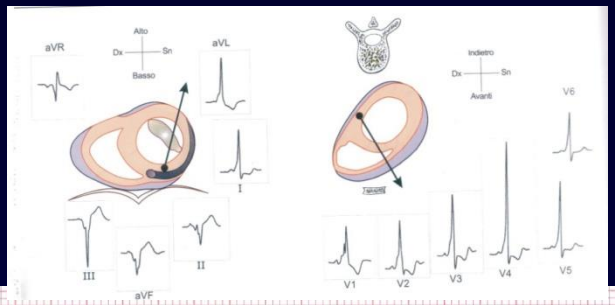
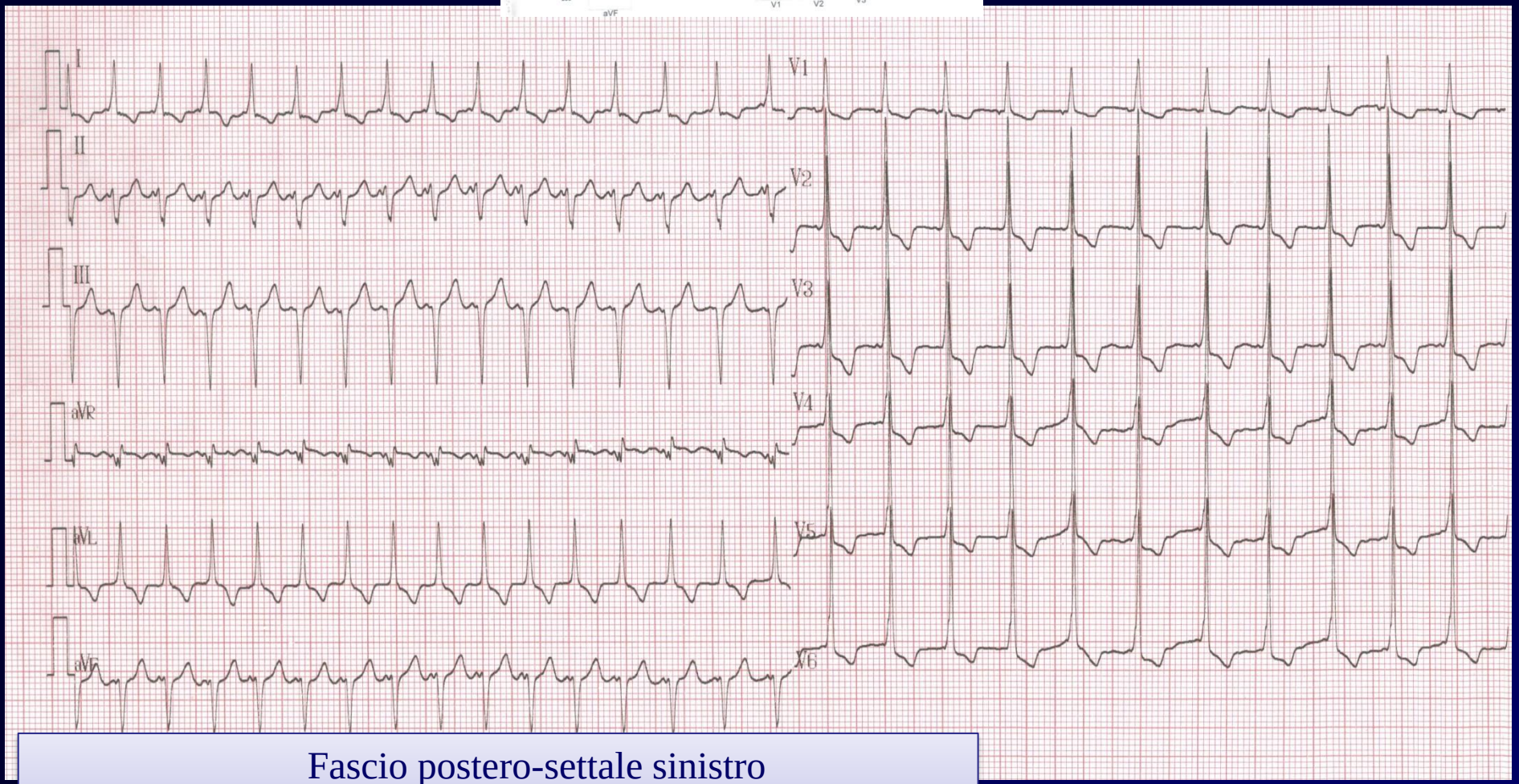


