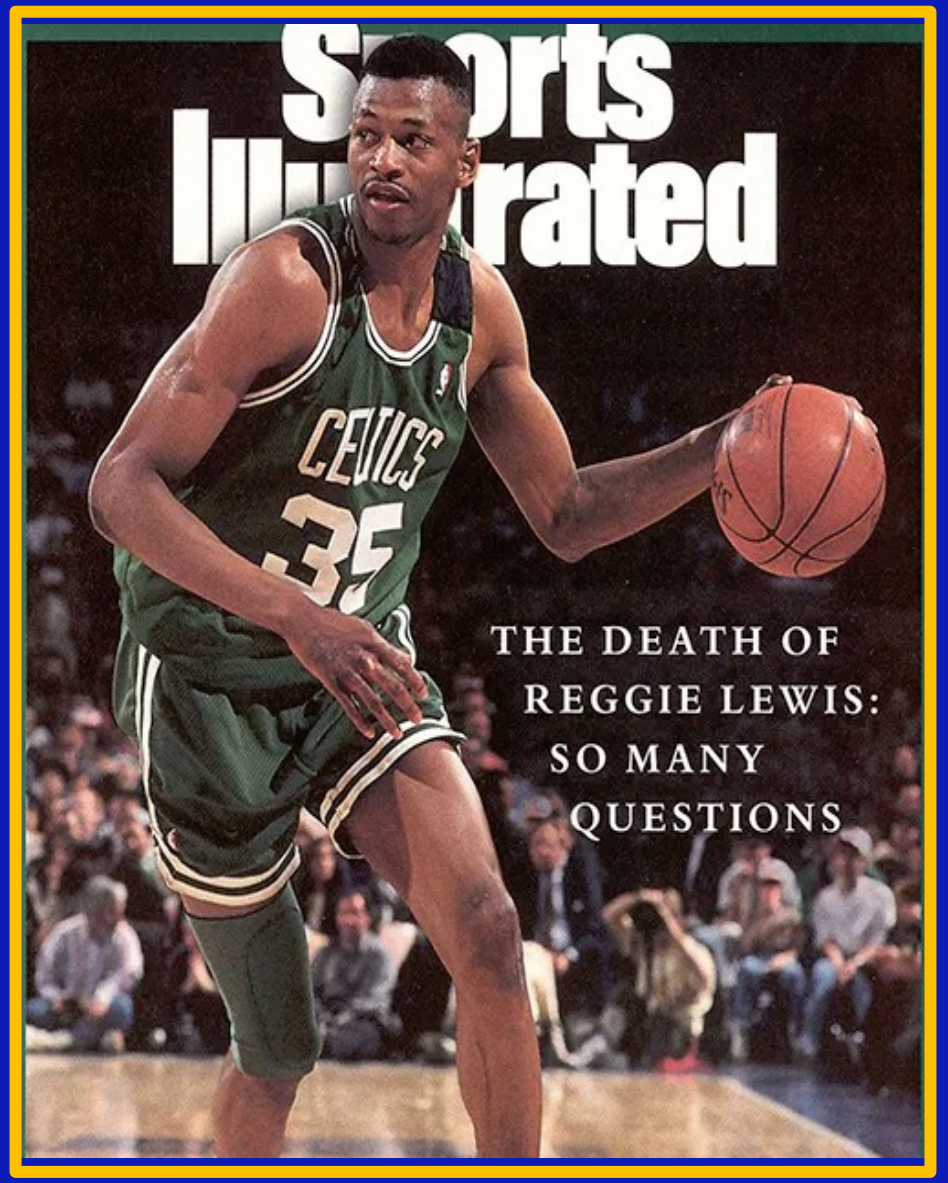
Advanced EKGs

Dr. Ross MacKenzie FRCP(C), FACC, FAAIM

Jumbo Cases

Sudden Death

Difficult Conversations



ECG Dilemmas Facing the Med. Director

Group 1 - Common

- Inf. Q's, PRWP, ?LVH, BBB, ?T's, ERP
- Low – normal mortality risk
- Late mortality
- ECG pattern overlaps with normal pattern

ECG Dilemmas Facing the Med. Director

Group 2 - Rare

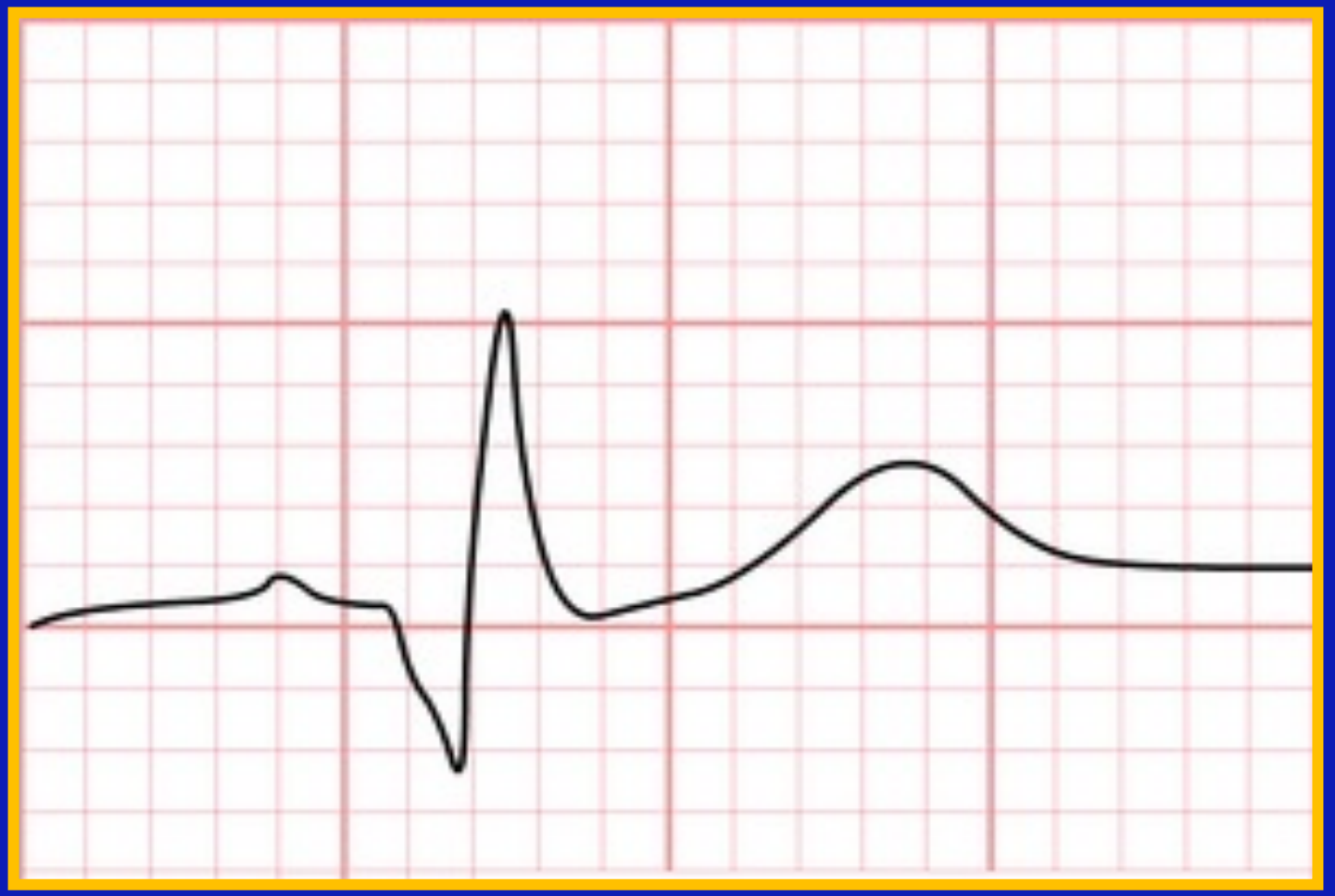
- Brugada, LQTS, ARVC, HCM
- High risk
- Early mortality
- Distinct ECG pattern

Advanced EKGs - Breakout Session

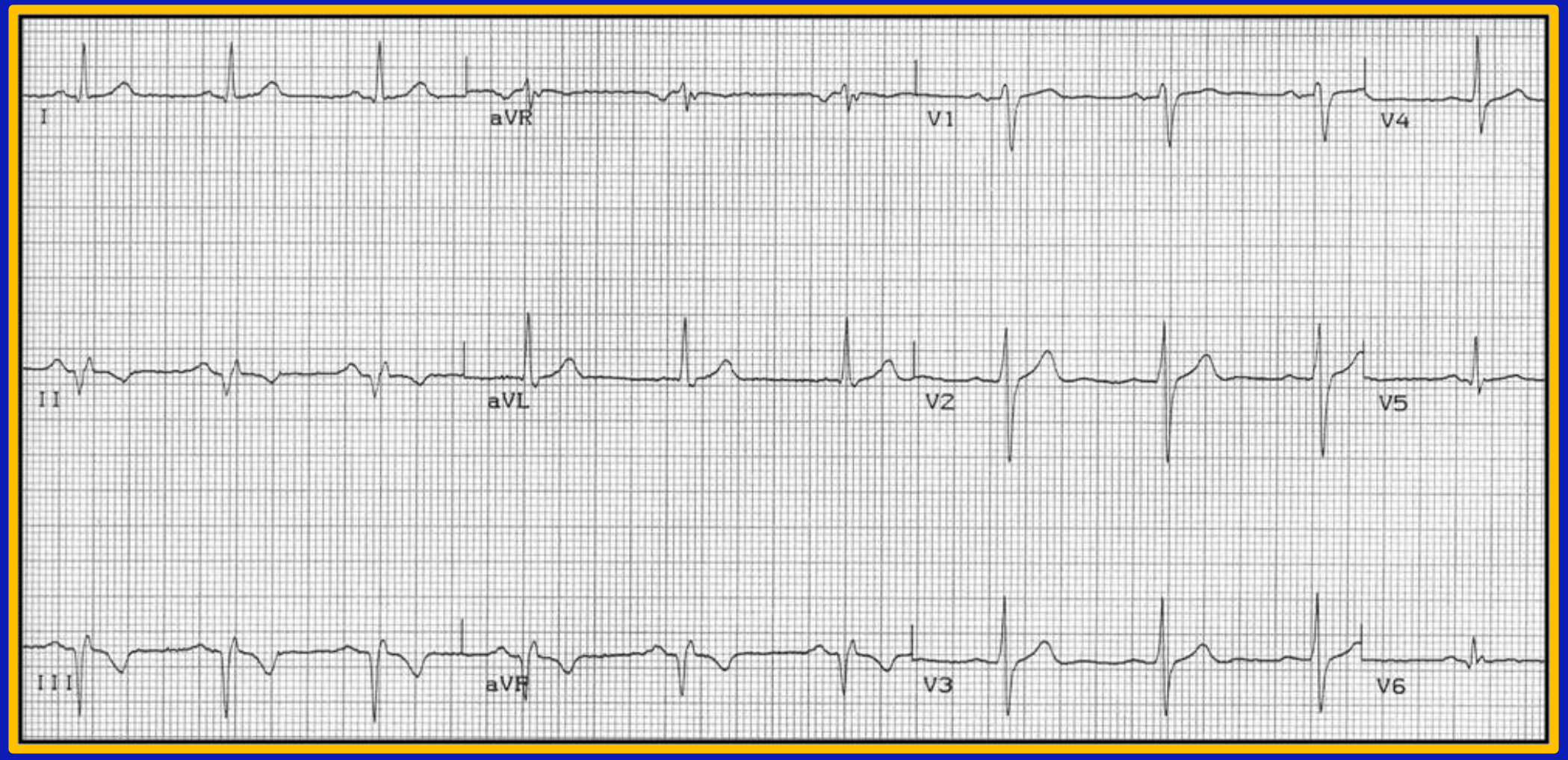
Plan:

- Common EKG risk assessment dilemmas
- EKG patterns with high mortality implications
- Focus on EKG morphology

