

Bilinmesi gereken EKG değişiklikleri

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Acil Tıp Anabilim Dalı

Sağ ventrikül STEMI

⌚ İnferiyor MI ;

II, III ve aVF de ST Yüksekliği

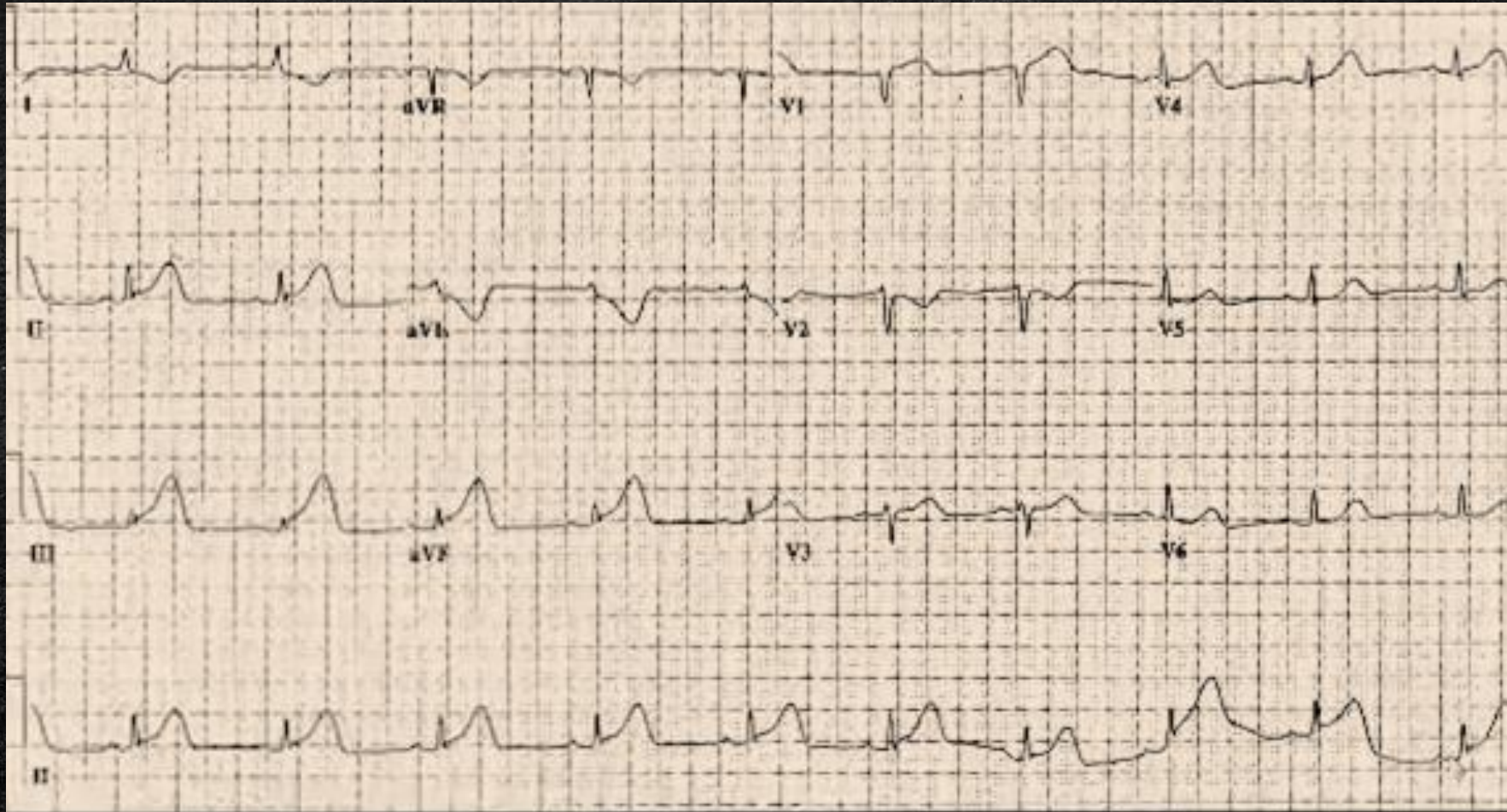
⌚ Sağ ventrikül MI (1/3 vakada eşlik eder.)