Fascio anterosettale

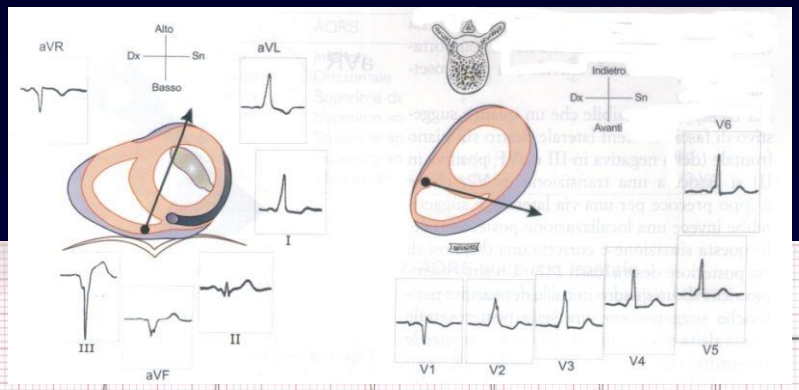
- Asse elettrico normale
- Normale progressione dalla R nelle precordiali

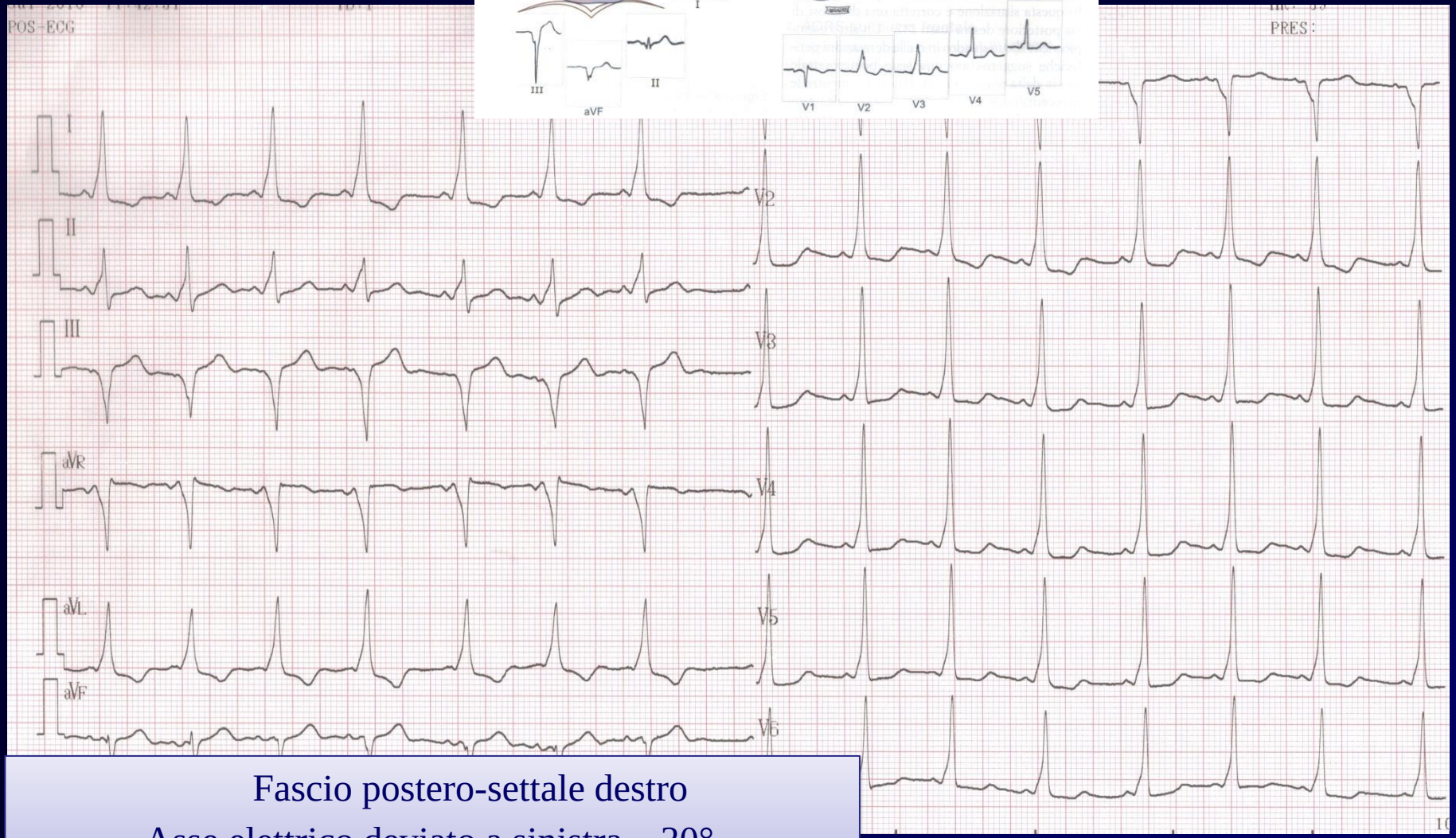




Fascio postero-settale sinistro

- Asse elettrico deviato a sinistra – 30°
- Onda delta positiva in V1 transizione in V1