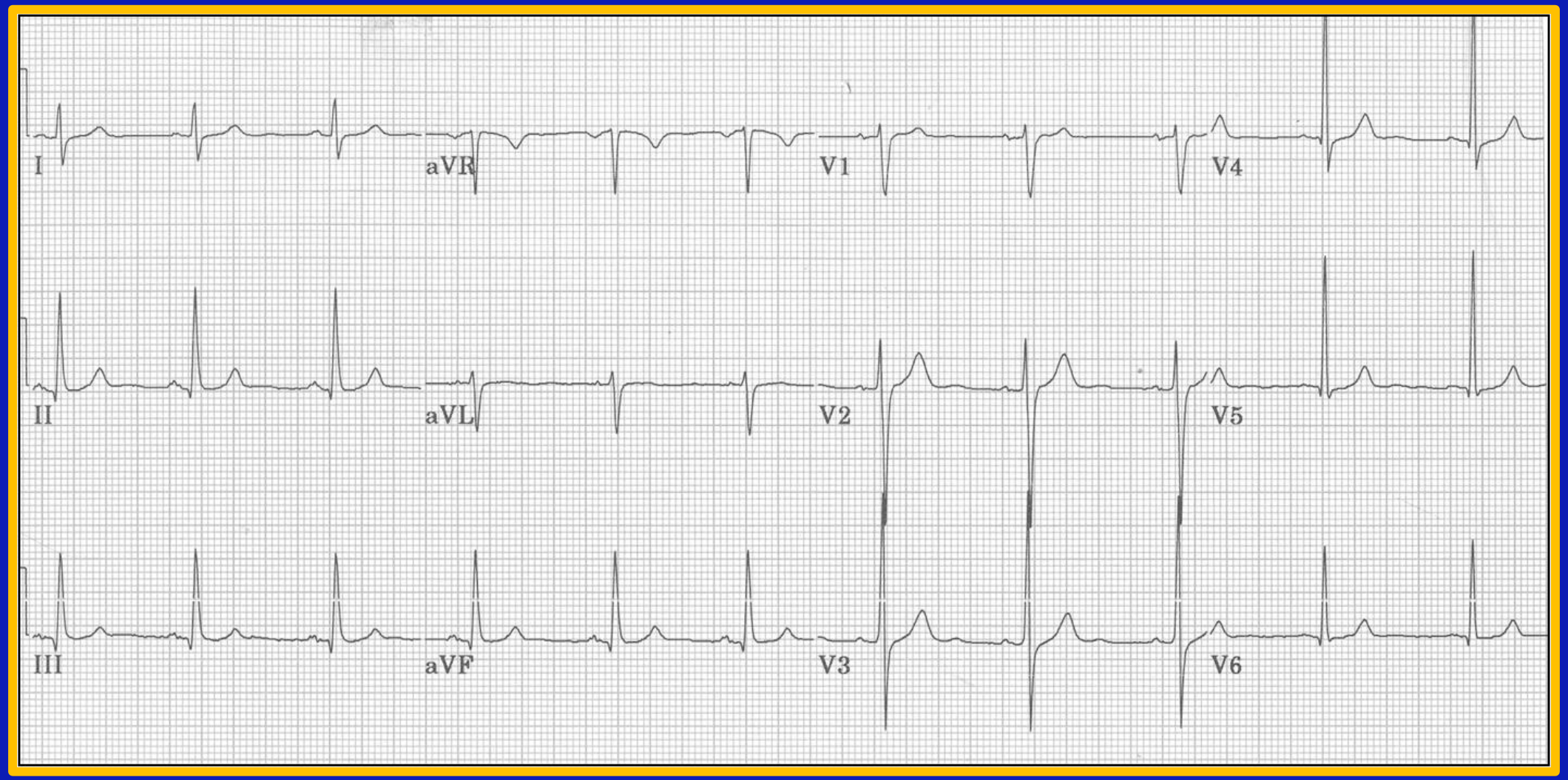
Sorting out inferior Q Waves



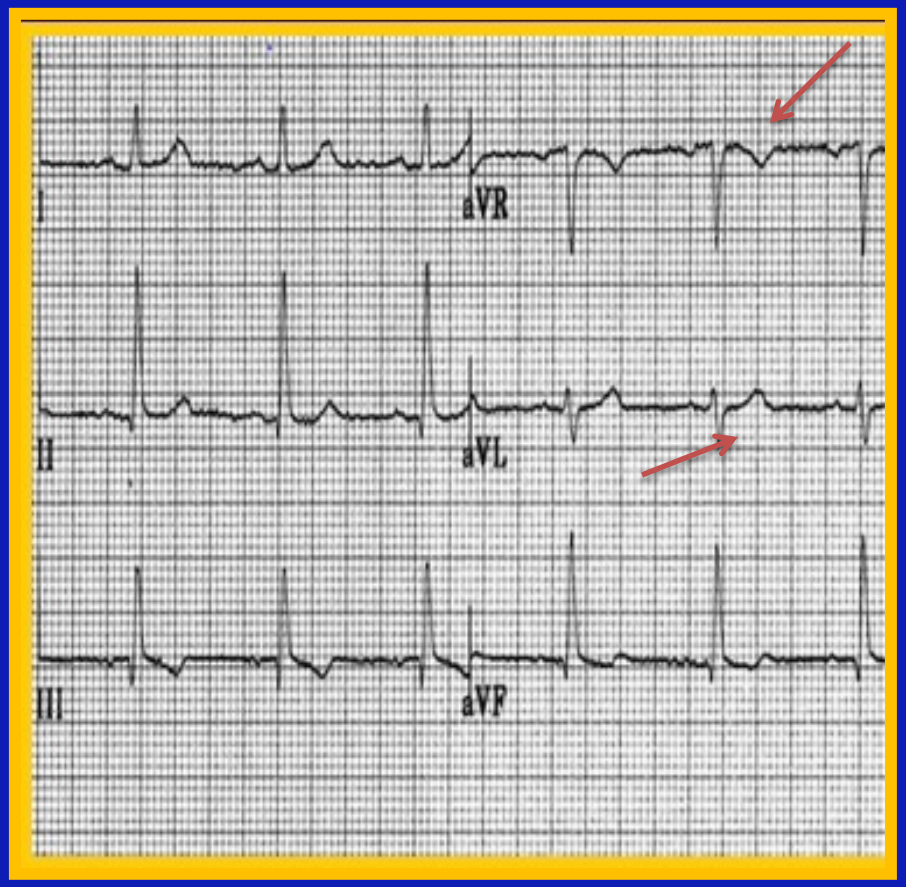
Recent Inferior Myocardial Infarction



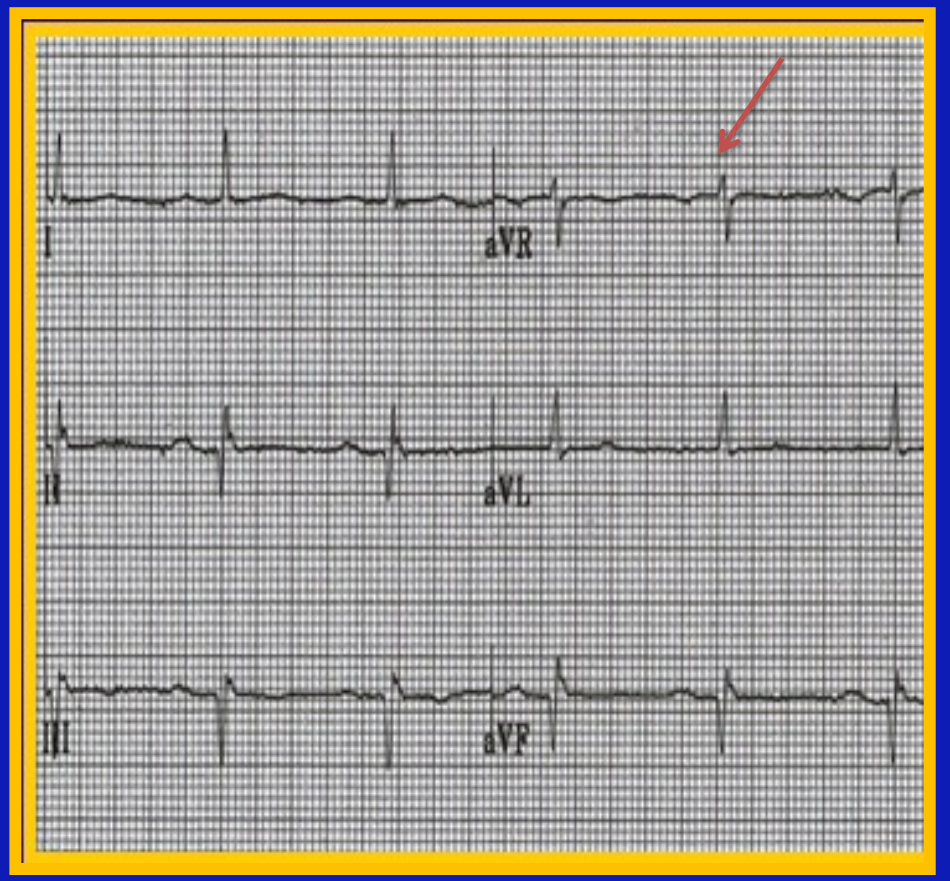
Normal EKG – Septal Q Waves



Inferior Q Waves and Lead AVR

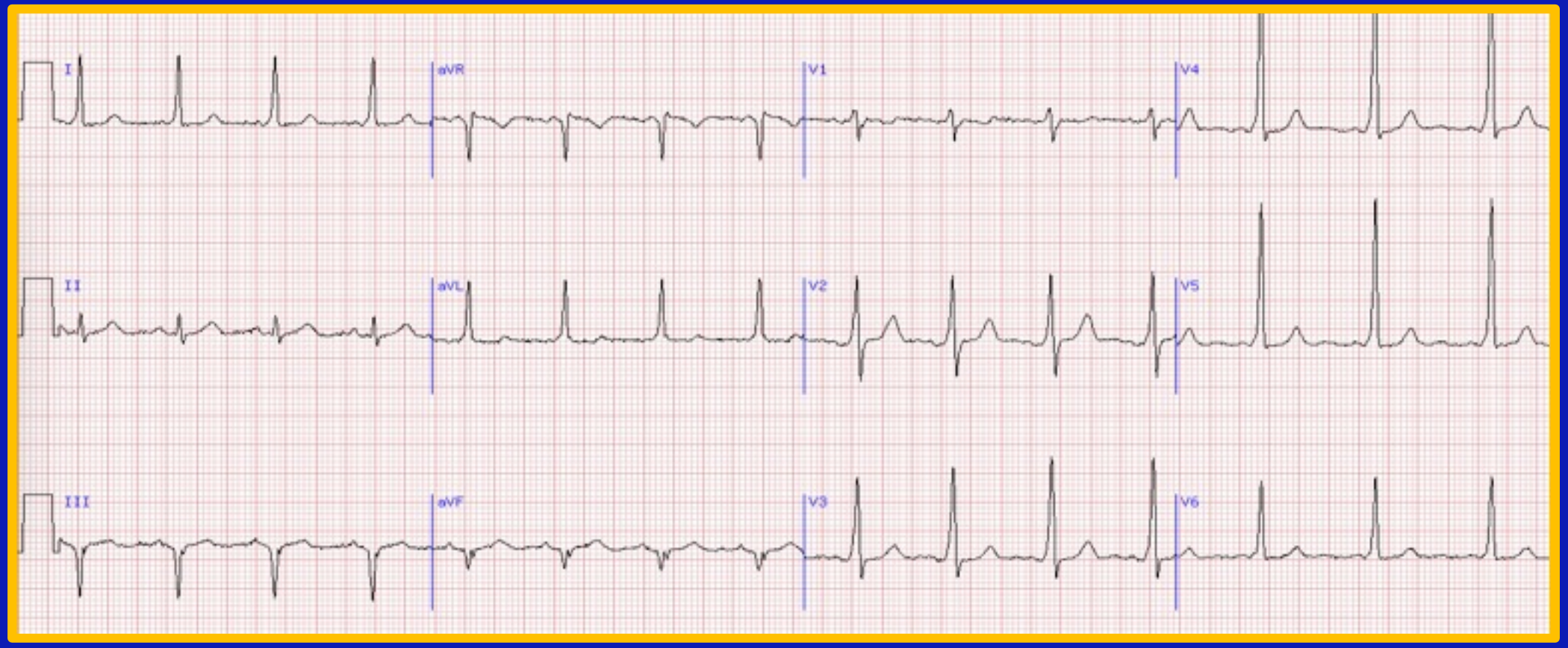


Septal q's – Vertical Axis



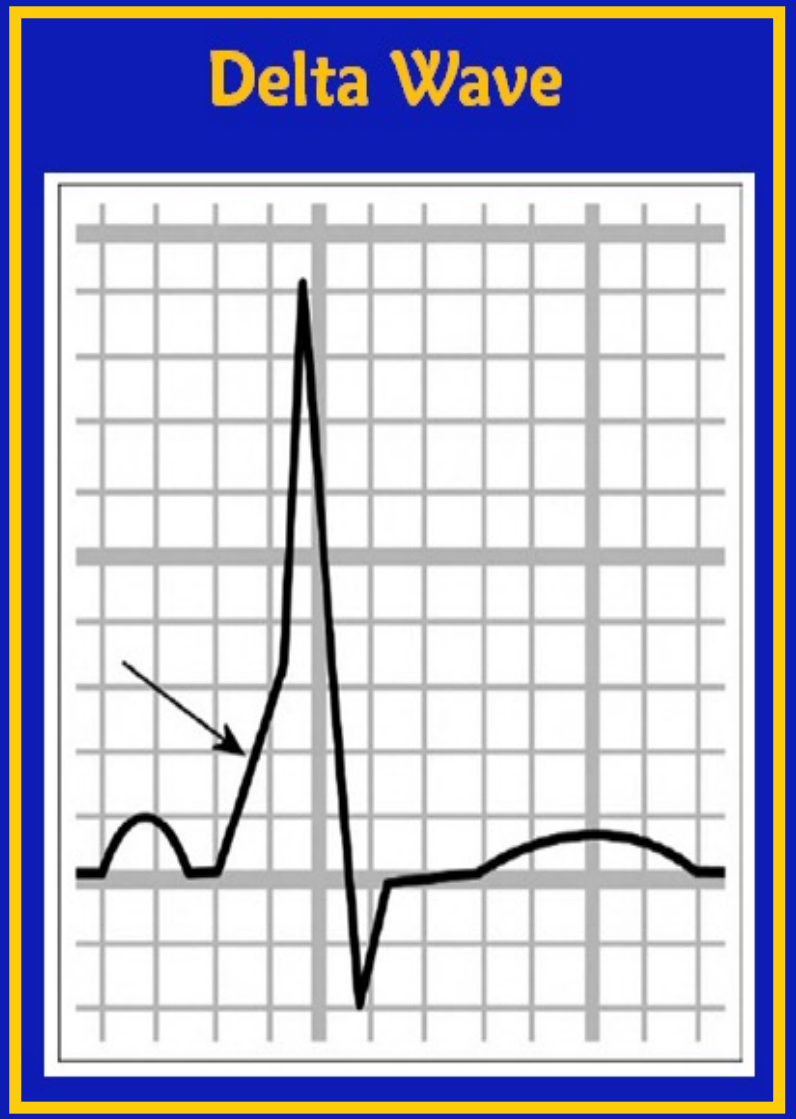
Old Inferior MI

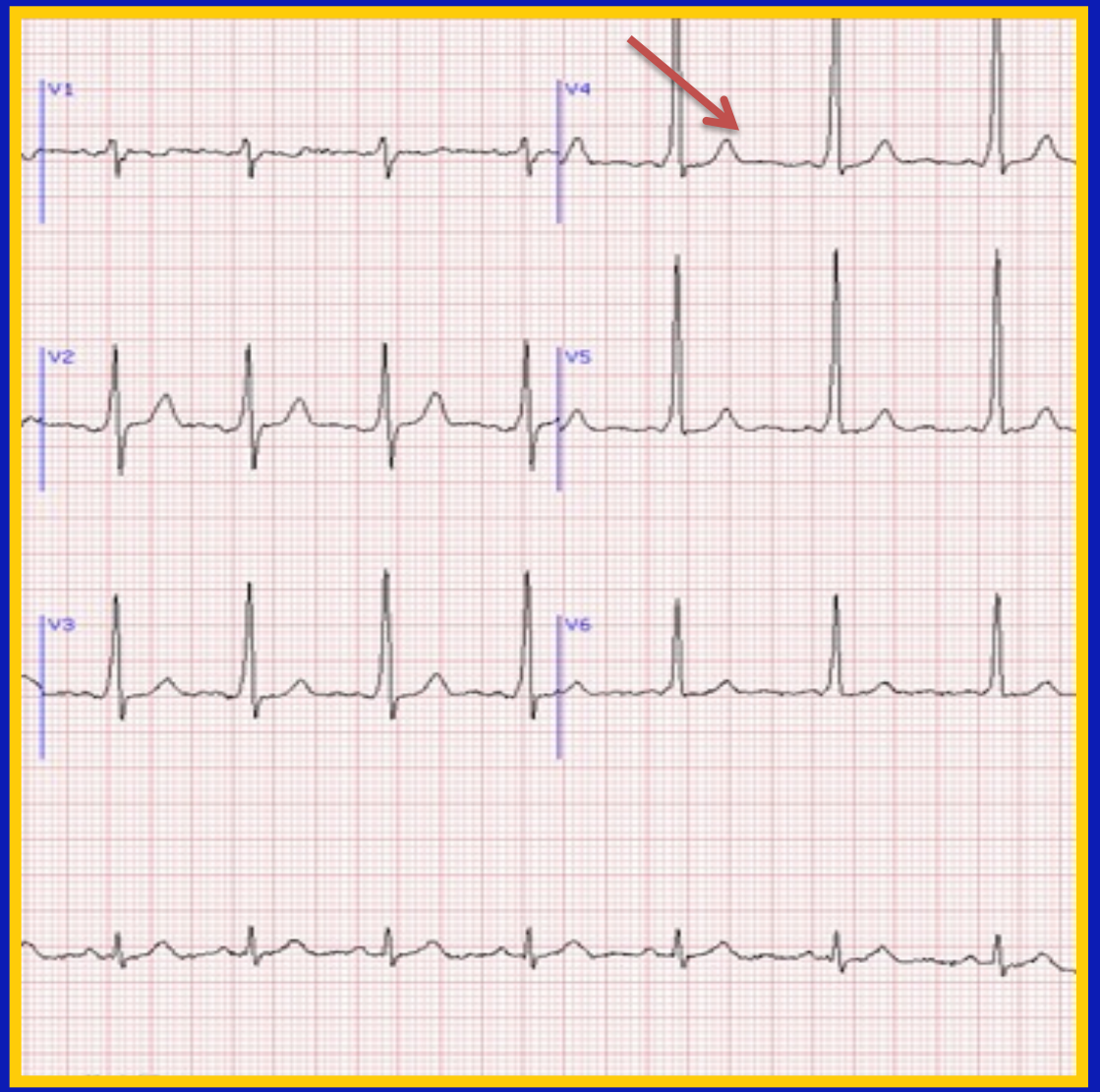
Asymptomatic 40 year old male



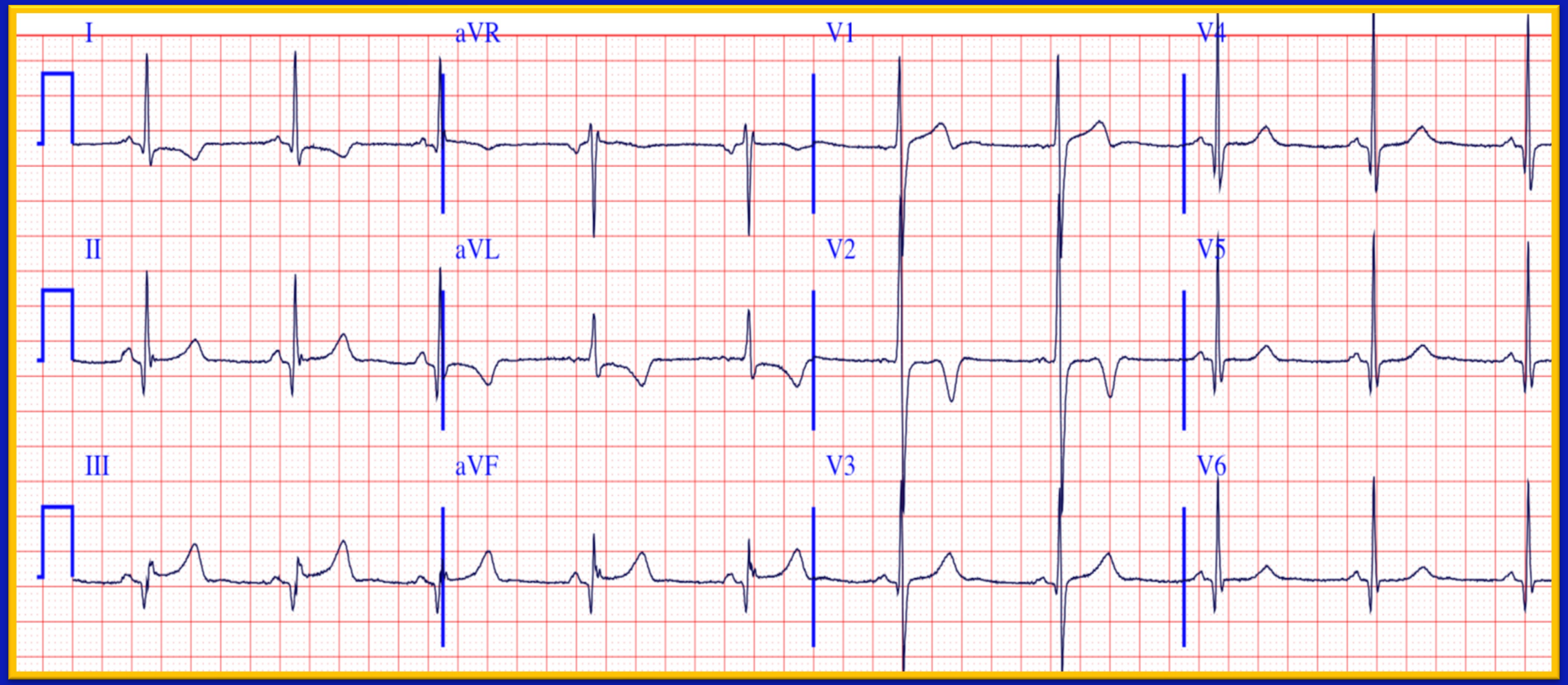
Goldberger AL, et al.
http://ecg.bidmc.harvard.edu.

