



How to Have Good Rhythm Even if You Can't Dance

Understanding Normal
Variants & Concerning
Abnormalities
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Akron Children's Hospital

Objectives:

- Describe benign variants in the pediatric ECG
- Describe concerning abnormalities in the pediatric ECG
- Determine to need for referral



Topics

PACs
PVCs
SVT
WPW
VT, VF
HCM
LQT



Bored review questions:

- A 16 year old, competitive swimmer presents to ER with a near drowning event. A cardiac cause is found. The most likely etiology is:
- HCM
- LQTS
- ARVD
- Commotio cordis



- A 16 year old, competitive athlete presents with cardiac arrest during any sport other than swimming. The most likely etiology is:
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Bored review questions:

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- Amiodarone
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PACs

Newborns

Benign

Resolve

Follow up 2 months

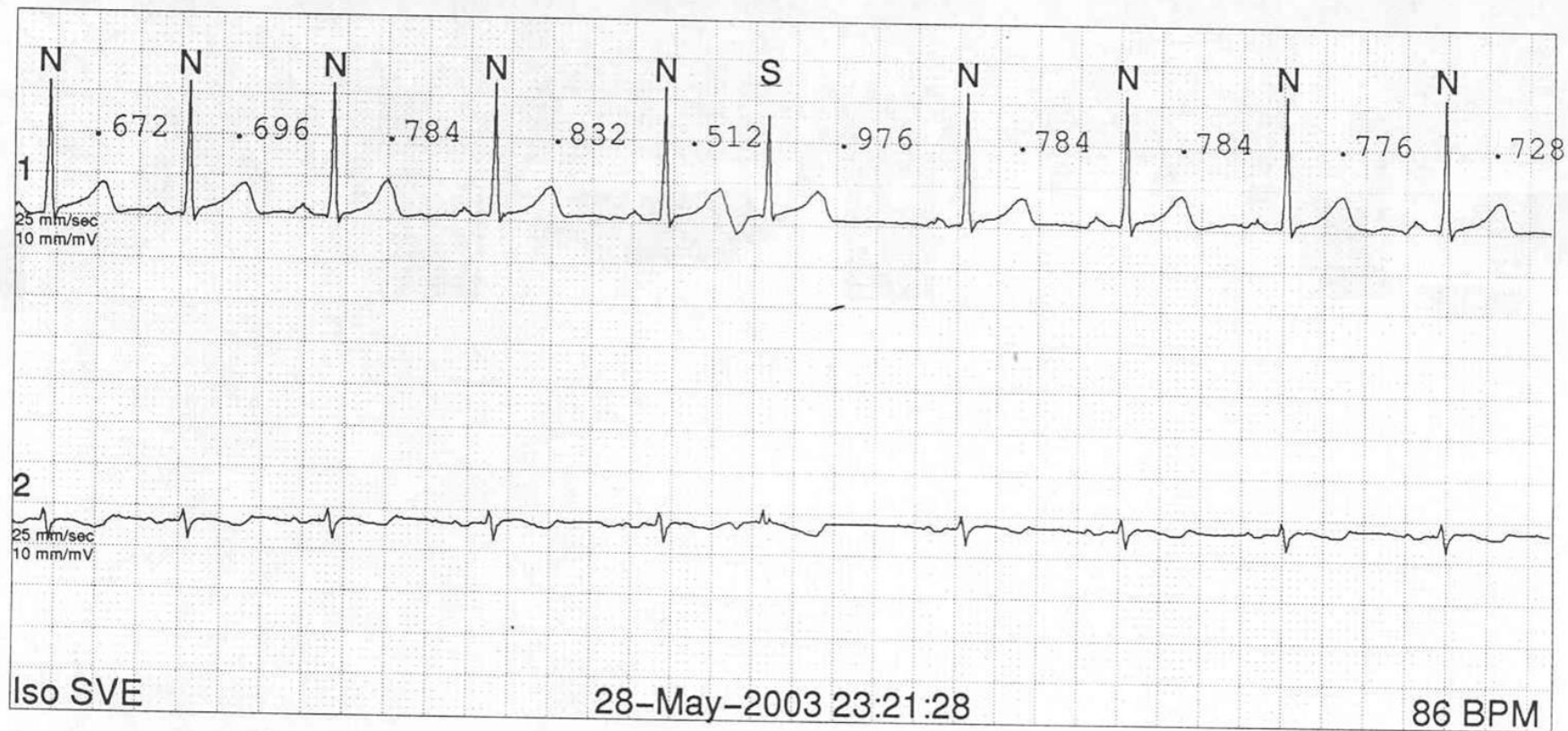




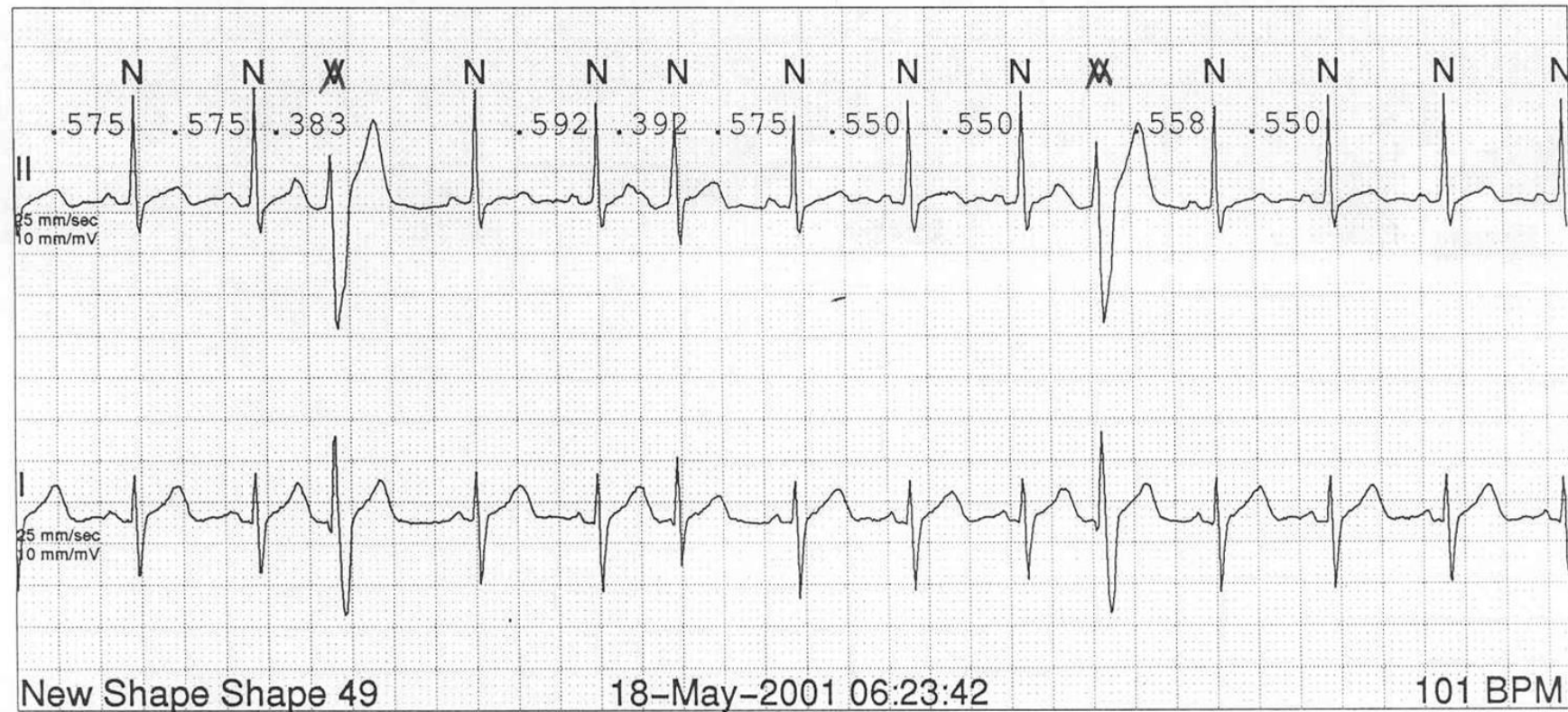
Three things that can happen to a PAC:

- Conducts normally - QRS looks the same as a sinus beat.
- Conducts aberrantly – QRS is wider than sinus beat.
- Blocks – no QRS after the PAC. There will be a pause after the last QRS.