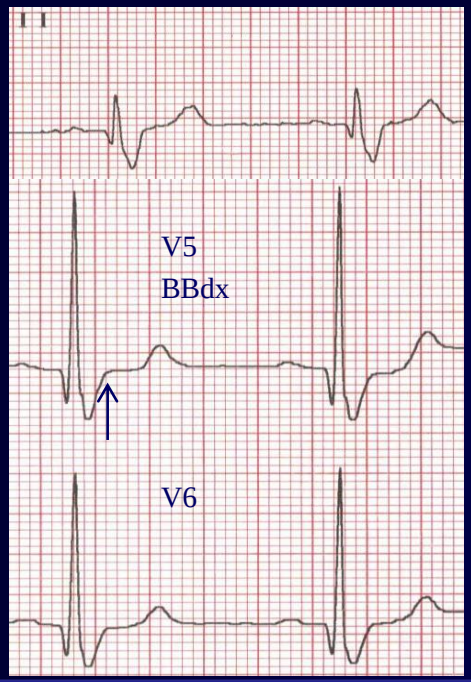


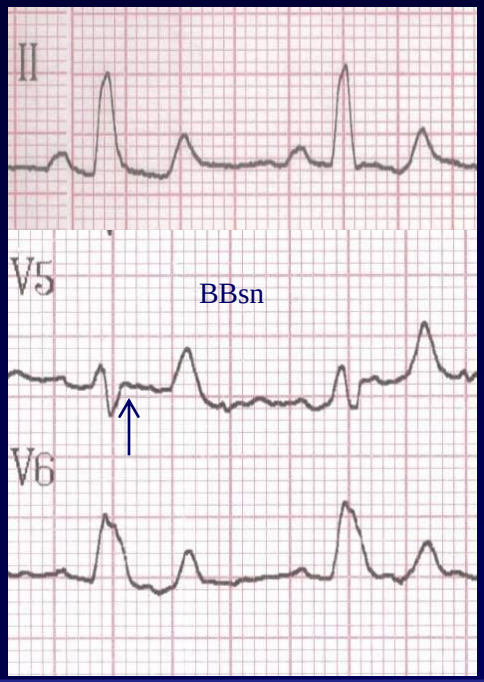


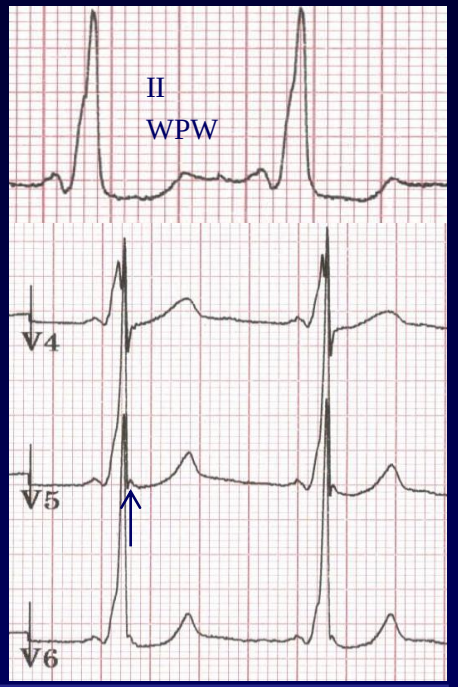
Fascio postero-settale destro

- Asse elettrico deviato a sinistra – 30°
- Onda delta negativa in V1; Transizione in V2

Corretta Misurazione Intervallo QT
in presenza: blocchi di branca e preeccitacone ventricolare