Wolff Parkinson White Syndrome

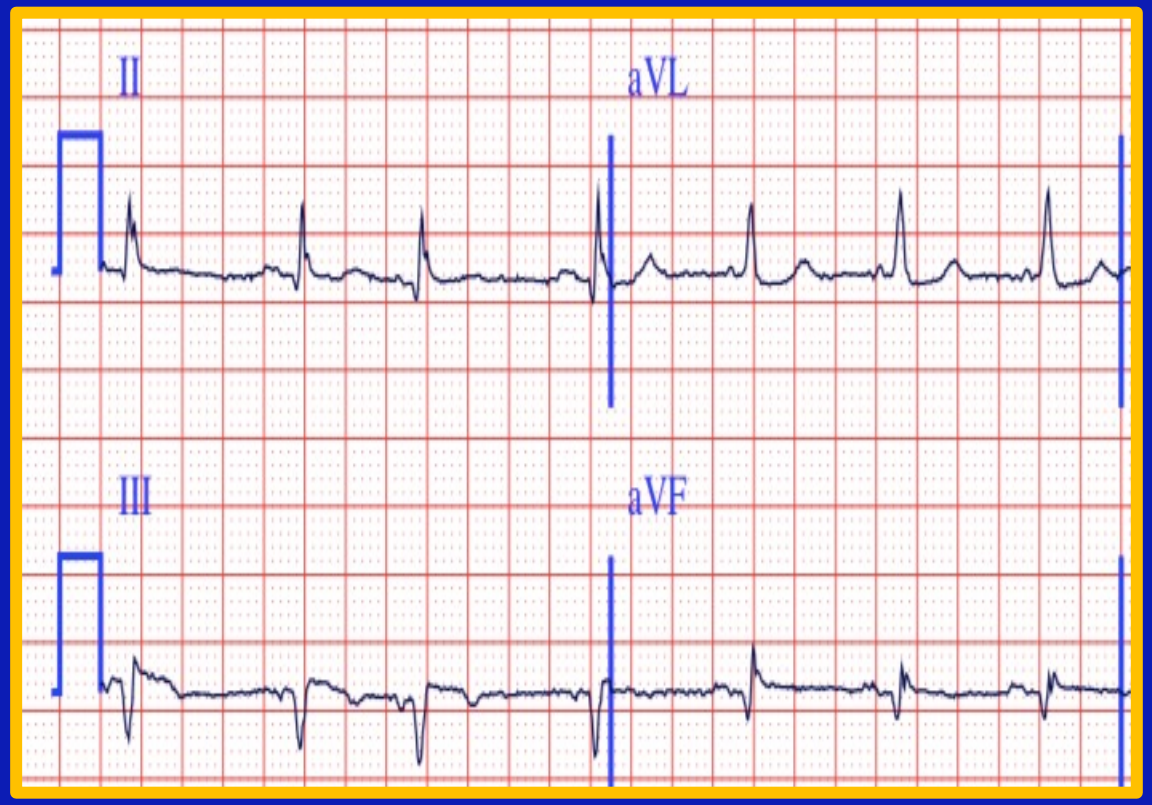




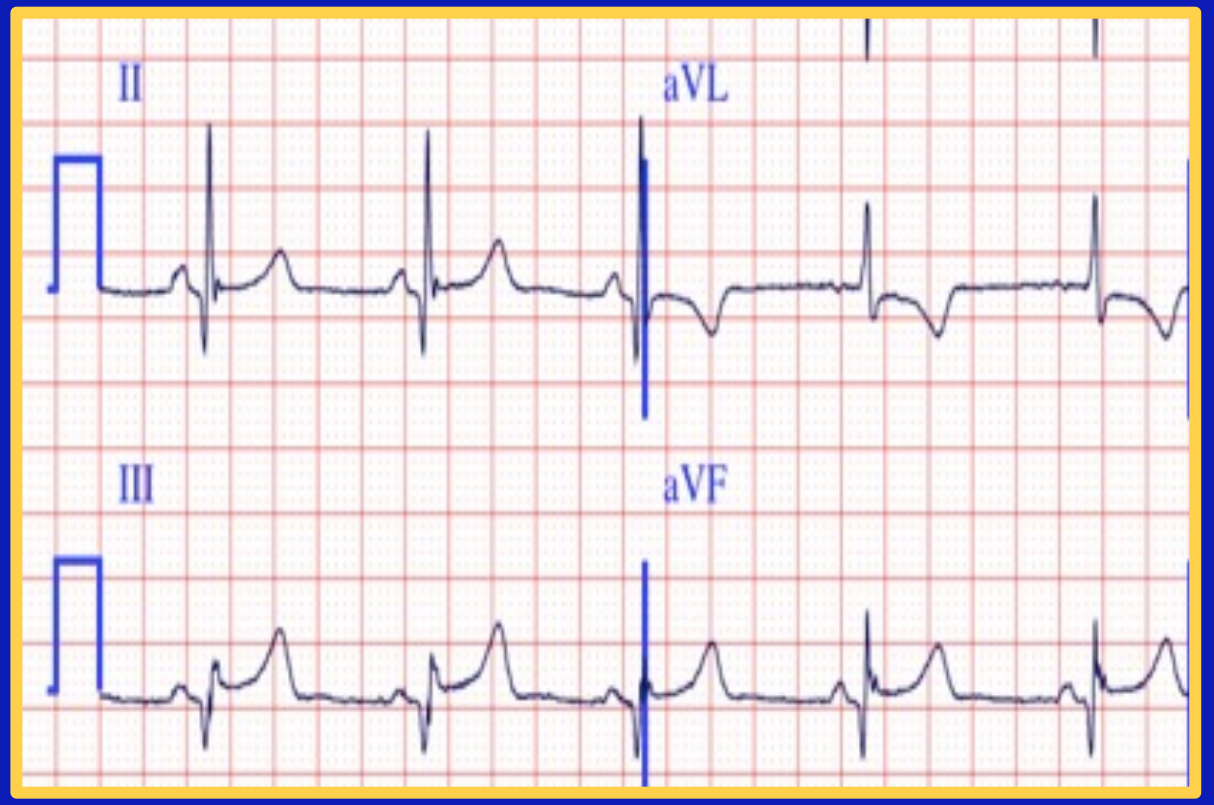
51 y.o. asymptomatic male hardware store manager