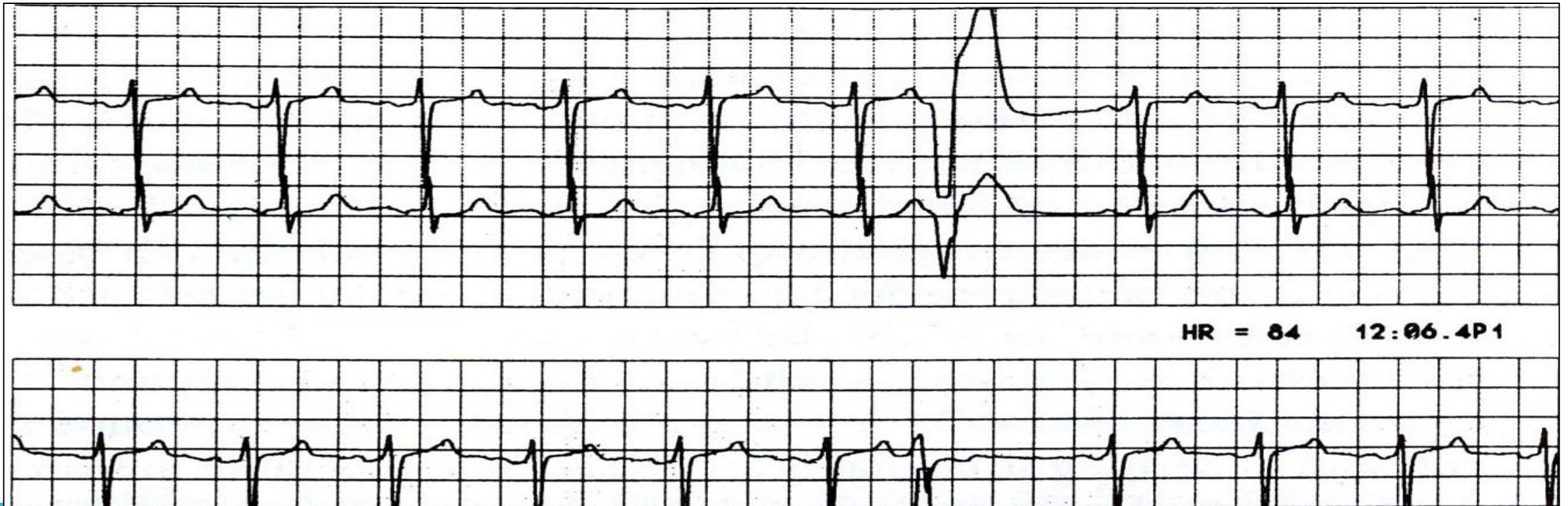


PVC'S VS-PAC W/ABERRNCY



[illegible]

PVC



PVCs

Teenage

Isolated, monomorphic, suppress with exercise, normal heart, asymptomatic.