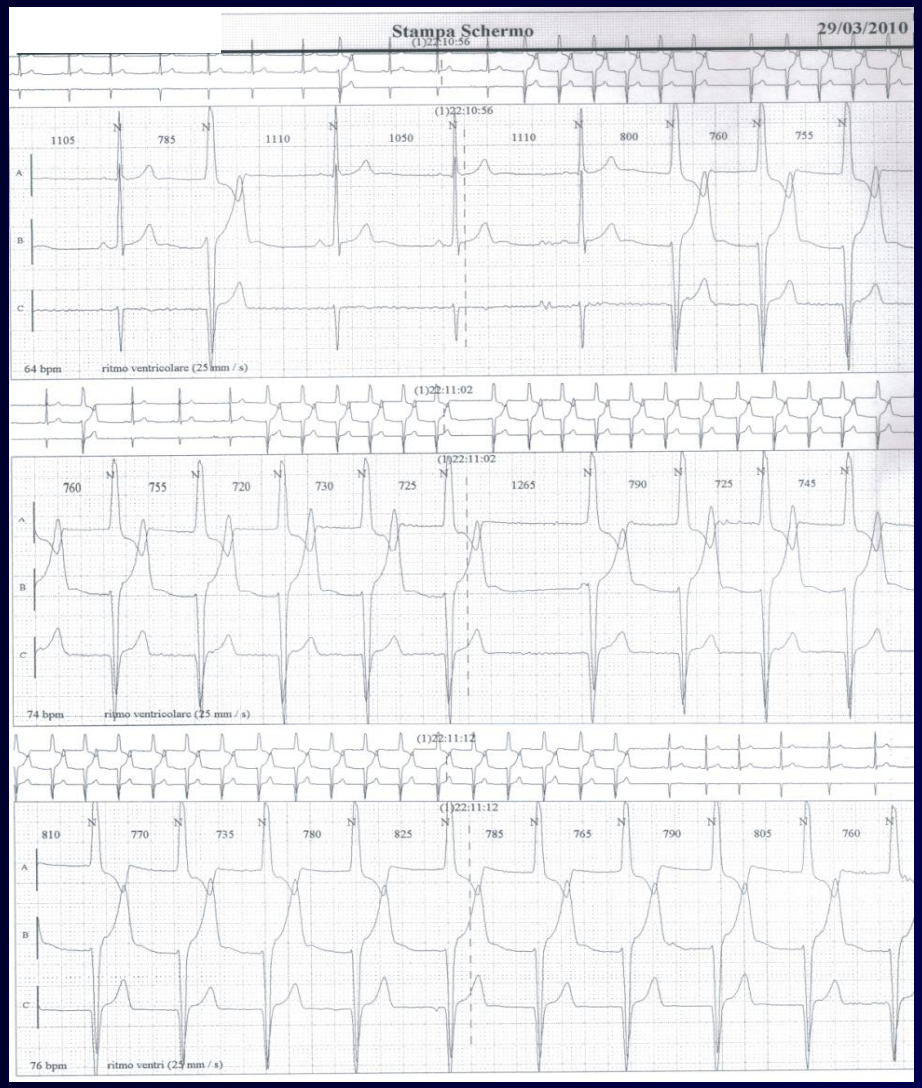


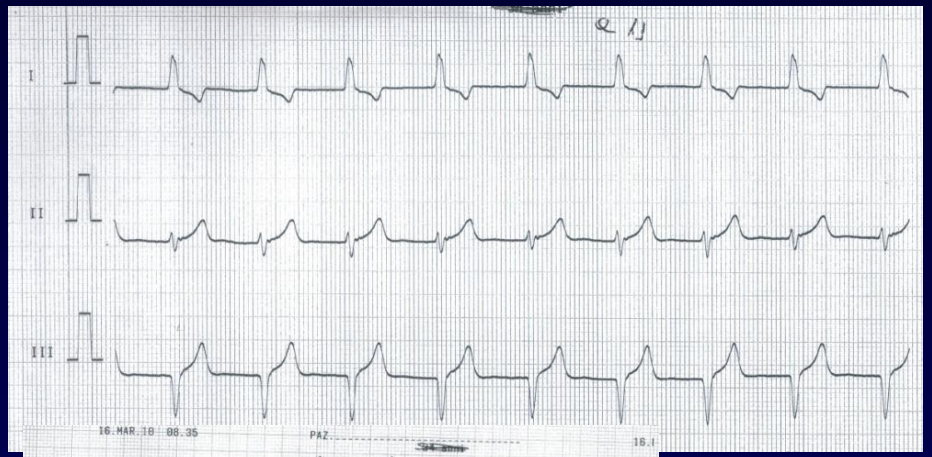


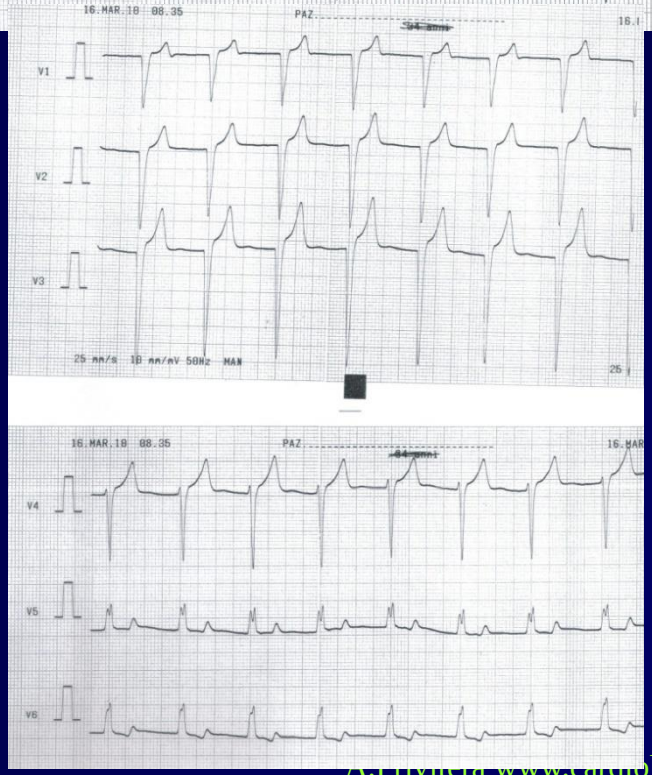
- In presenza di turbe della conduzione il QTc può risultare prolungato conseguente a una maggiore durata del complesso QRS
- Più sensibile, in questo caso, misurare l'intervallo **JT**
  - Punto J giunzione onda S e segmento ST (vedi↑)
- Applicando la formula di Bazett
  - valore normale **JTc** = 340 msec bambini e adolescenti

Am J Cardiol 1994;74: 1254-1257