Old inferior MI versus hypertrophic cardiomyopathy

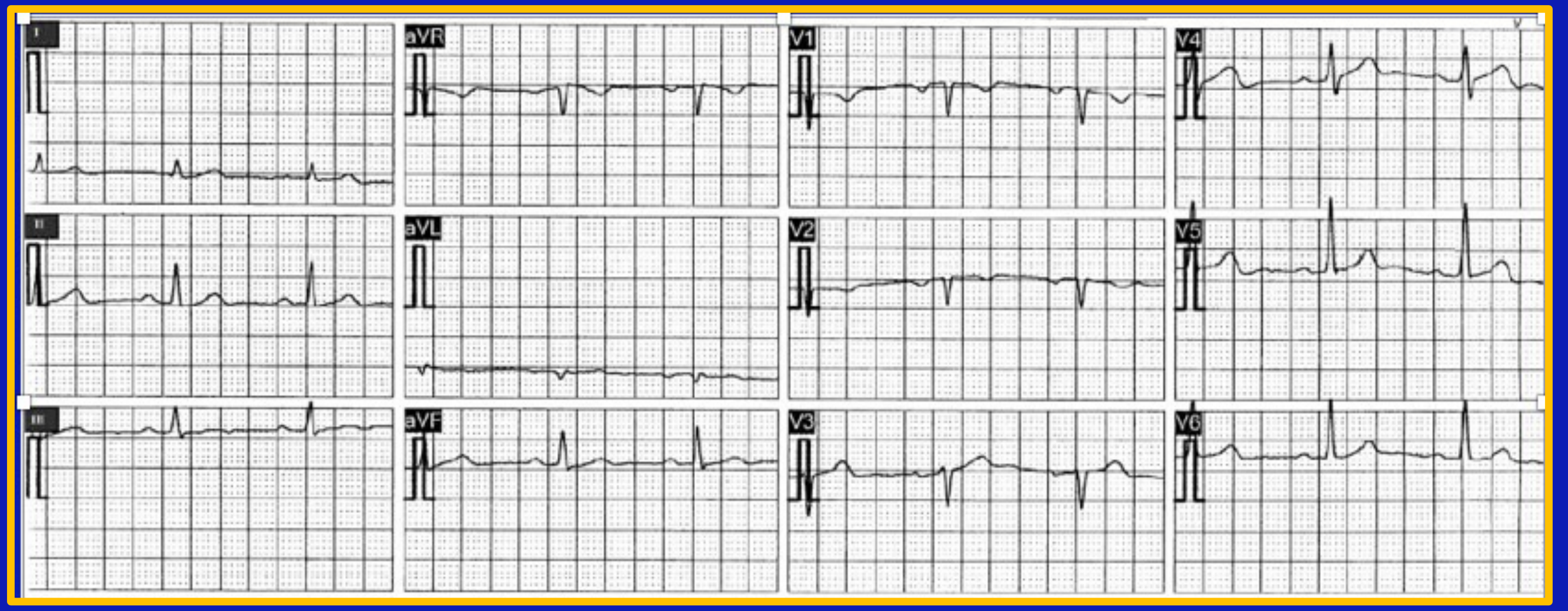


Old Inferior MI

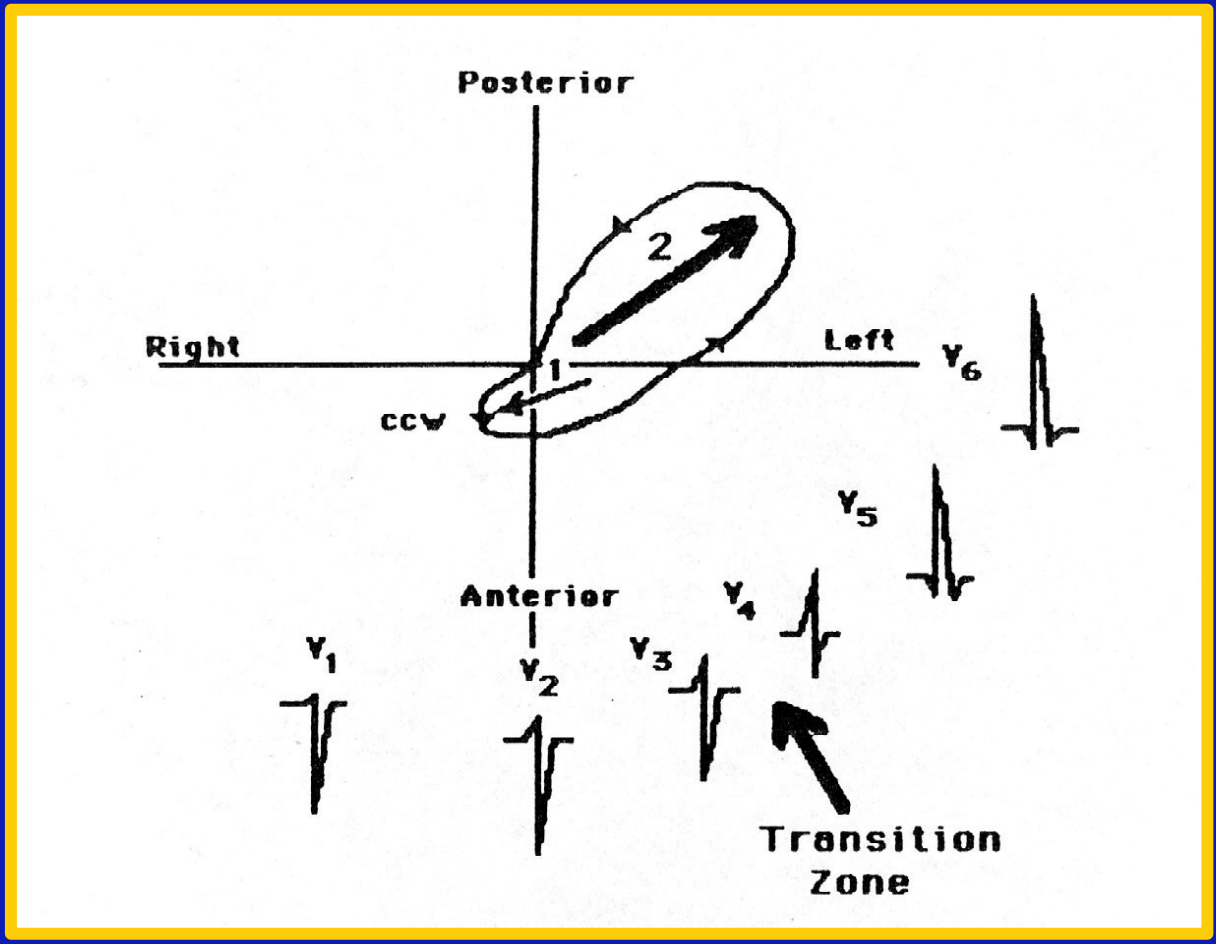


Hypertrophic CM

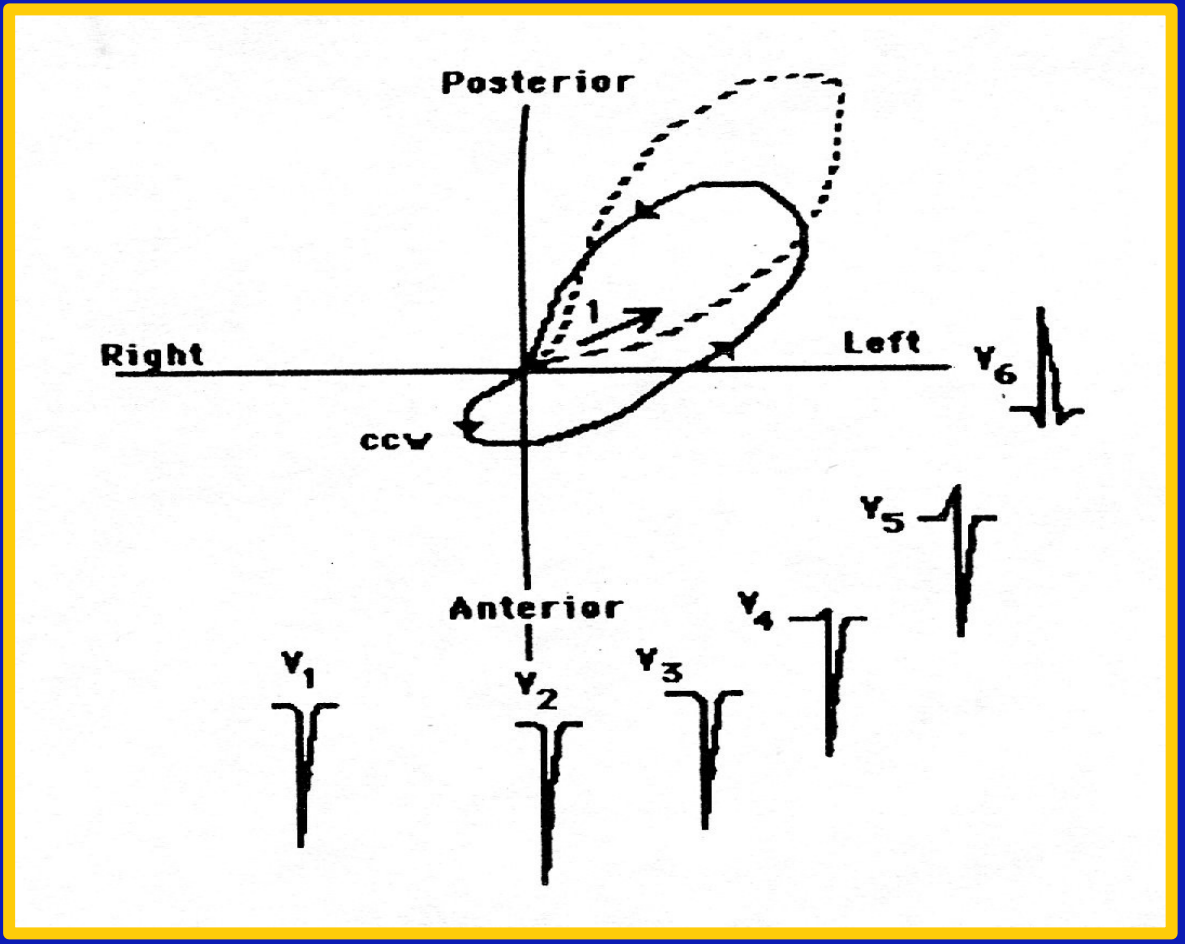
44 year old asymptomatic obese female
Old anteroseptal MI?