Usually found incidentally

Sometimes c/o flutter, skip, thump or need to cough

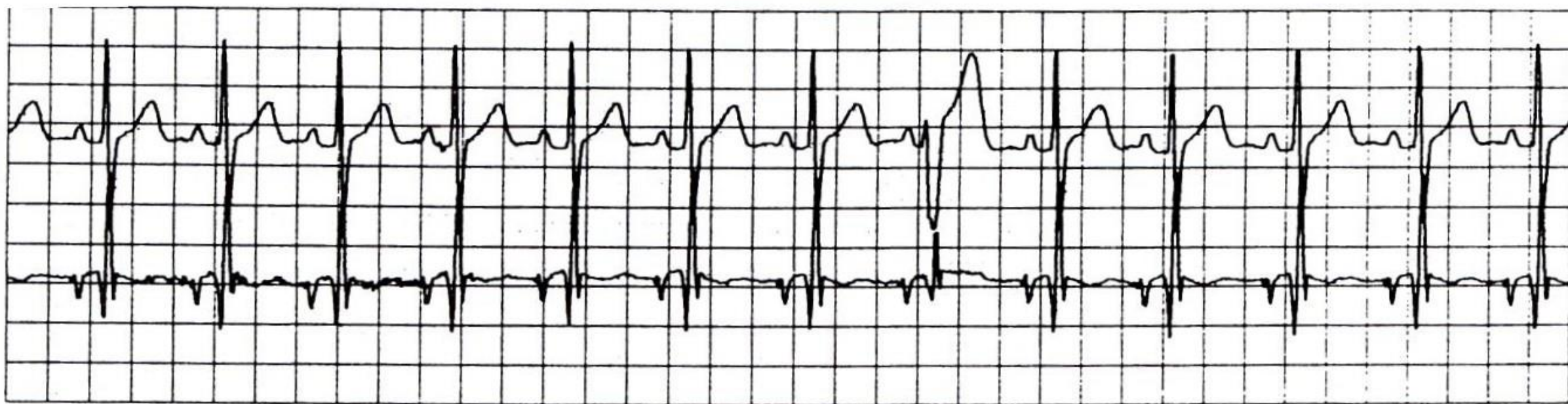
<30% vs >40%



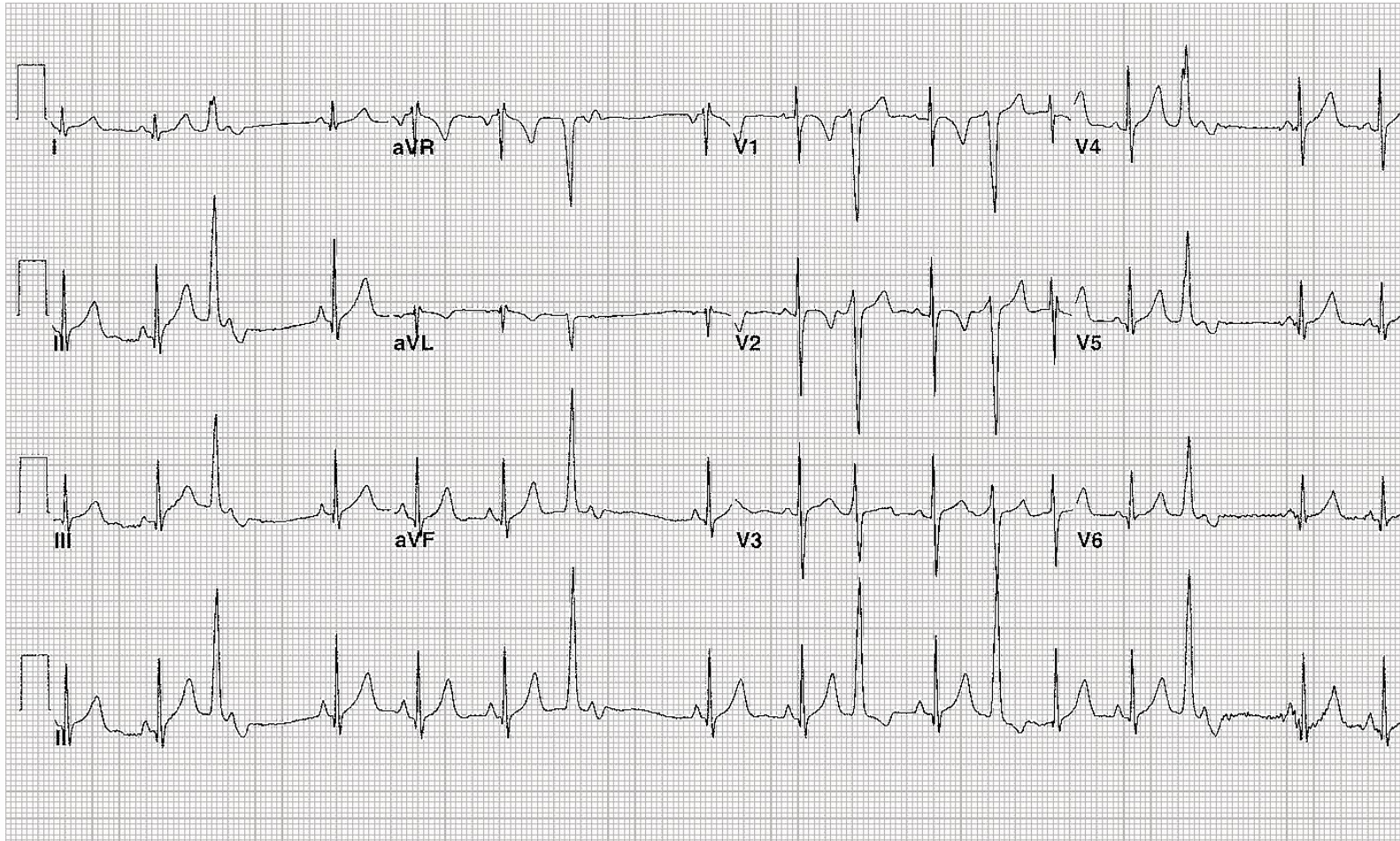
Criteria for diagnosing PVCs:

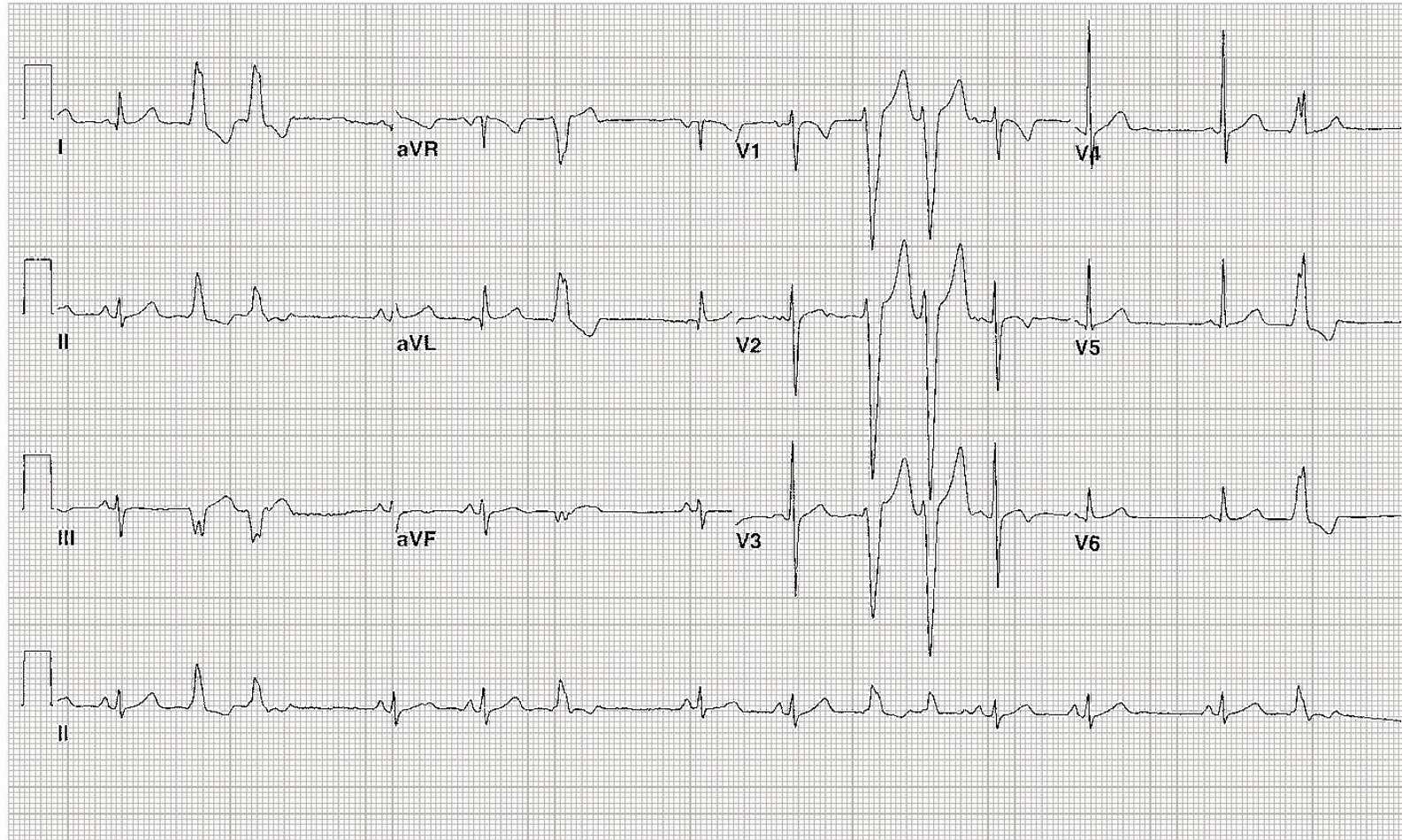
- QRS morphology always different from sinus beat (usually wide).
- Beat comes early
- AV dissociation
- Fusion beats