Alterazioni del QRS in Durata
Ritmo idioventricolare accelerato





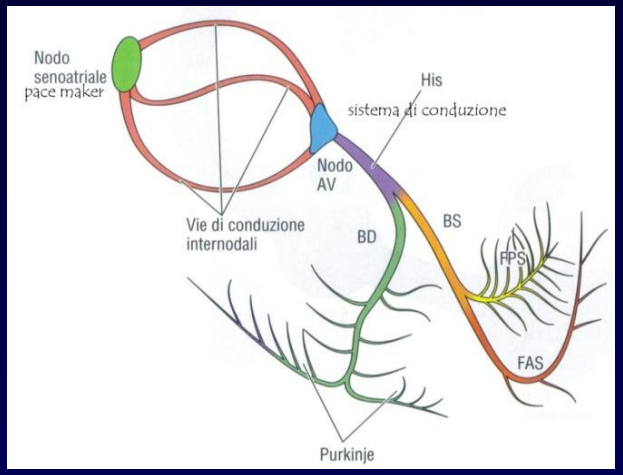


Gerarchia

Cellule dotate di depolarizzazione spontanea

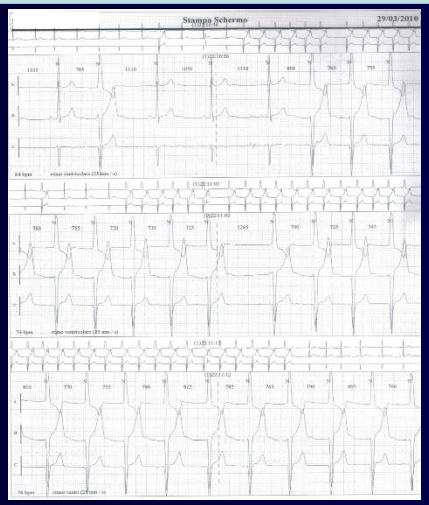
La frequenza di scarica diminuisce dall'alto al basso

- **Atrio**
  - Nodo senoatriale
  - miocardio atriale
- **Giunzione atrioventricolare**
  - Nodo atrioventricolare
  - Fascio di His
- **Ventricolo**
  - Branche
  - Rete di Purkinje
  - Miocardio Ventricolare