Sorting Out Poor R Wave Progression

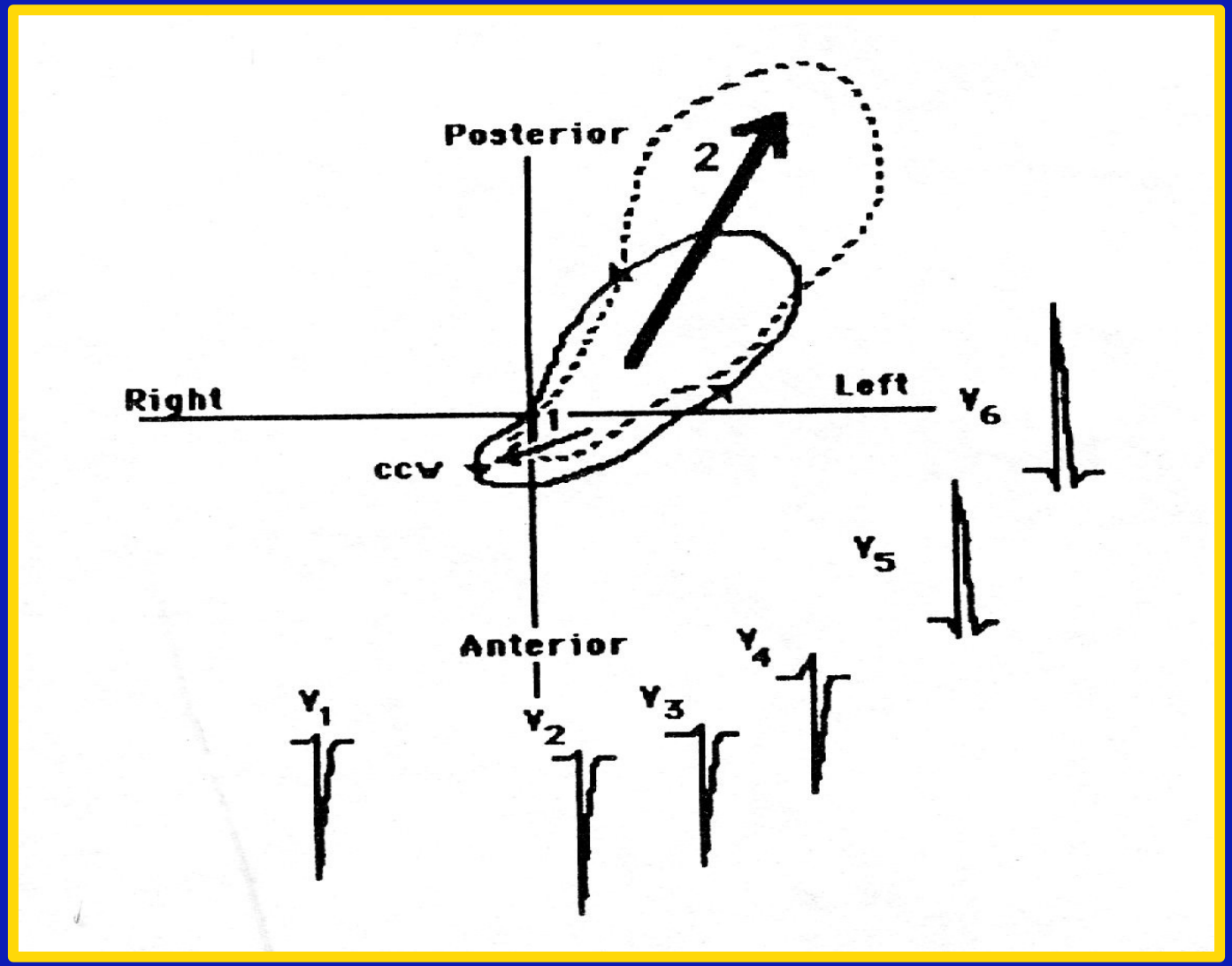


Normal



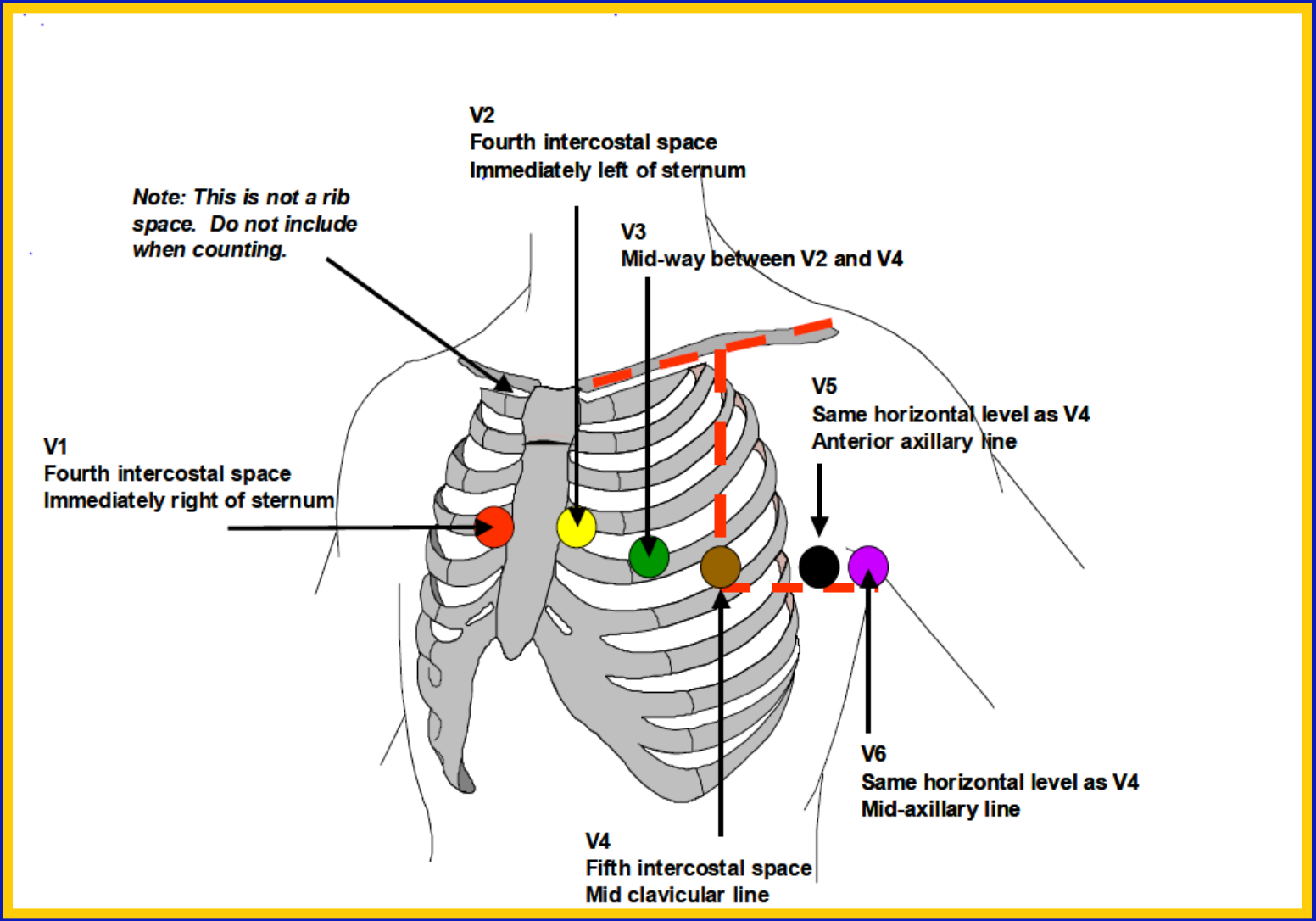
Anteroseptal MI

Left Ventricular Hypertrophy

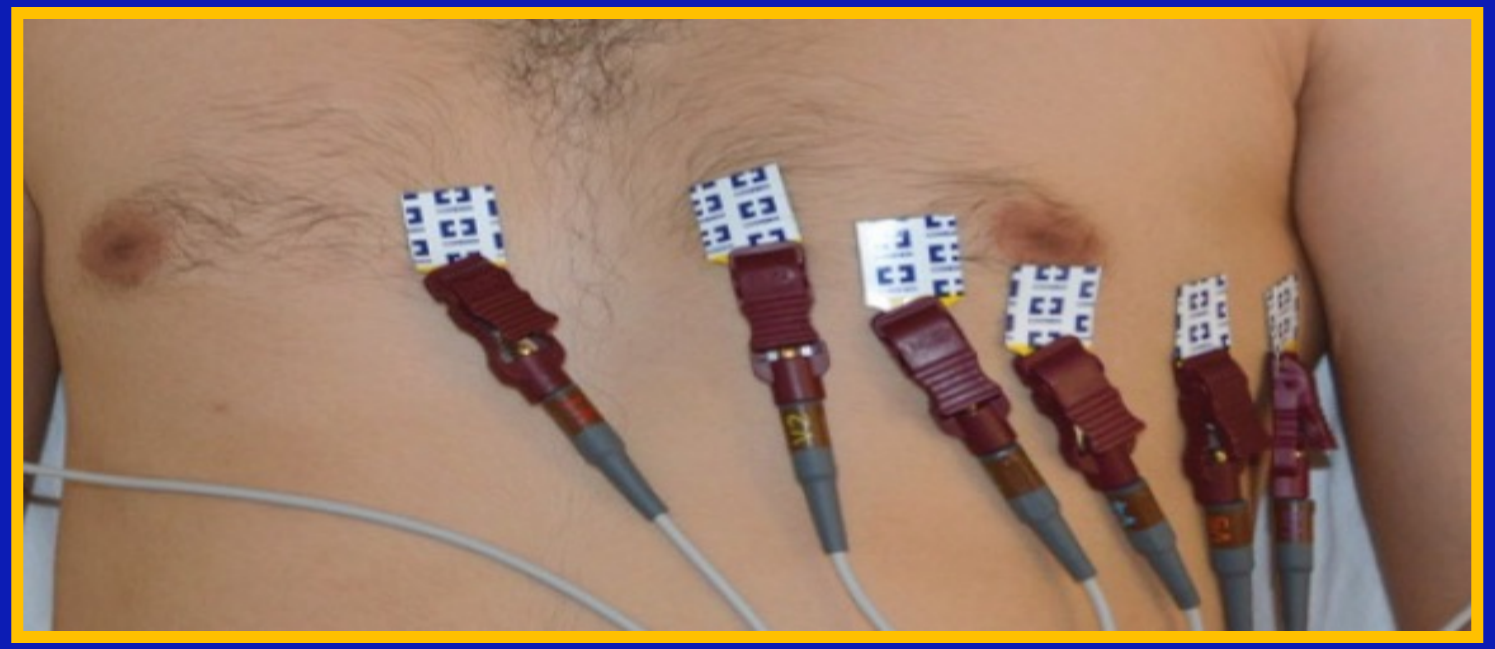


Horizontal Plane

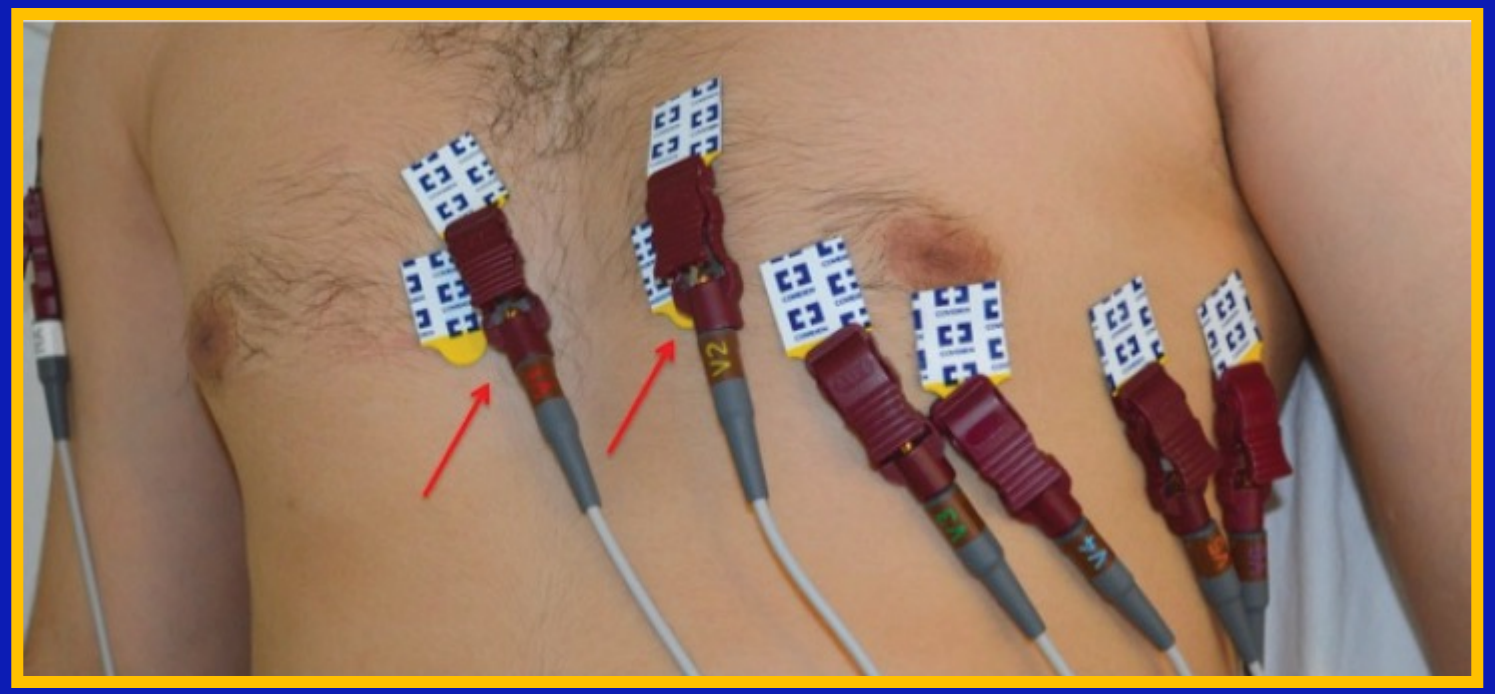
Location of the Chest Leads



Normal
V1 and V2

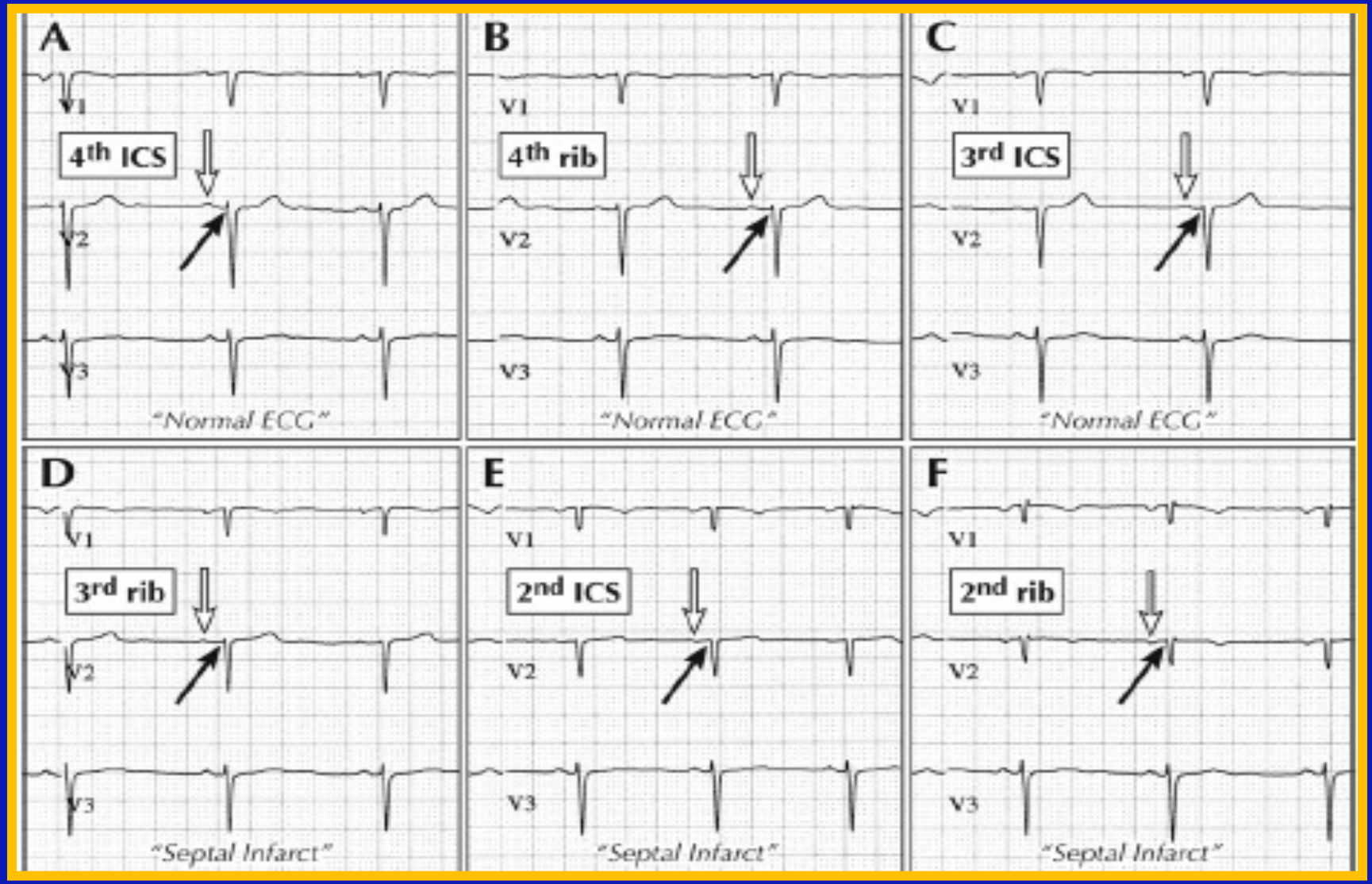


Superior
V1 and V2



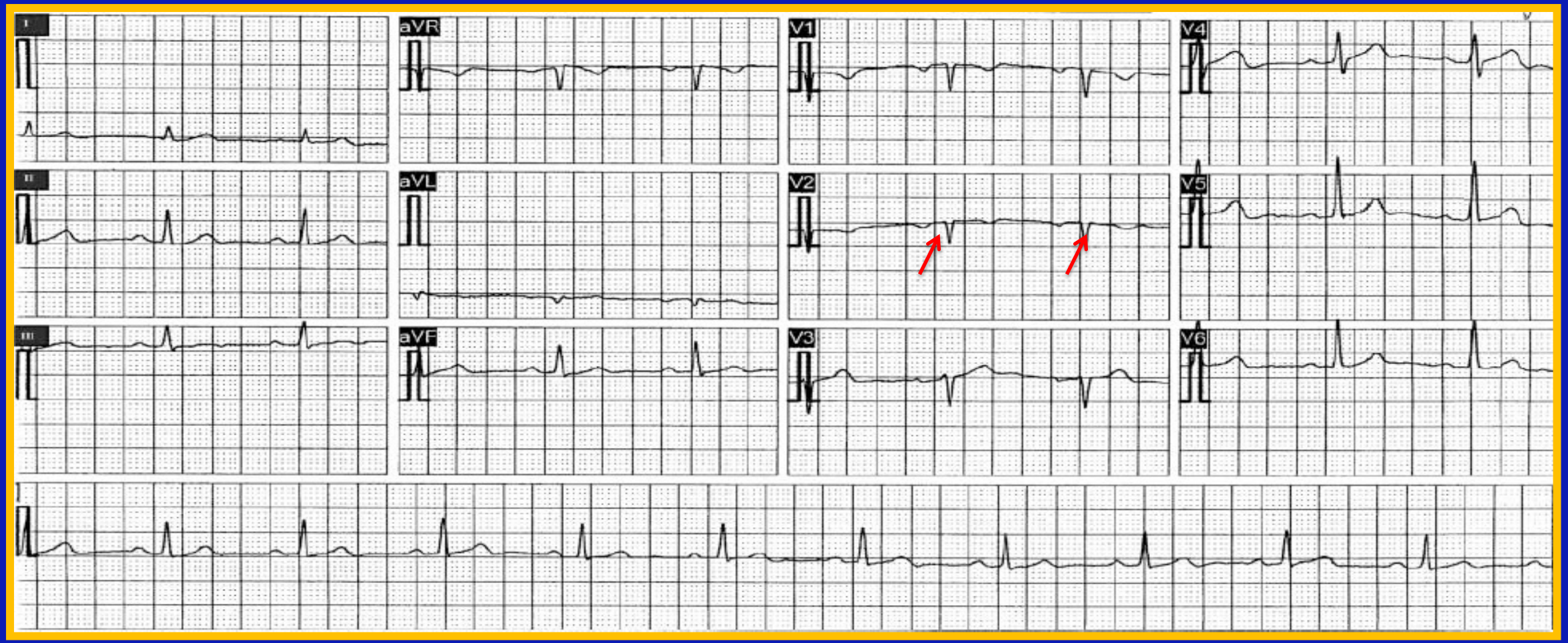
Rosen AV. Int J Med Students • 2014;I 2: 99

Changing P-Wave Morphology in Lead V_2



Ilg KJ, et al, Am J Med 2012; 125:23.

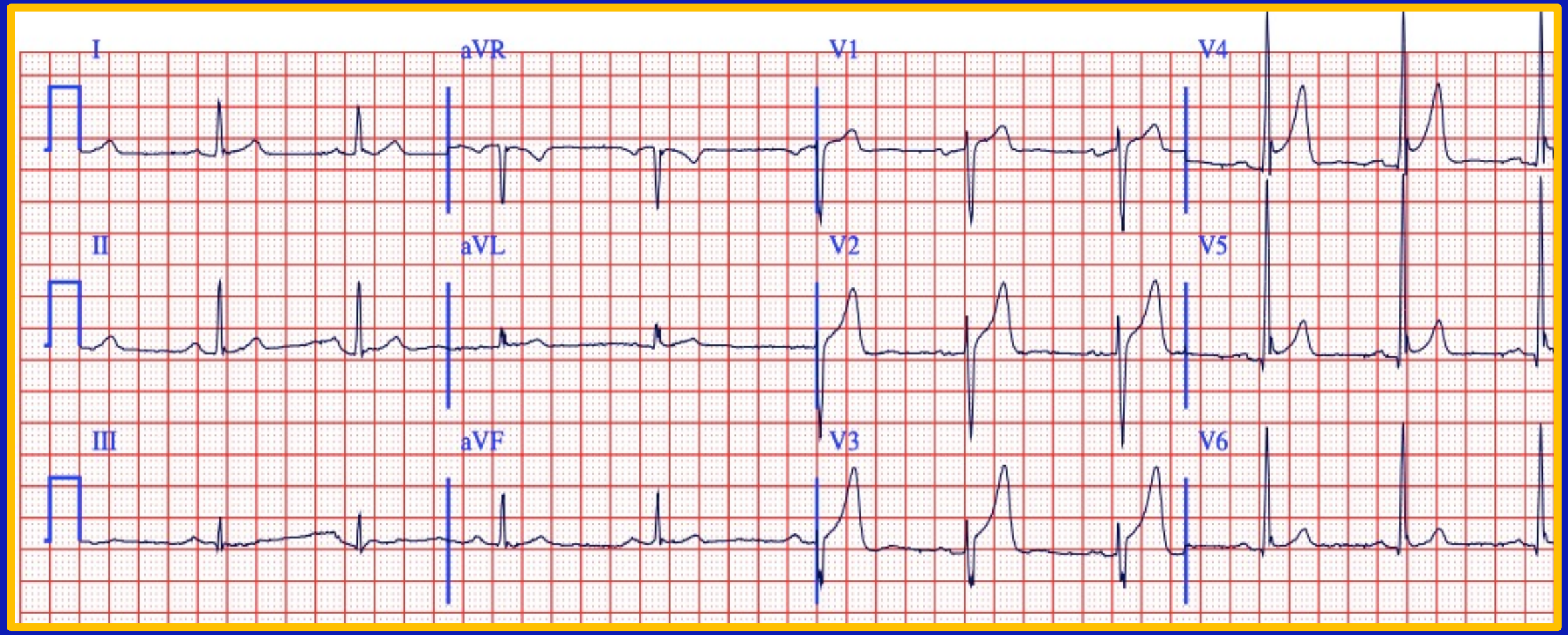
44 y.o. asymptomatic female
Why the poor R wave progression?



What are some other possibilities?

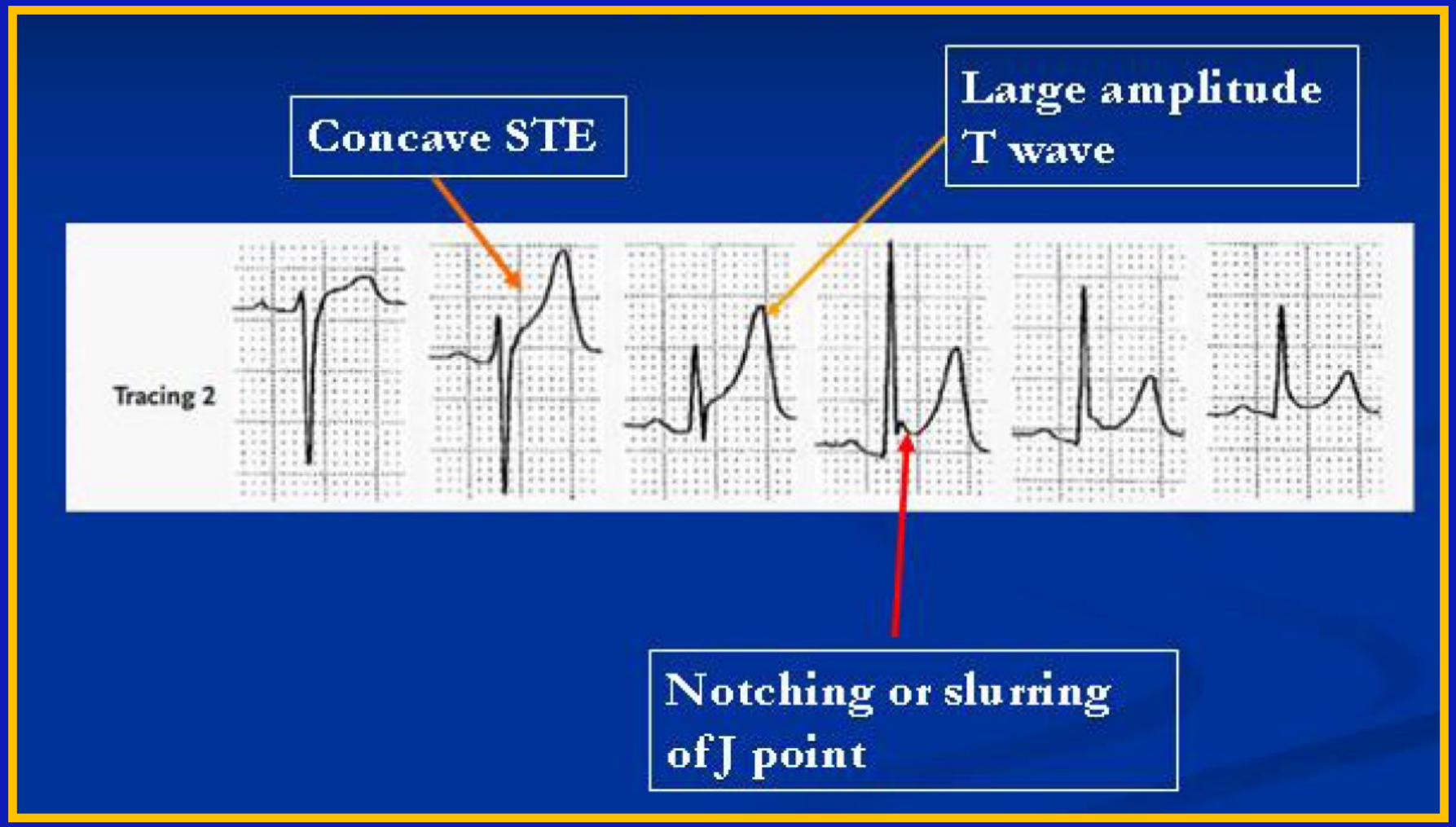
- Old anteroseptal MI
- Left ventricular hypertrophy
- Chronic obstructive pulmonary disease
- Left anterior fascicular block

29 year old son of your company's CEO OK for Everest Expedition?