V₁'de ST elevasyonu-V₂ de ST depresyonu

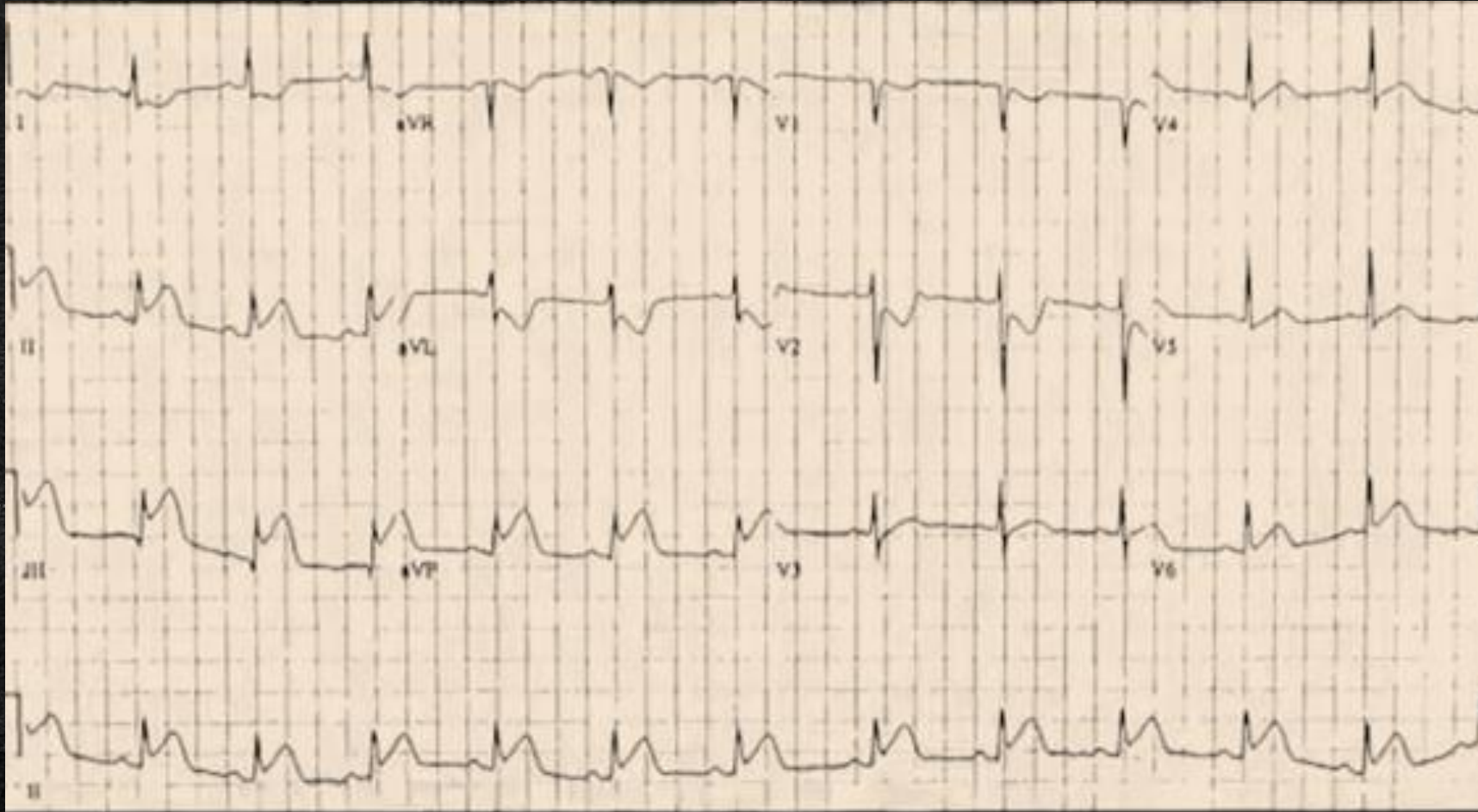
V₁'de izoelektrik ST -V₂ de belirgin ST depresyonu