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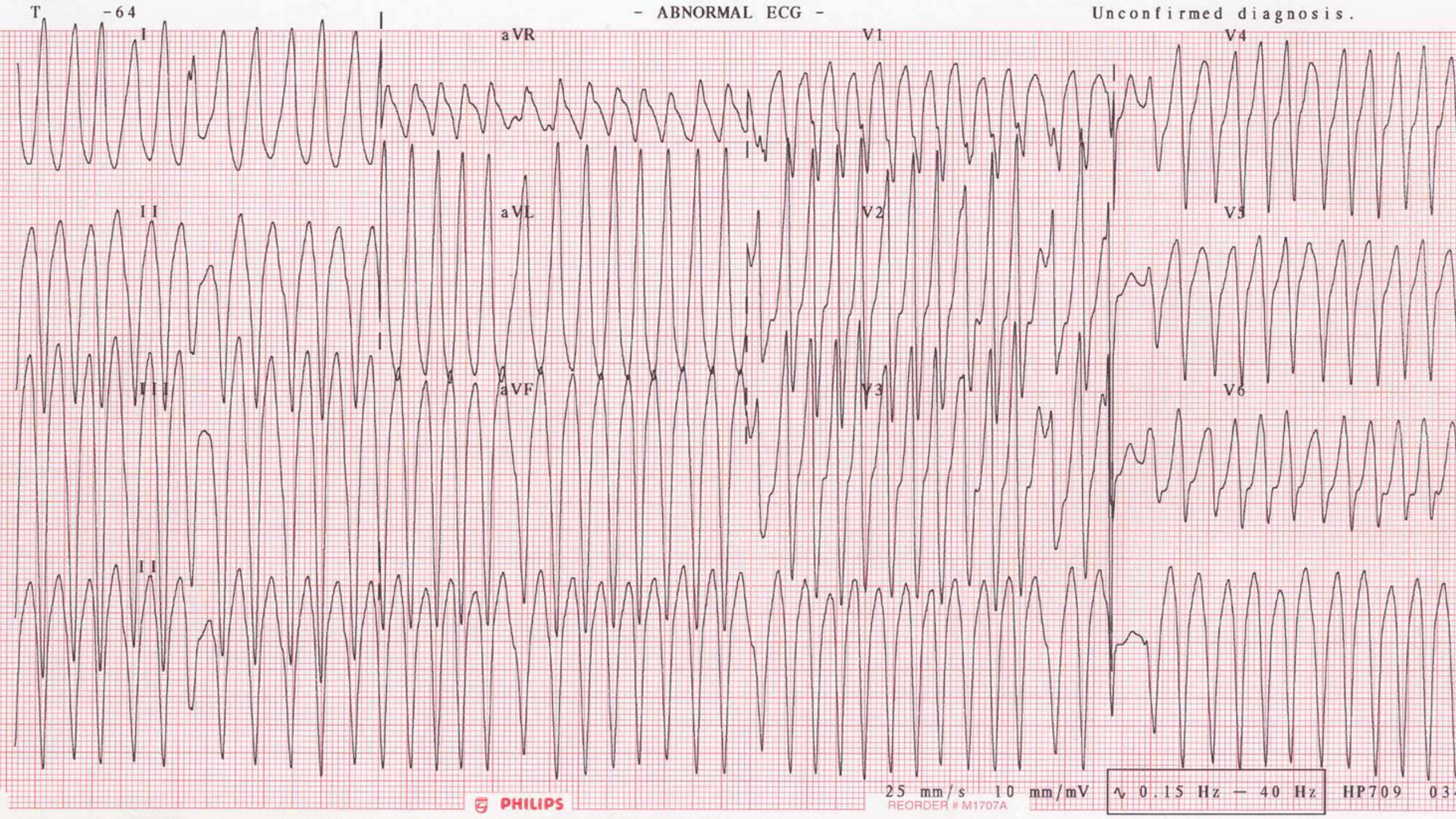




Supraventricular Tachycardia

- Reentrant vs automatic (ectopic)
 - Infant vs toddler vs school age vs teen
 - Vagal vs meds vs ablation