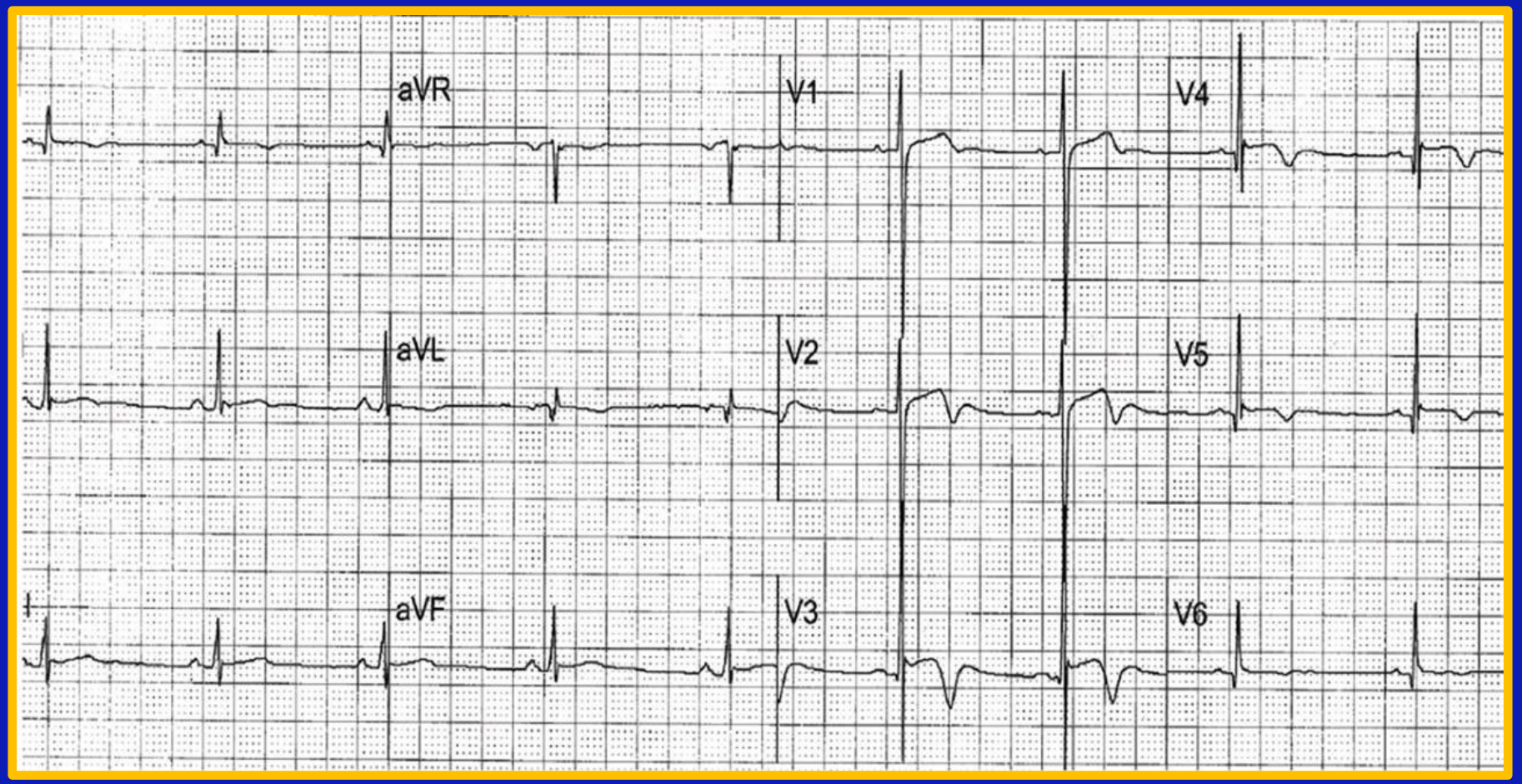


Goldberger AL, et al. ECG Wave-Maven: http://ecg.bidmc.harvard.edu.

Classic Early Repolarization



36 y.o. asym. male college basketball coach
Silent ischemia?

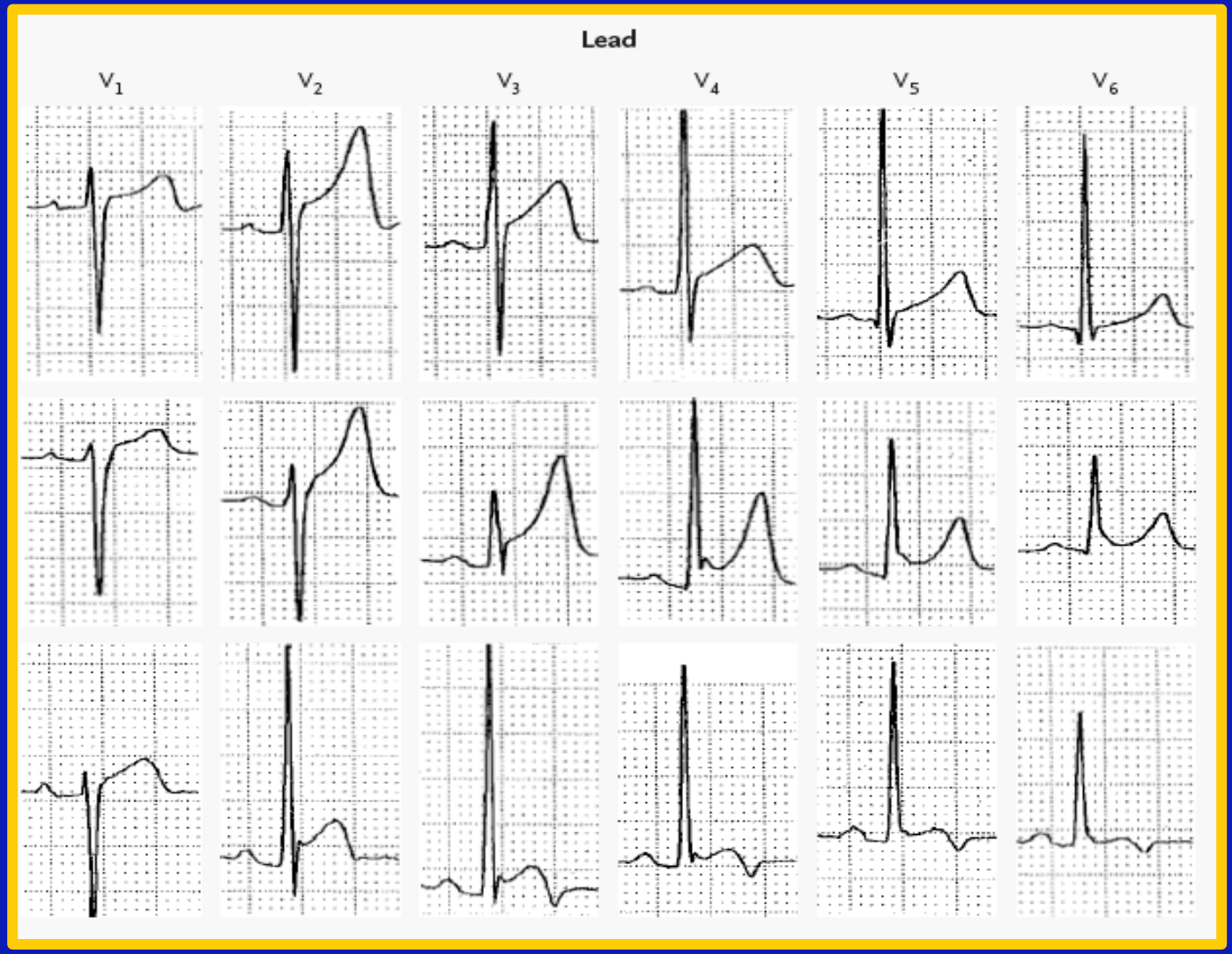


Normal Precordial ST Segment Elevation

Normal Male Pattern

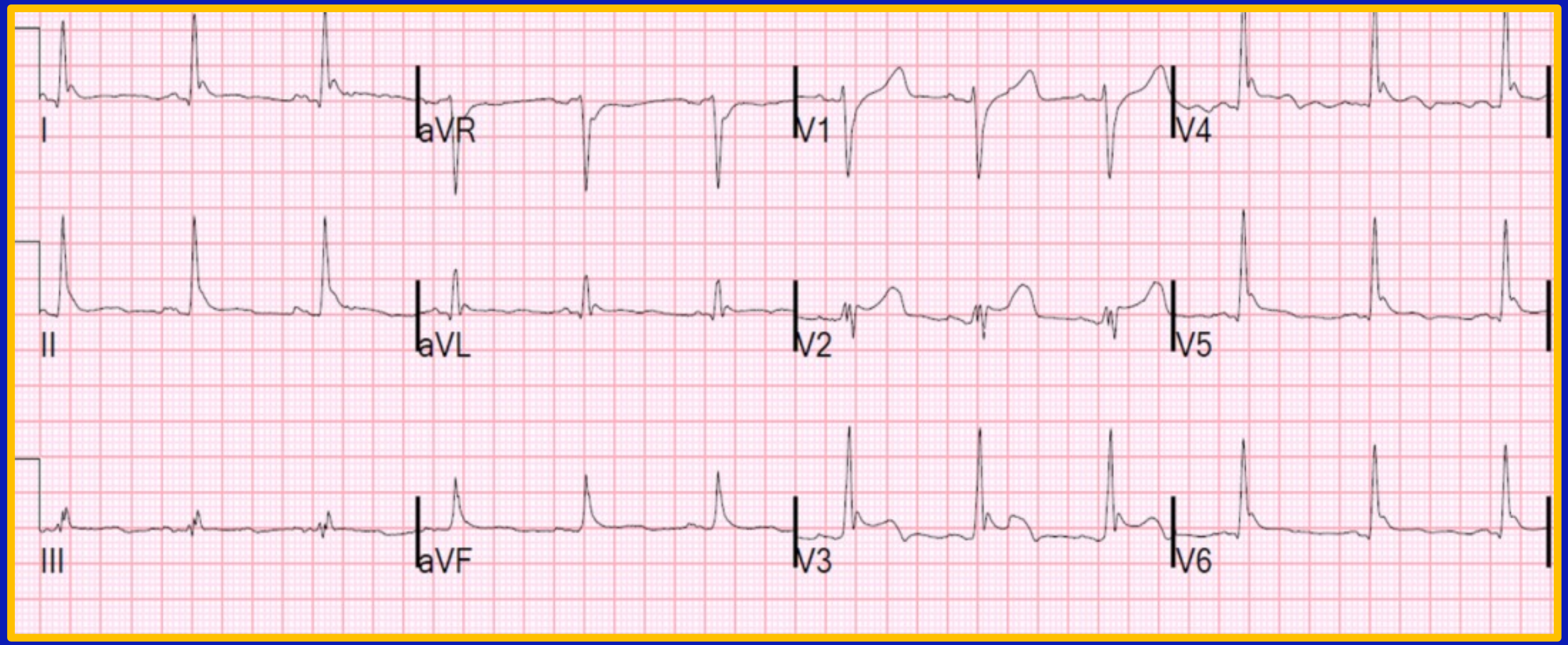
Classic ER

Normal Variant Negative T

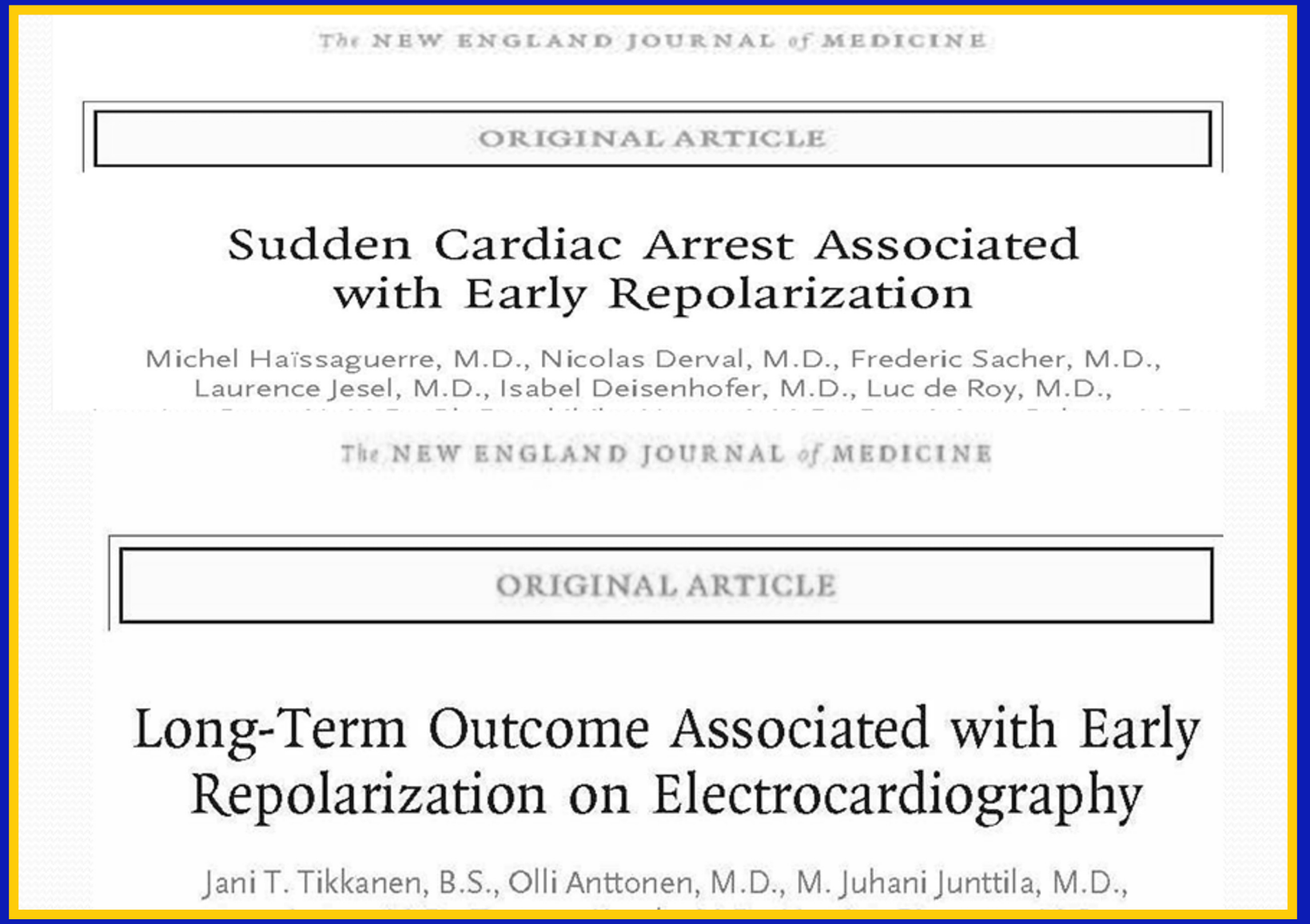


29 y.o. male – screening ECG for Everest attempt

It's your CEO's son – still good to go?



Is early repolarization always benign ?