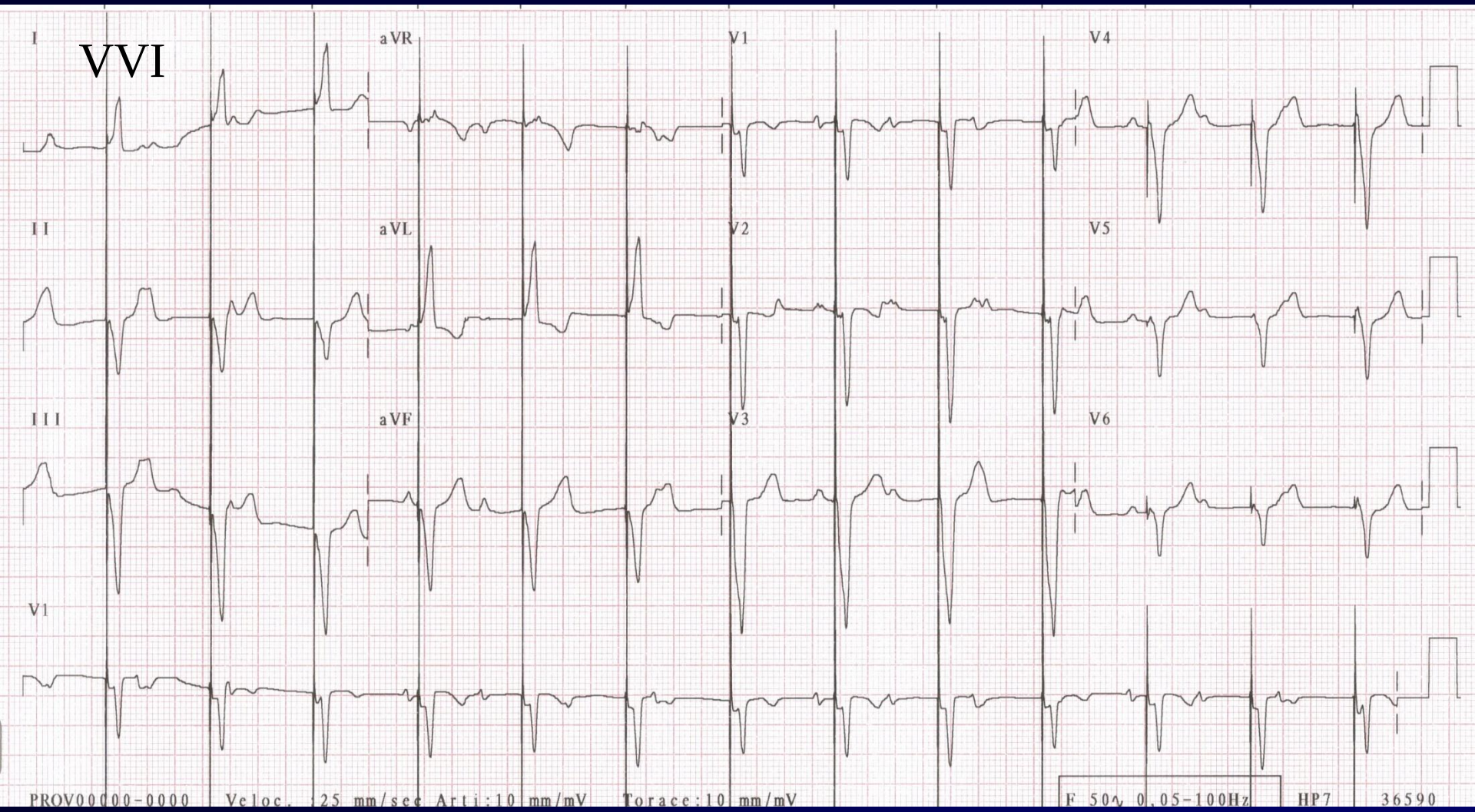
Hanno la funzione di supplire, il ritmo dominante, quando questo viene meno «ritmo di scappamento»

Ritmo accelerato: Quando la frequenza di scarica supera quella dominante e il suo ritmo di scarica compete o sostituisce il ritmo sinusale



Ritmo da PM artificiale

DDD



Domande?

Elettrocardiogramma in età pediatrica

GRAZIE!

Agata Privitera

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Cardiologia Pediatrica

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