ST elevasyonu D_{III} > D_{II}

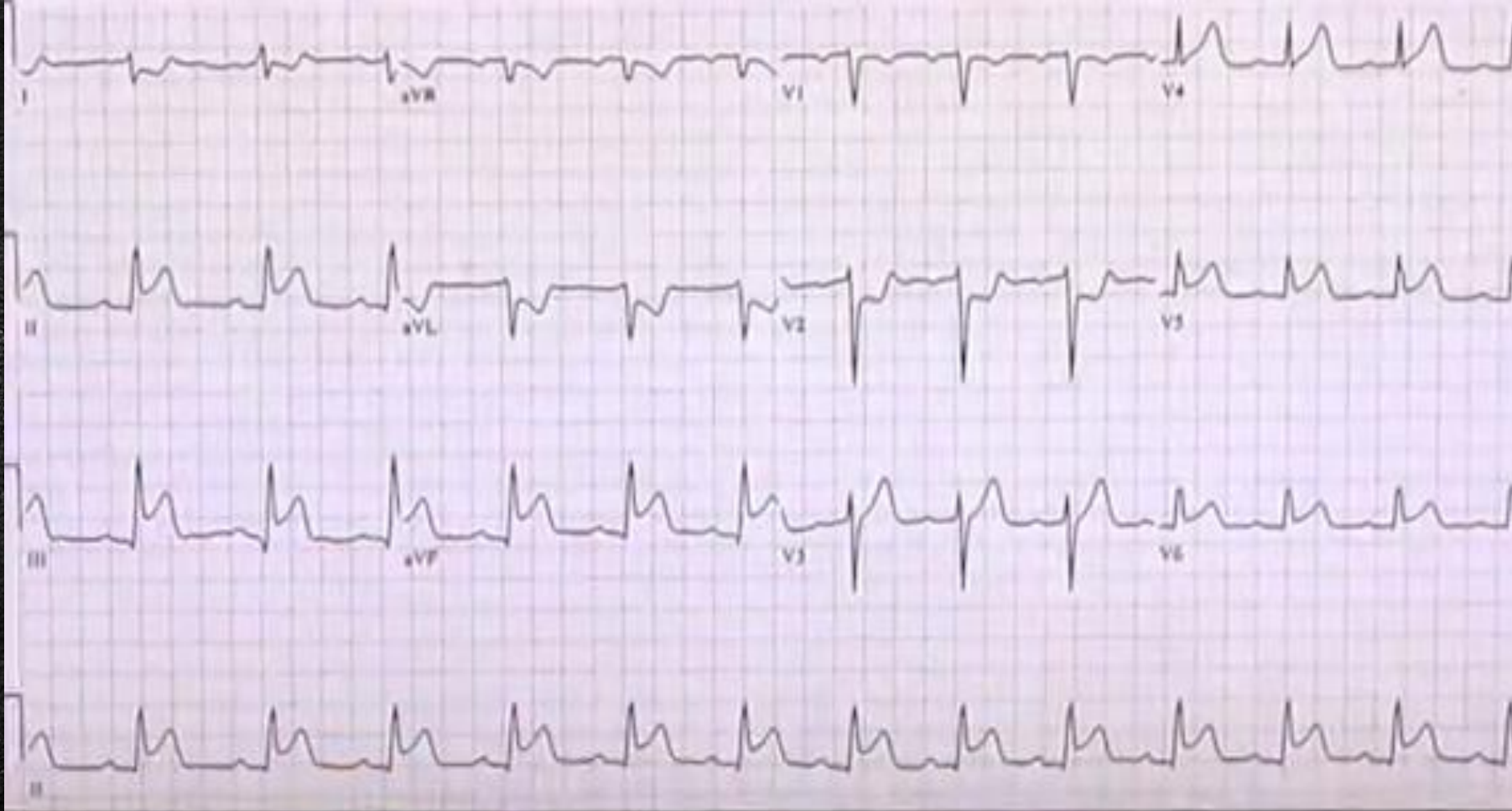
ST elevasyonu V_{3R}- V_{6R}



Inferior + sağ ventrikül MI



Inferior + sağ ventrikül MI
V₁-V₃ izoelektrik V₂ derin ST depresyonu
DIII > DII



Inferior + sađ ventriköl MI
V₁-V₃ izoelektrik V₂ derin ST depresyonu
DIII > DII



Inferior + sağ ventrikül MI (sağ derivasyonlar)

Sol Dal Bloğu

⌚ Sol dal bloğu kriterleri;

- QRS'in süresi 0.12 sn'den uzundur
- DI, aVL, V₅ ve V₆ derivasyonlarında QRS kompleksinde çentiklenme izlenir
- V₁₋₃'te sıklıkla derin S dalga paterni izlenir
- DI – aVL , V₅ ve V₆ derivasyonlarında septal q dalgası kaybolmuştur
- DI, DII, V₅ ve V₆ derivasyonlarında monofazik geniş R dalgaları izlenir

Name:

ID:

Patient ID:

Incident:

Age: 81

12-Lead 1

07:32:06

• ECG override: Data quality prohibits interpretation

Sex:

I I

I aVR

I V1

I V4

I II

I aVL

I V2

I V5

I III

I aVF

I V3

I V6

x1.0 05-40Hz 25mm/sec

ems12lead.blogspot.com

MEDIC 3 STATION 3

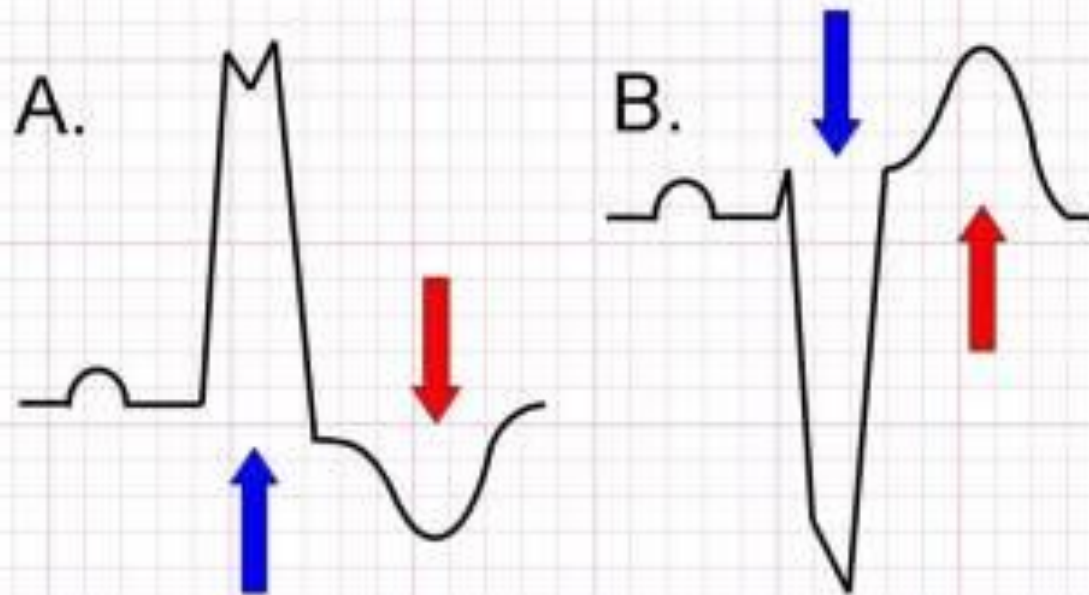
RETRIAL

MEDTRAC

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Discordant ST-Segments and T-Waves