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Sudden Cardiac Arrest Associated with Early Repolarization

Michel Haïssaguerre, M.D., Nicolas Derval, M.D., Frederic Sacher, M.D., Laurence Jesel, M.D., Isabel Deisenhofer, M.D., Luc de Roy, M.D.,

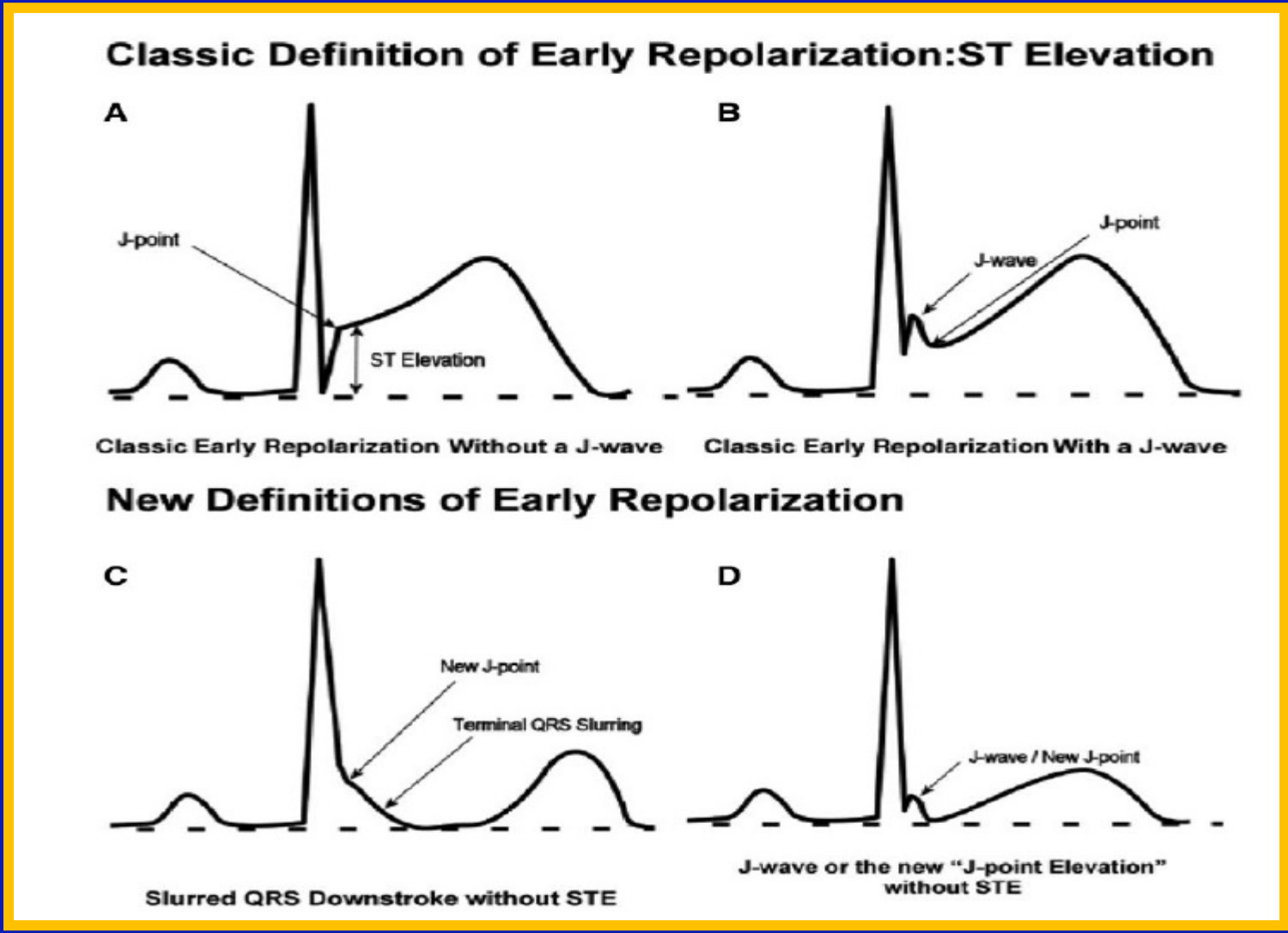
The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Long-Term Outcome Associated with Early Repolarization on Electrocardiography

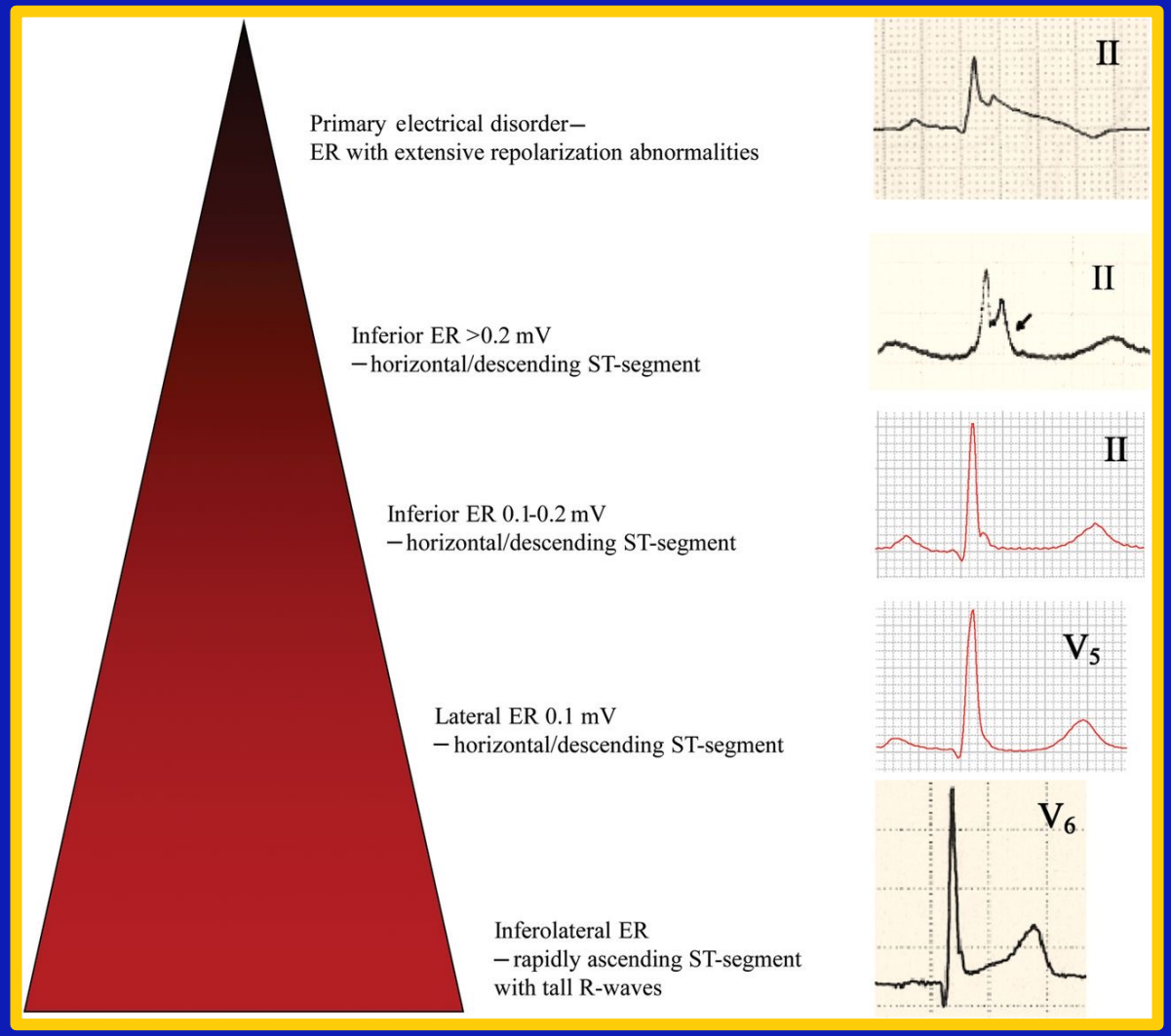
Jani T. Tikkanen, B.S., Olli Anttonen, M.D., M. Juhani Junttila, M.D.,

Changing Definitions of Early Repolarization



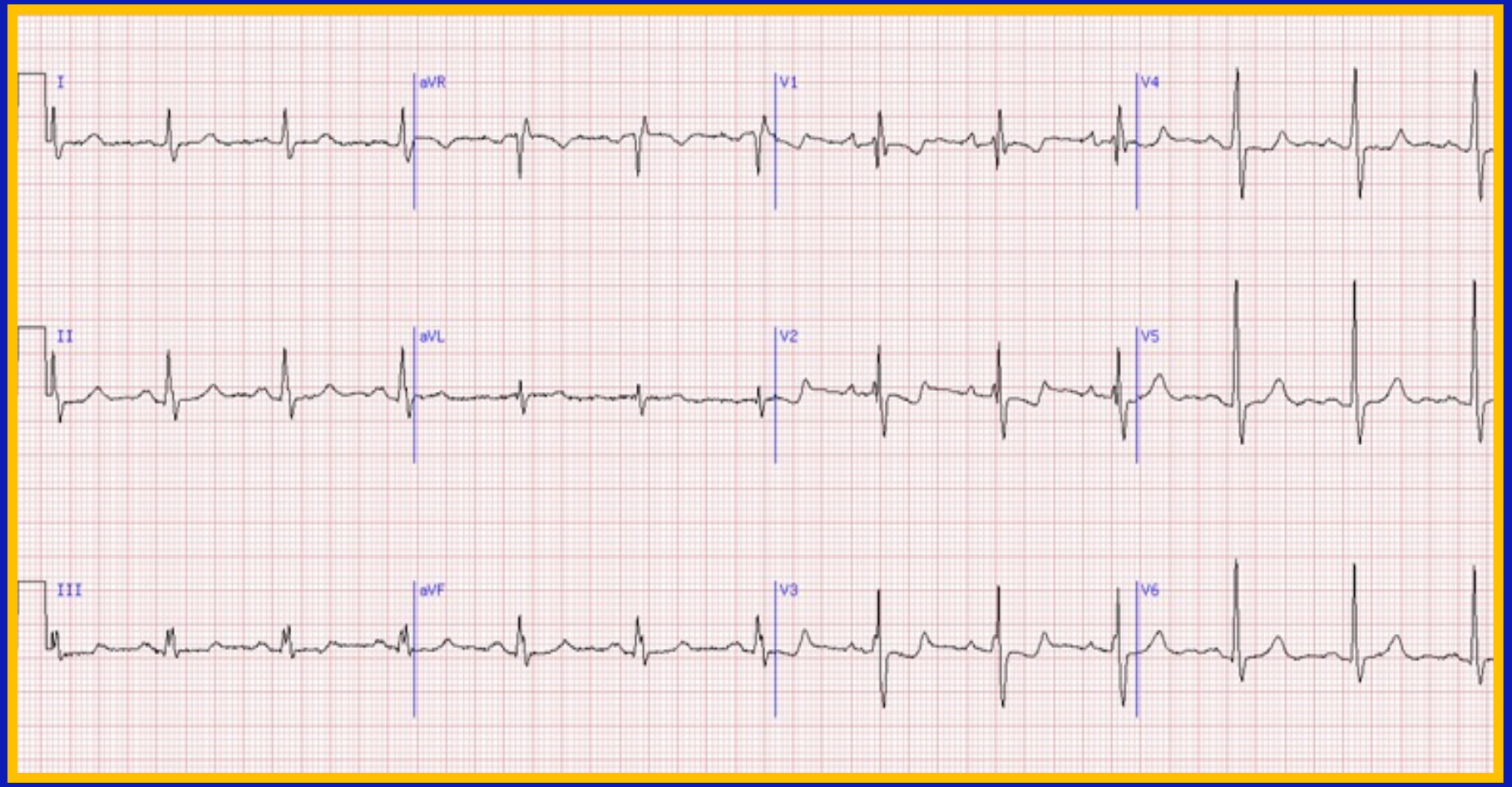
Perez MV,. *Am J Med*. 2012;125:843

Inferolateral early repolarization patterns and magnitude of sudden cardiac death risk

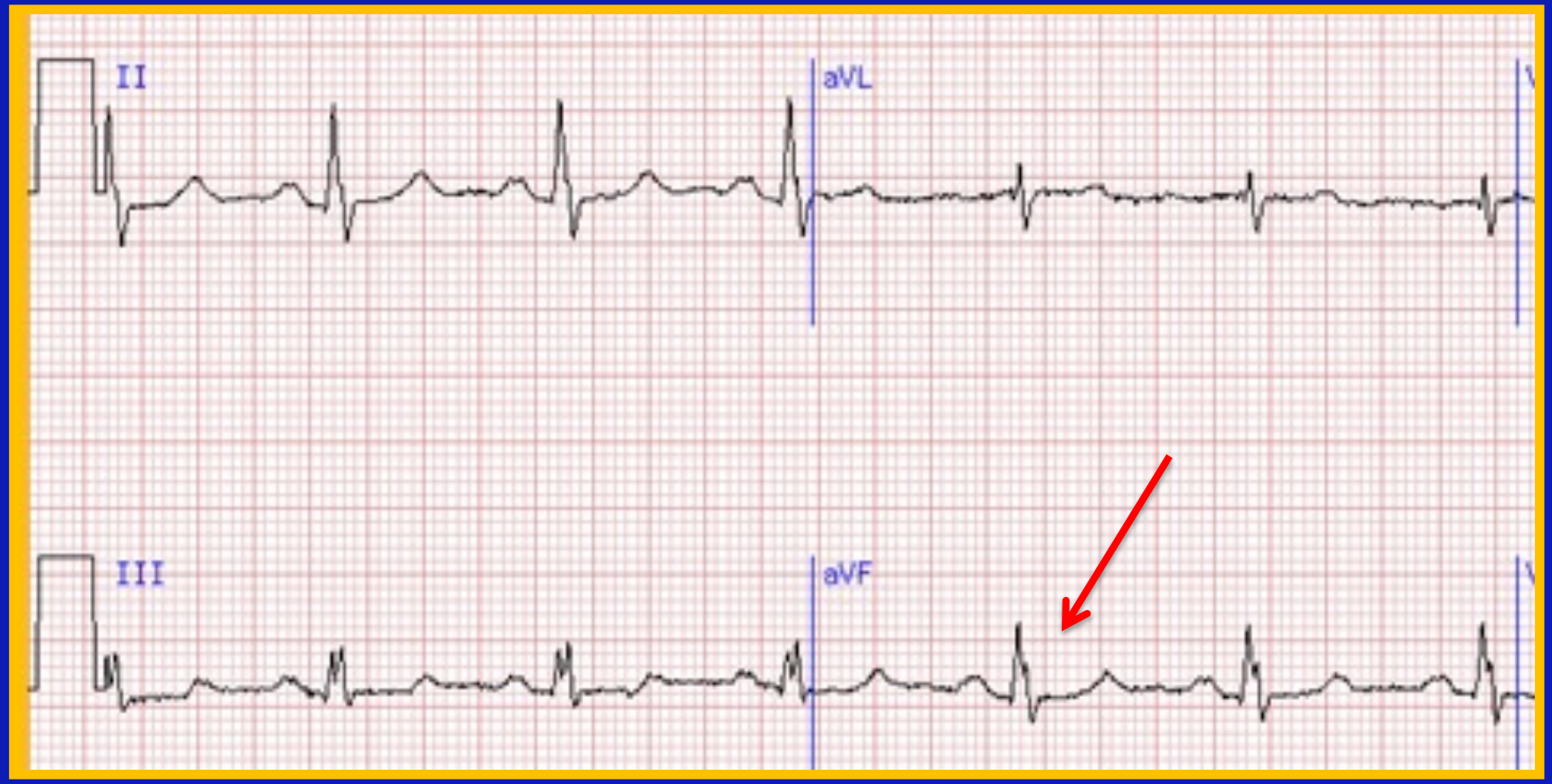


Junttila M J et al. Eur Heart J 2012;33:2639-2643

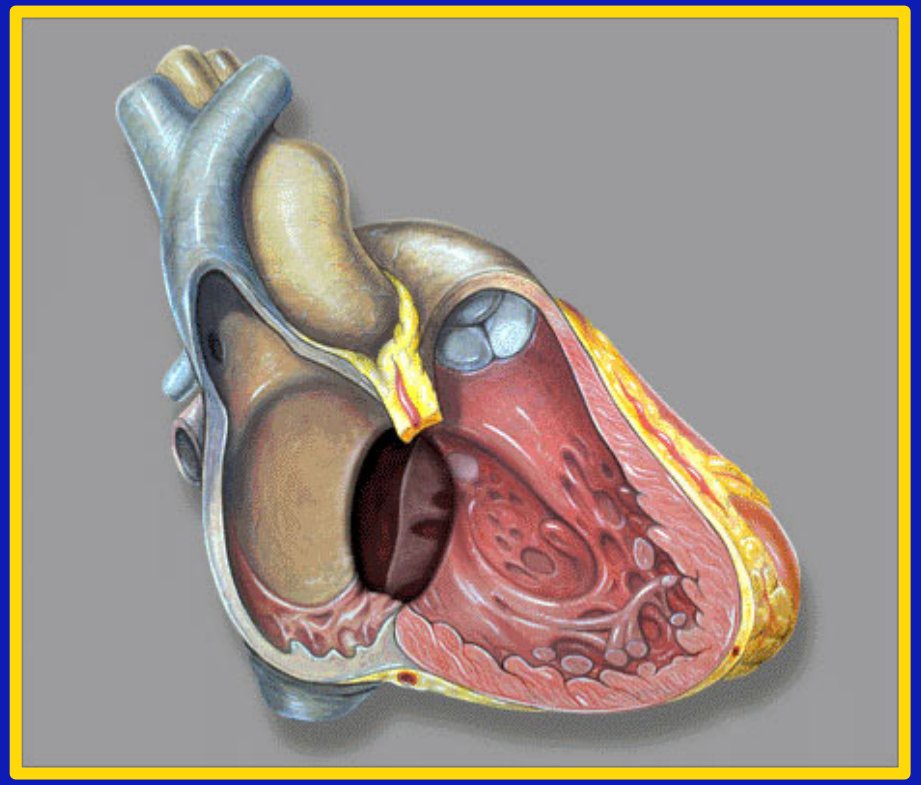
31 y. o. asymp. woman with history of an innocent heart murmur