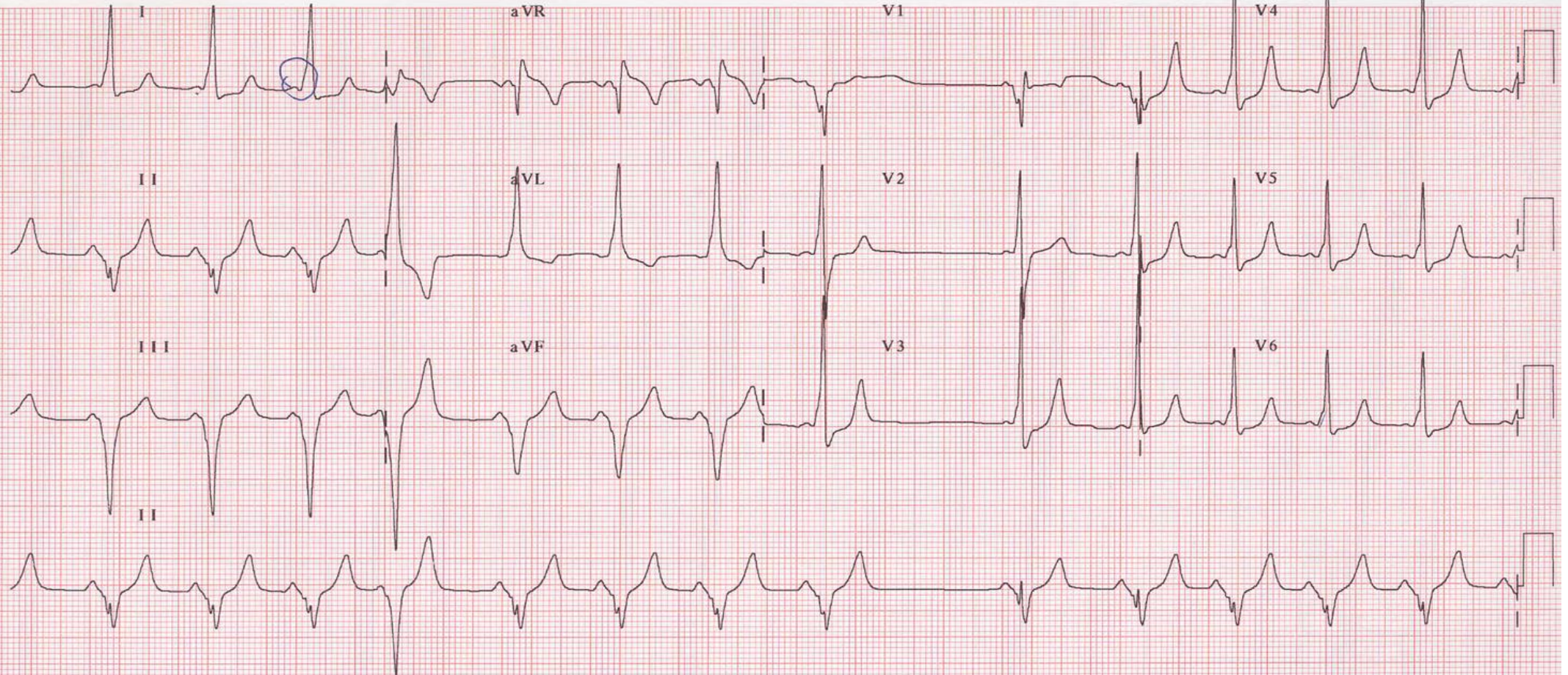


Rate	89	NORMAL SINUS RHYTHM, RATE 89.....normal P axis, PR, rate & rhythm
PR	147	NONSPECIFIC IVCD WITH LAD.....QRS>120, LAD
QRSD	136	LEFT VENTRICULAR HYPERTROPHY.....(SV1+RV5)>3.5/(RaVL+SV3)>2.8m/2f
QT	388	INFERIOR INFARCT, AGE INDETERMINATE.....Q>35mS, initial axis(240,-30)
QTc	472	

--Axis--
P 90
QRS -57
T 77

- ABNORMAL ECG -

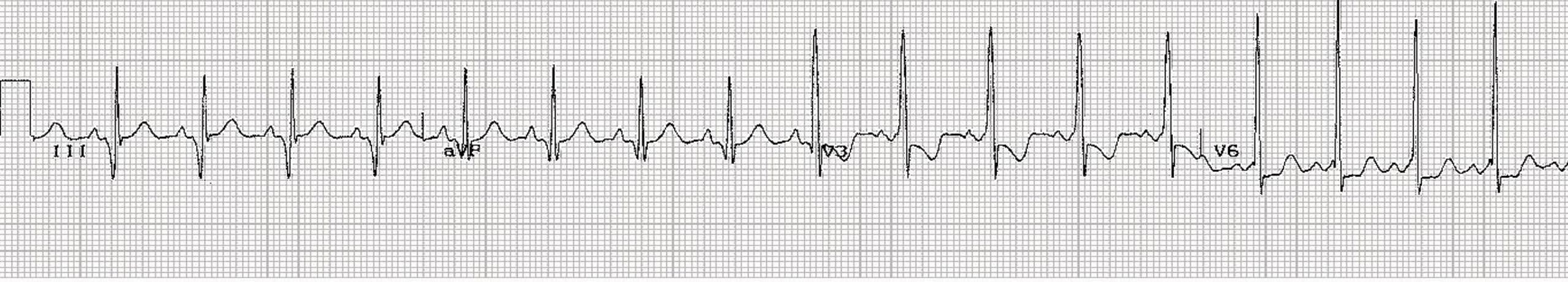
Unconfirmed diagnosis.