ems12lead.com

Normal for LBBB and paced rhythm

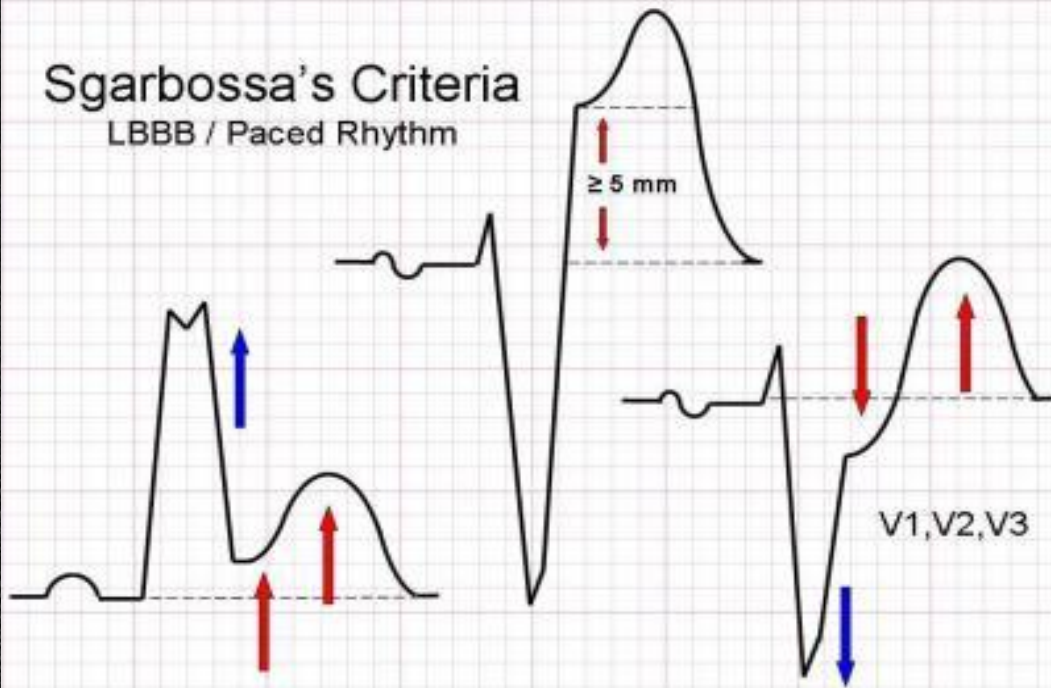
Modifiye Sgarbossa Kriterleri

- ✓ A. Konkordan ST yükselmesi $\geq 1\text{mm}$ (herhangi bir derivasyonda) = MI için en spesifik bulgu
- ✓ B. Konkordan ST çökmesi $\geq 1\text{mm}$ V₁, V₂ ya da V₃'de = MI için spesifik
- ✓ C. Diskordan ST yükselmesi $\geq 5\text{mm}$ = MI için daha az spesifik
- ✓ $-0,25 \leq \text{Diskordant ST / S Oranı}$ (C nin yerini almış)