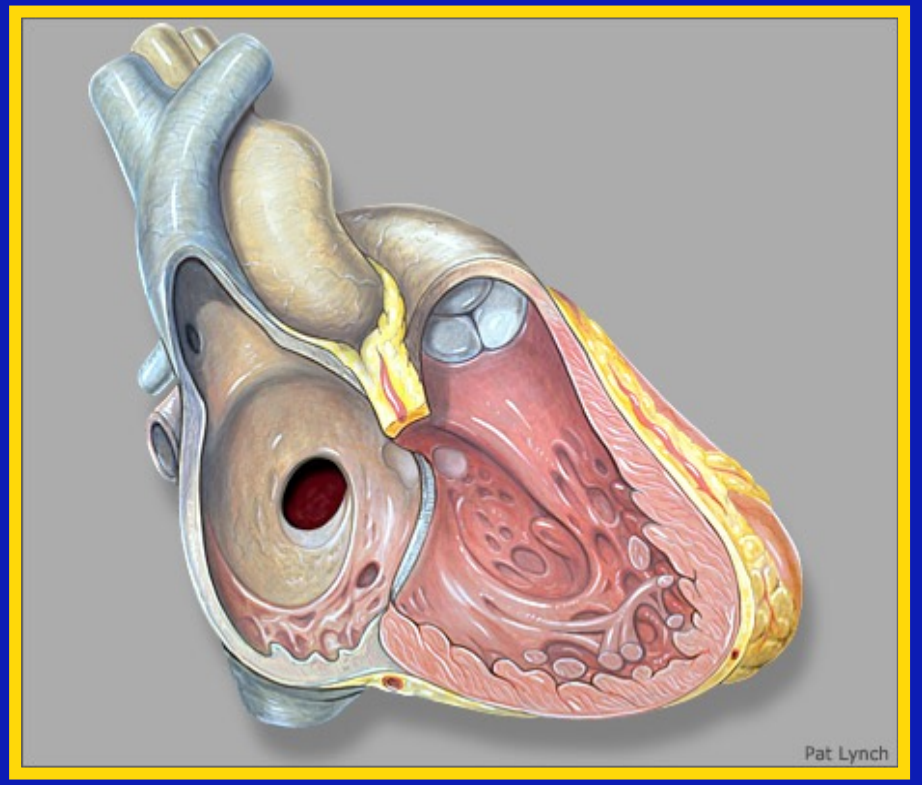
The “Crochetage Sign “ in Atrial Septal Defects



Atrial Septal Defects

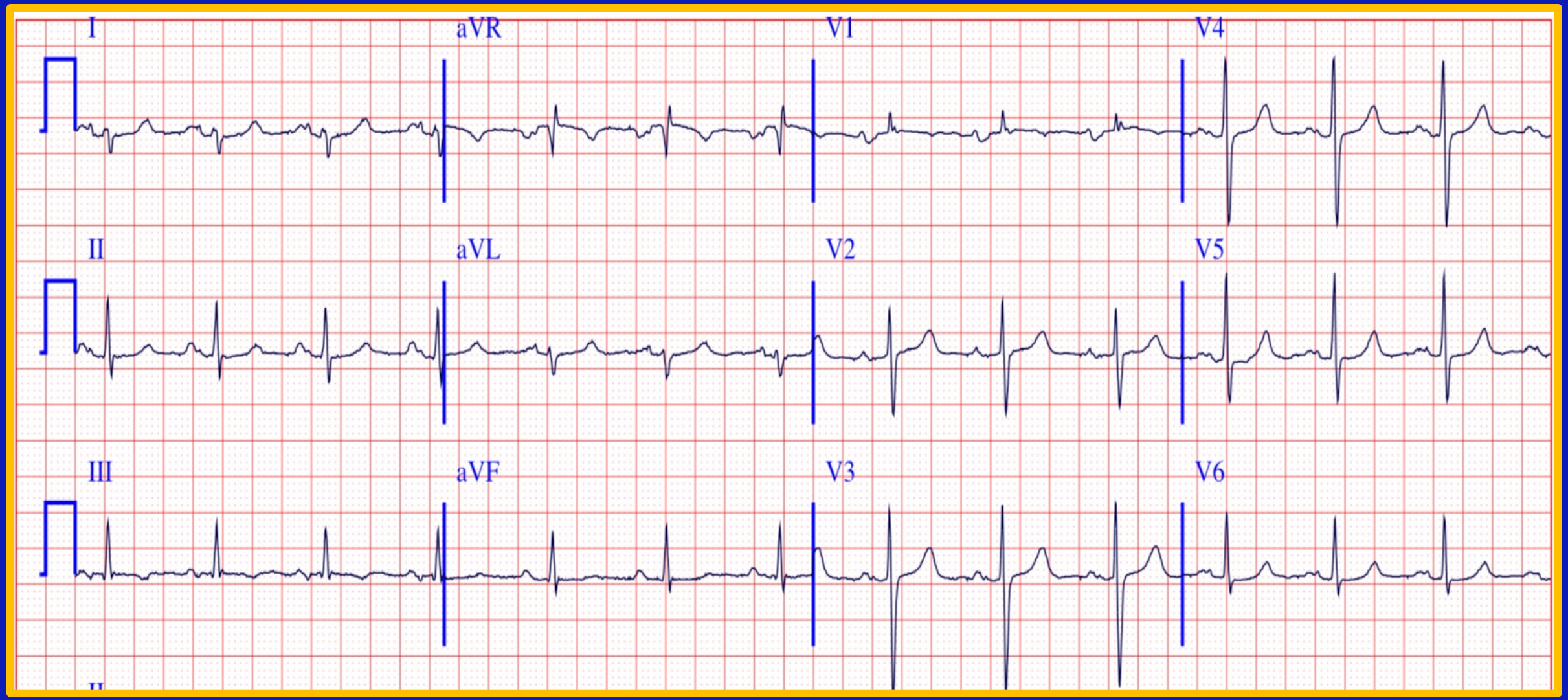


Primum ASD

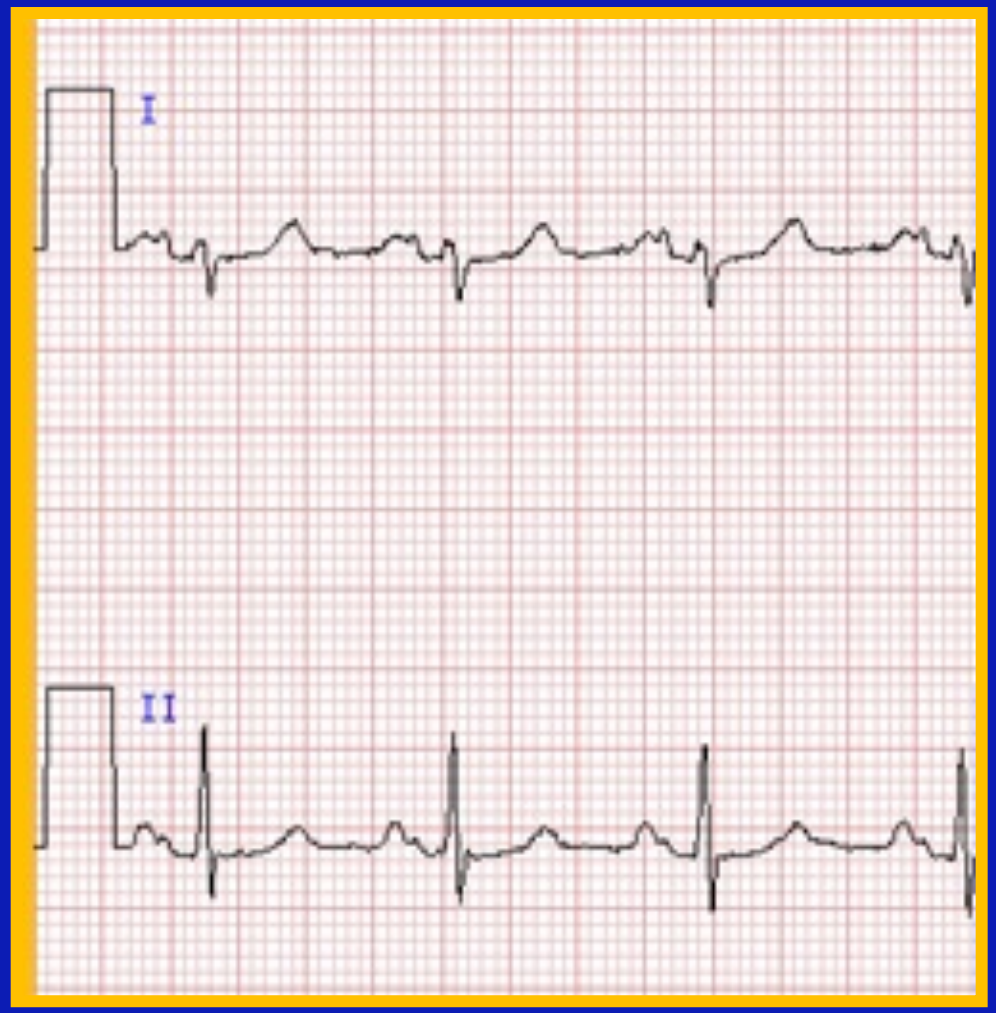


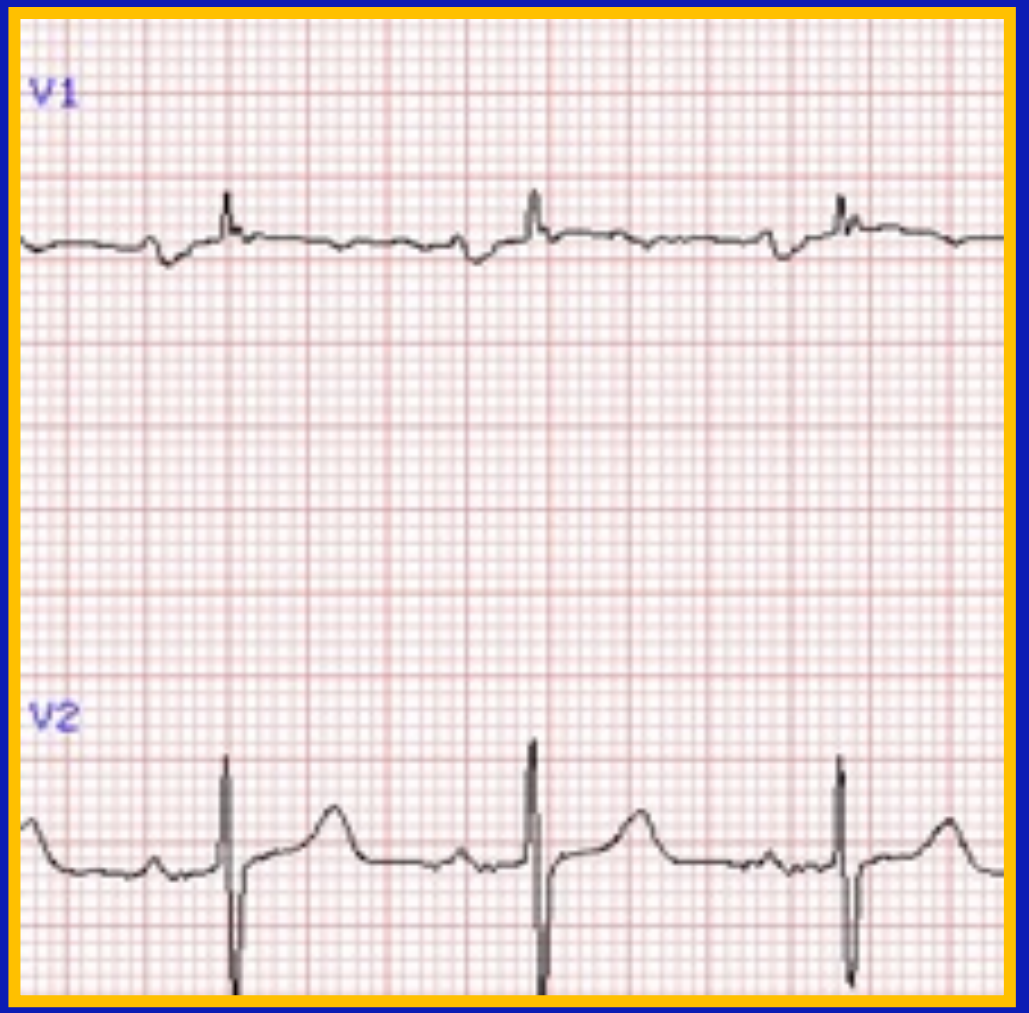
Secundum ASD

32 year old asym. female computer scientist

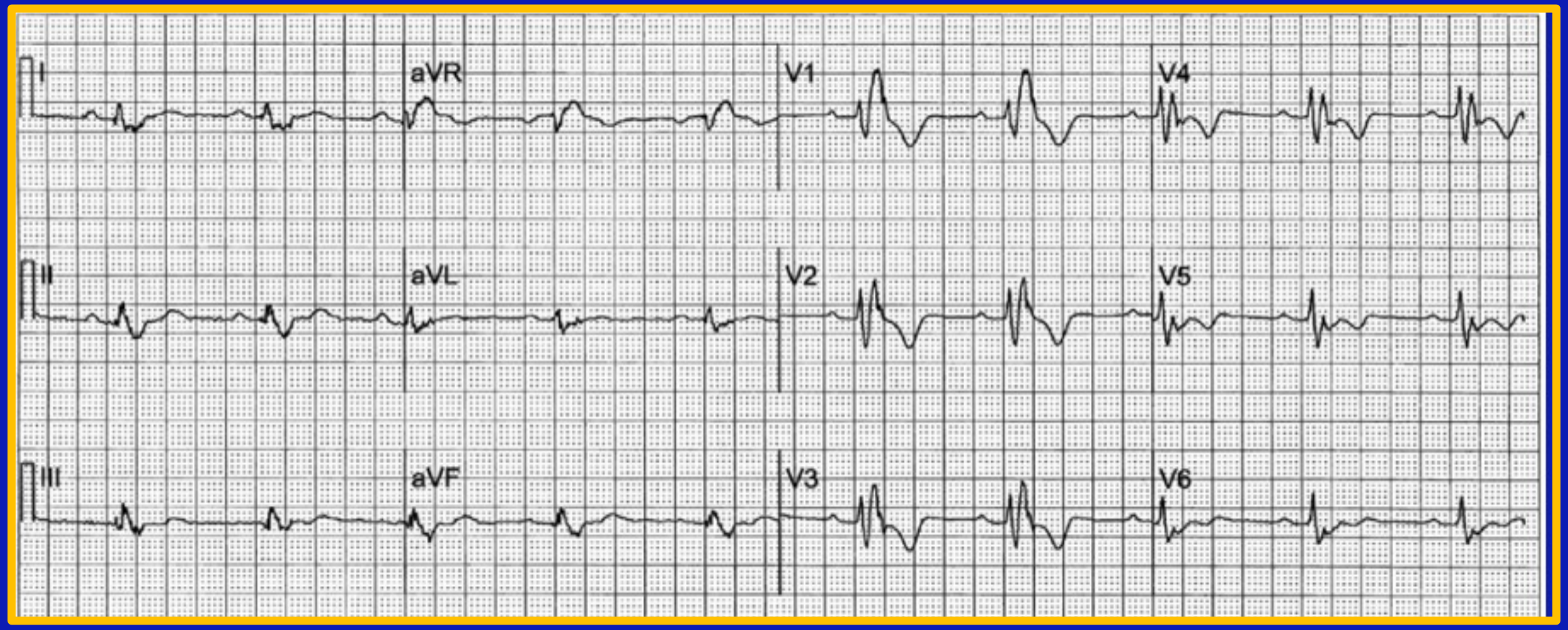


Left Atrial Abnormality – P Mitrale





40 Year Old Male – Tetralogy of Fallot Repair Age 5



Thank You