Supraventricular Tachycardia

- Wolff-Parkinson-White Syndrome
 - short PR interval
 - widened QRS
 - Delta wave present





WPW

- Atrial fib
- EPS to risk stratify



VT



VT

- No treatment
- Meds
- Ablation
- ICD



VT

- HCM
- 50% SCD with sports



PR interval 100 ms
QRS duration 82 ms
QT/QTc 456/459 ms
P-R-T axes 50 91 82

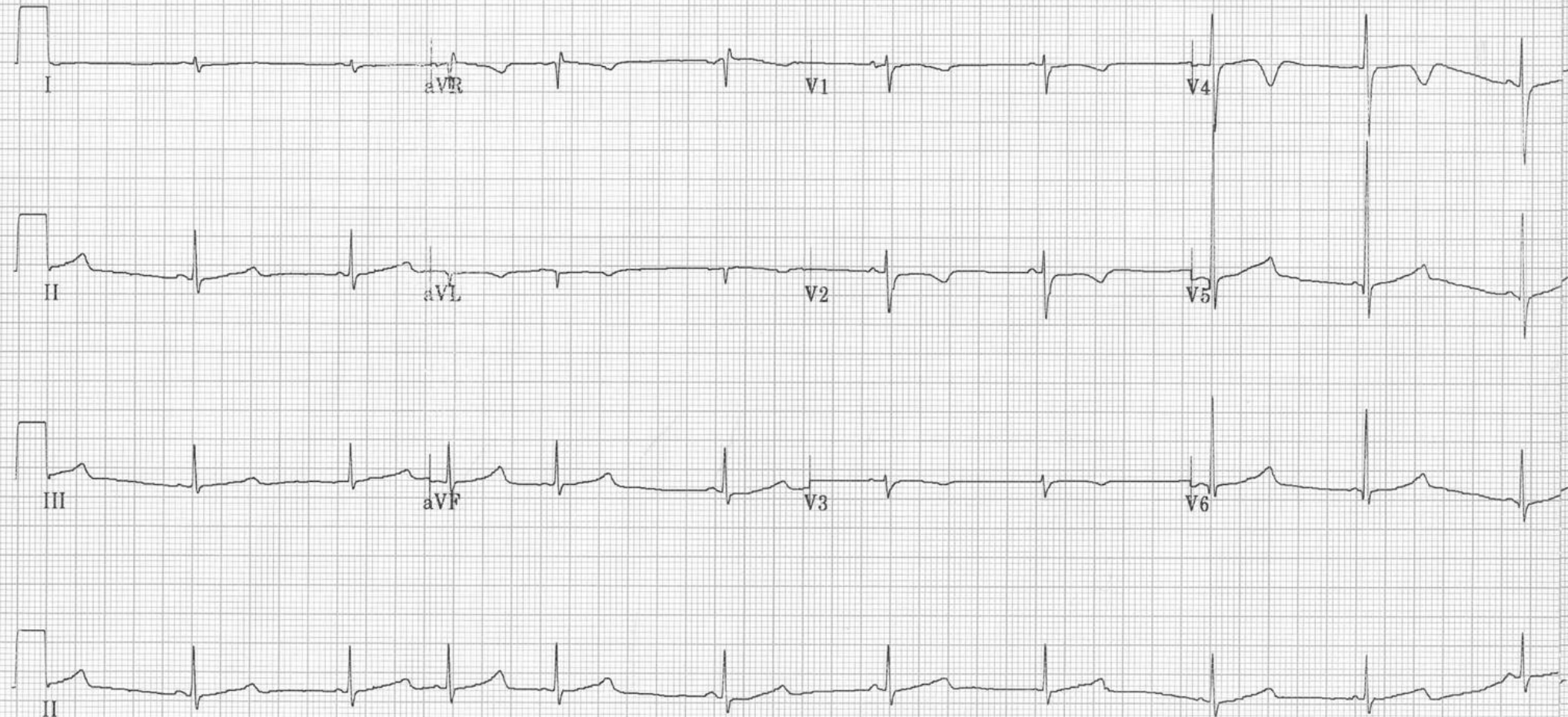
Sinus bradycardia with sinus arrhythmia with fusion complexes
Borderline Prolonged QT



Technician: RC
Test ind:

Referred by: CLARK

Reviewed by:



LQT

History - syncope, seizure

Family hx - SCD?

Meds, ICD, sympathectomy



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