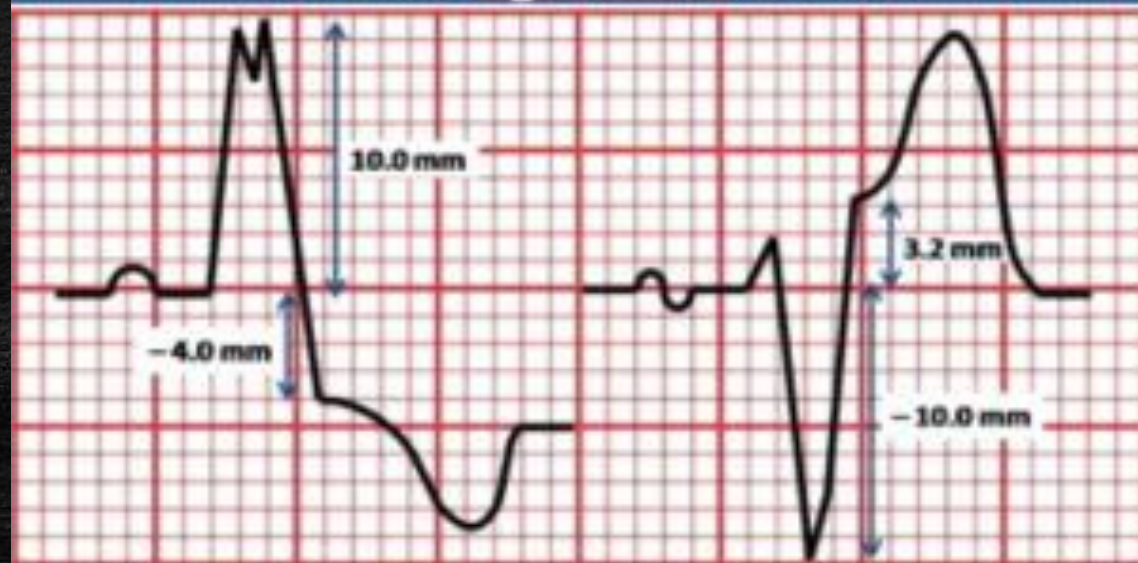
Sgarbossa's Criteria

LBBB / Paced Rhythm



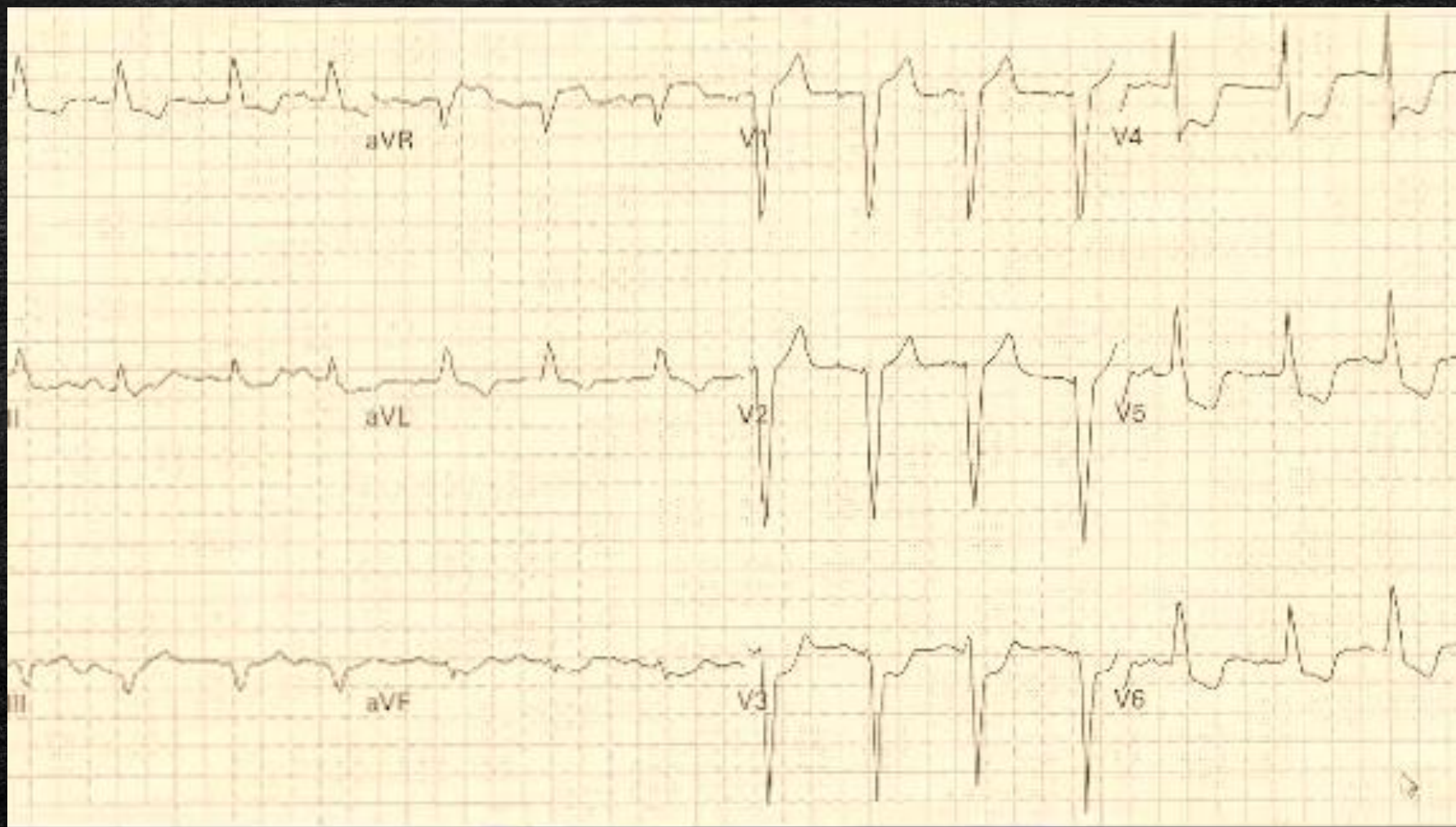
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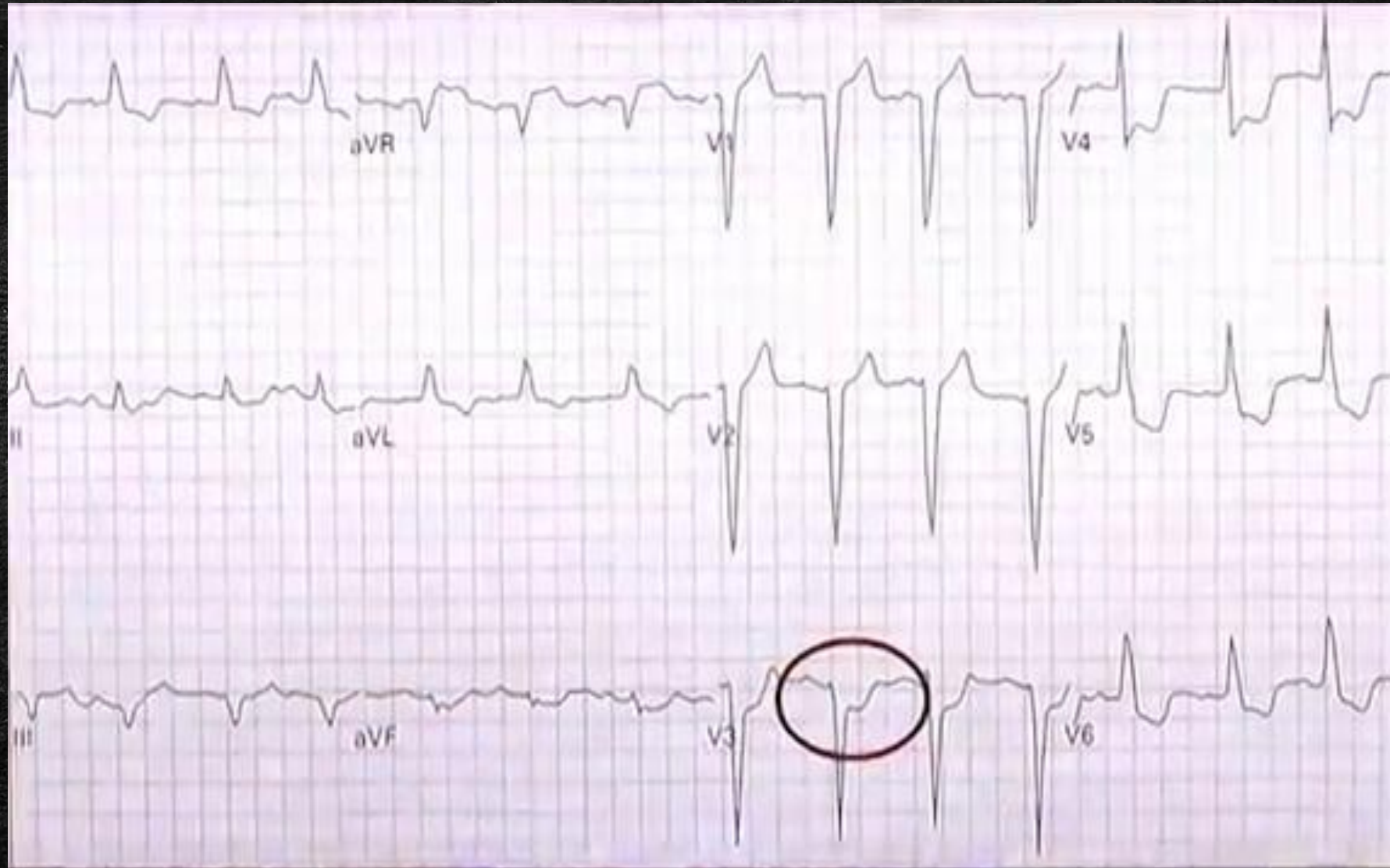
Modified Sgarbossa C Rule



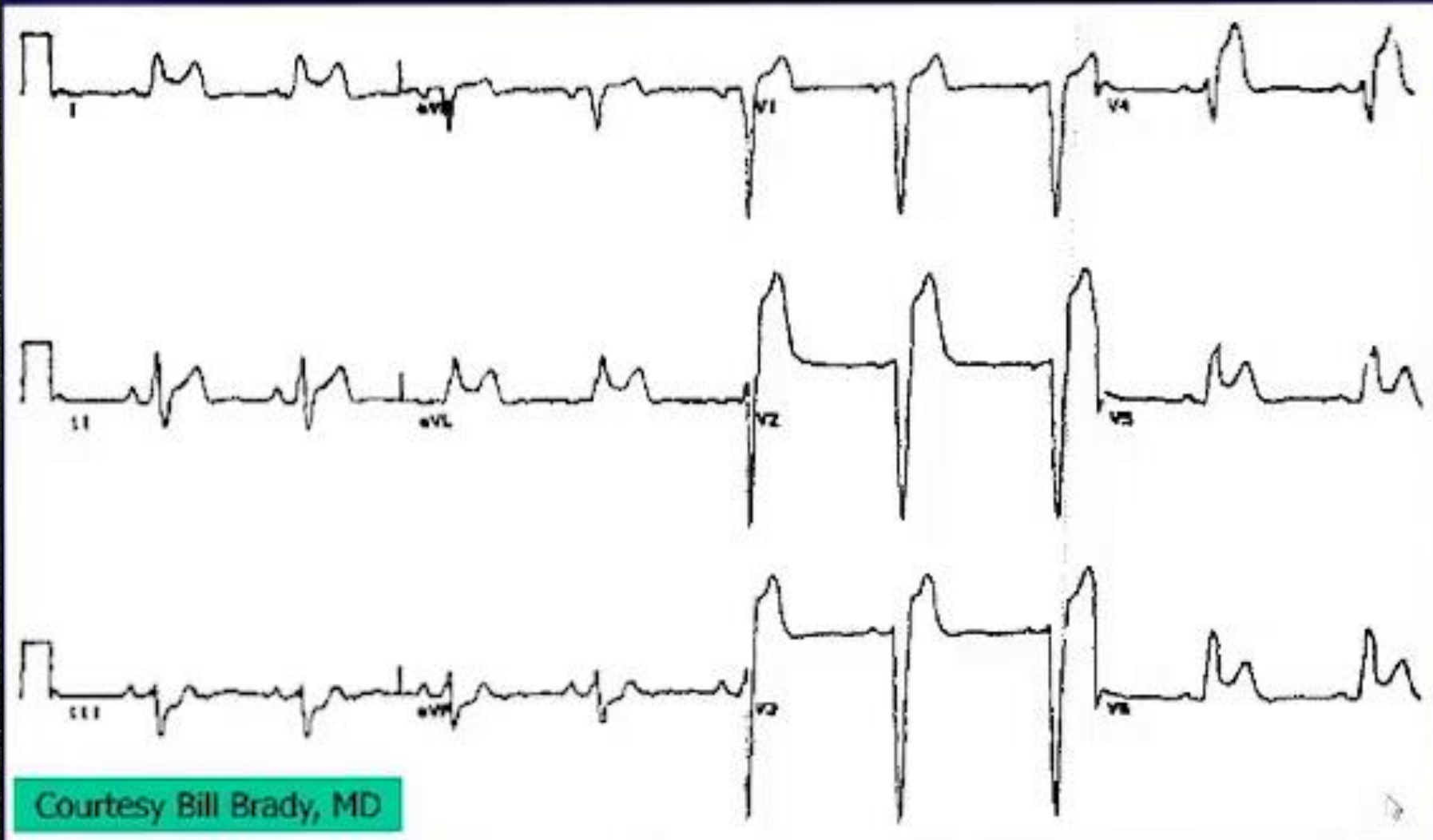
$$\text{Ratio} = -4/10 = -0.4$$

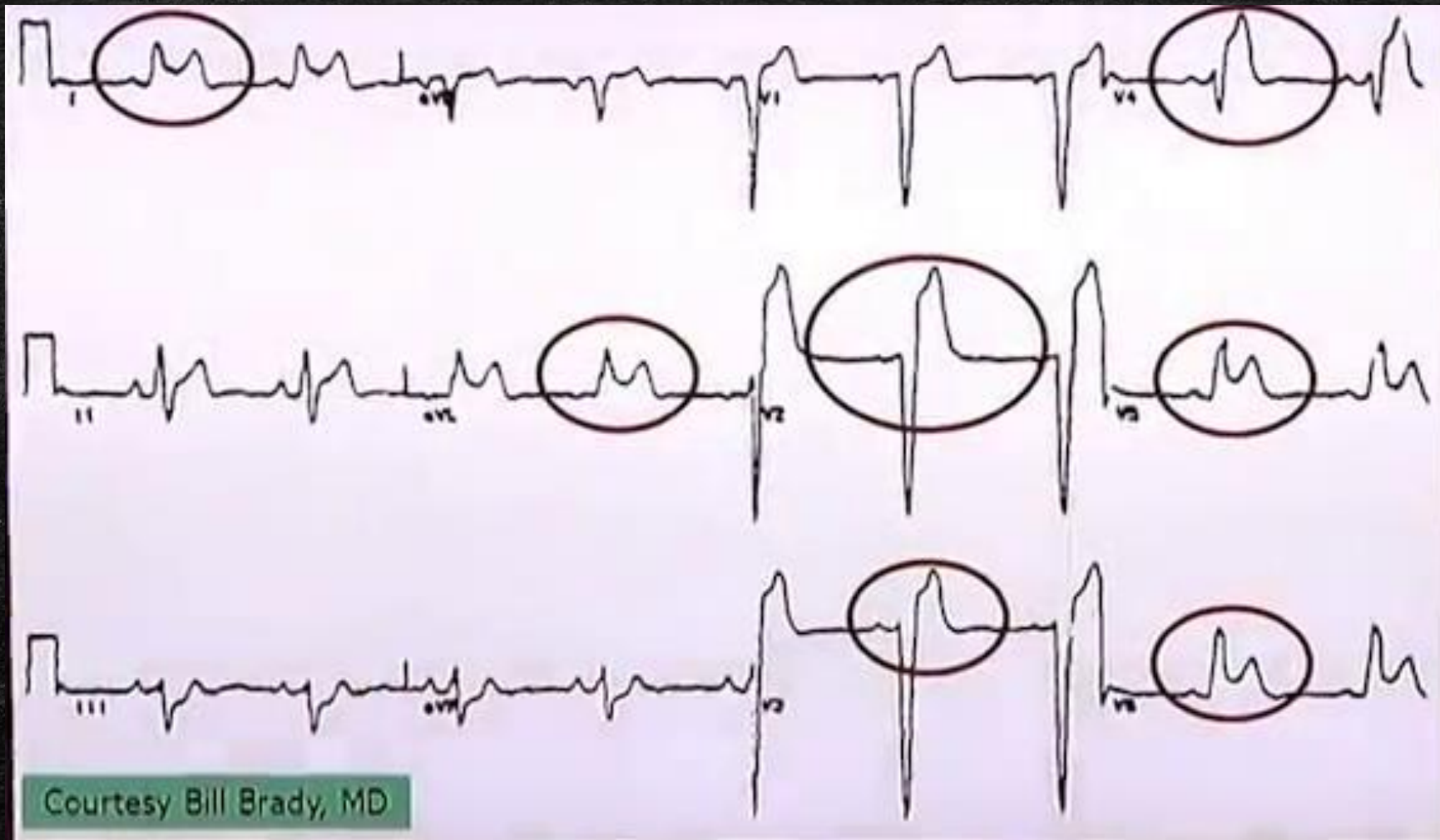
$$\text{Ratio} = 3.2/-10 = -0.32$$



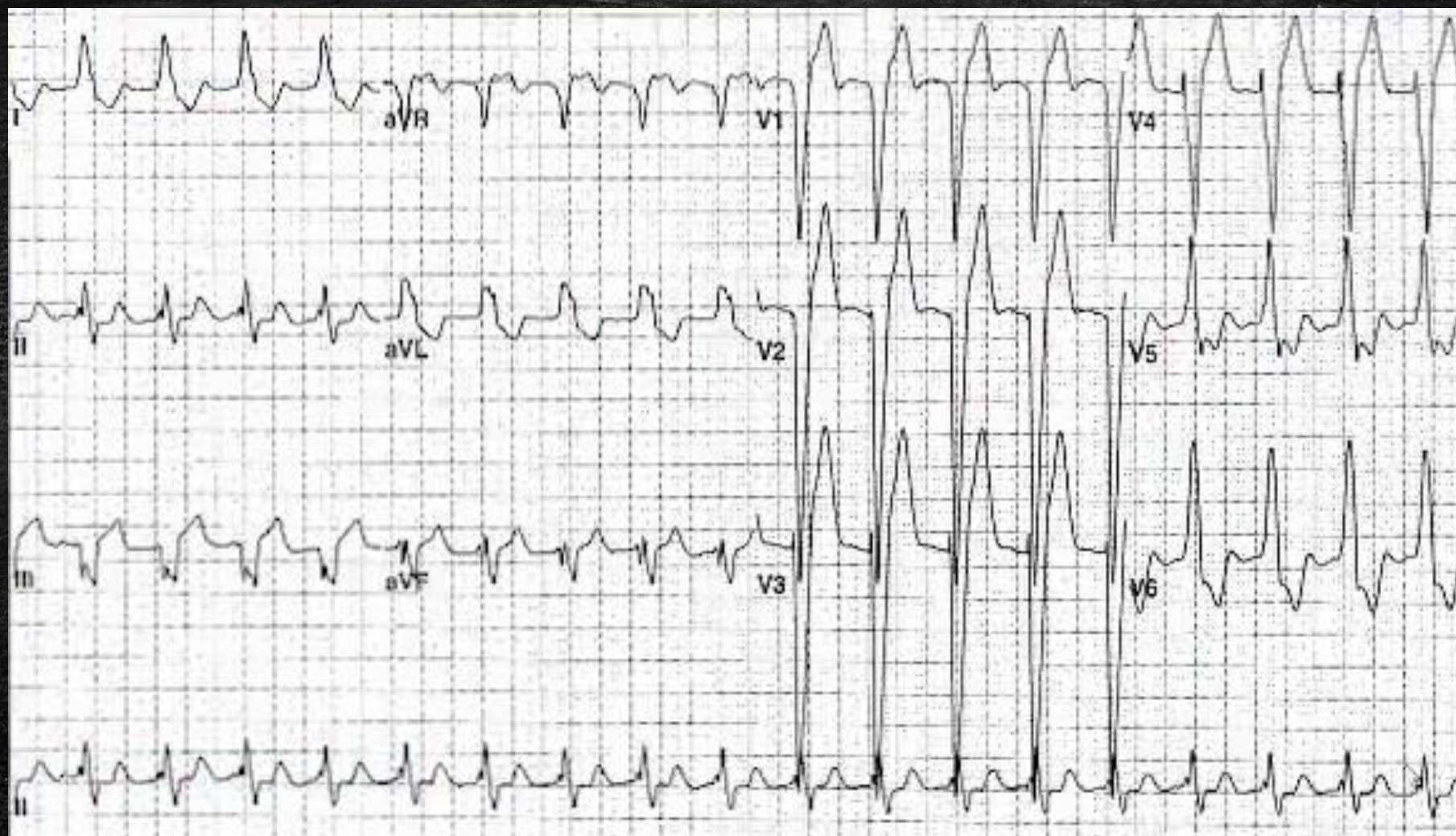


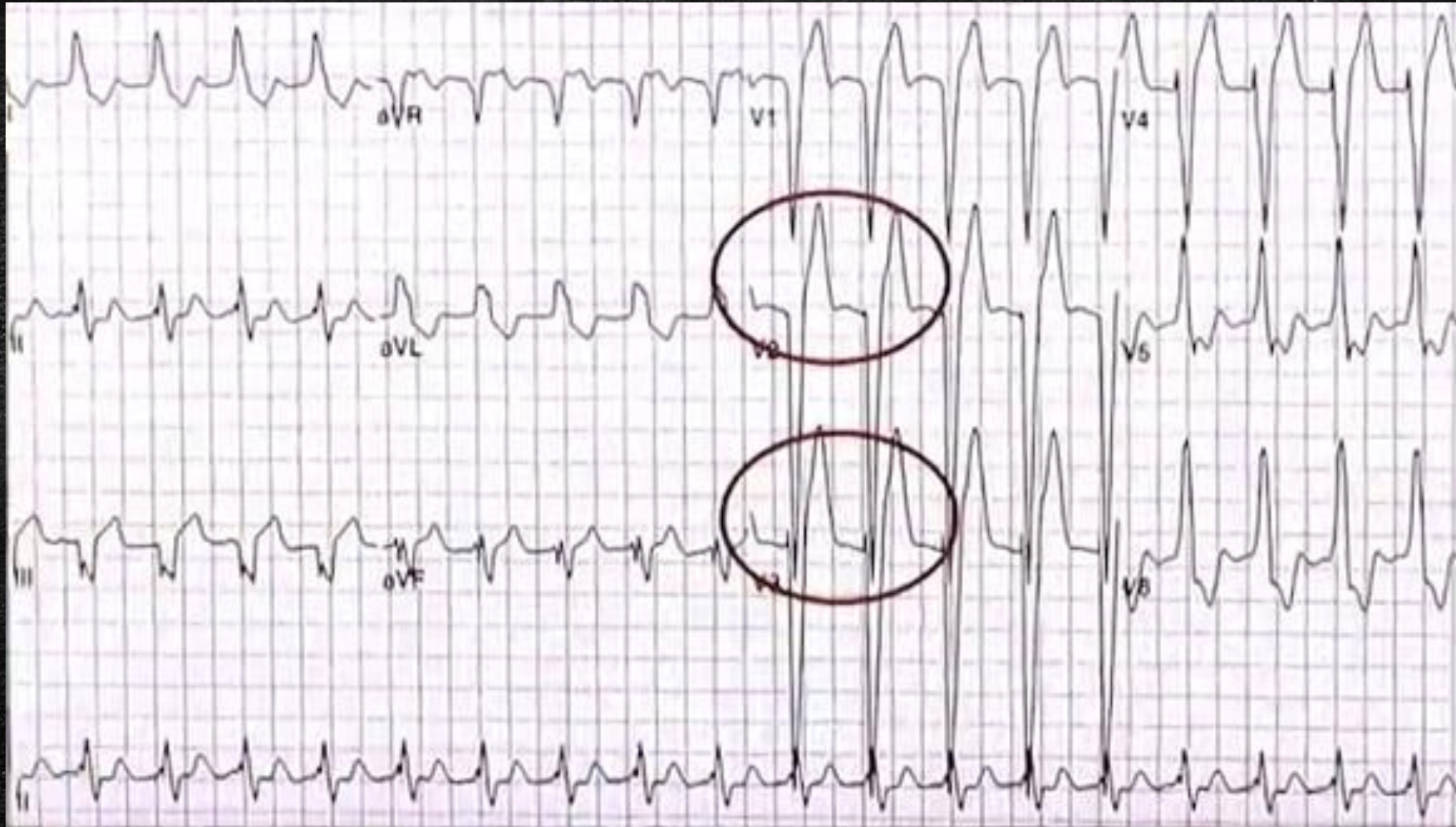
Sgarbossa B





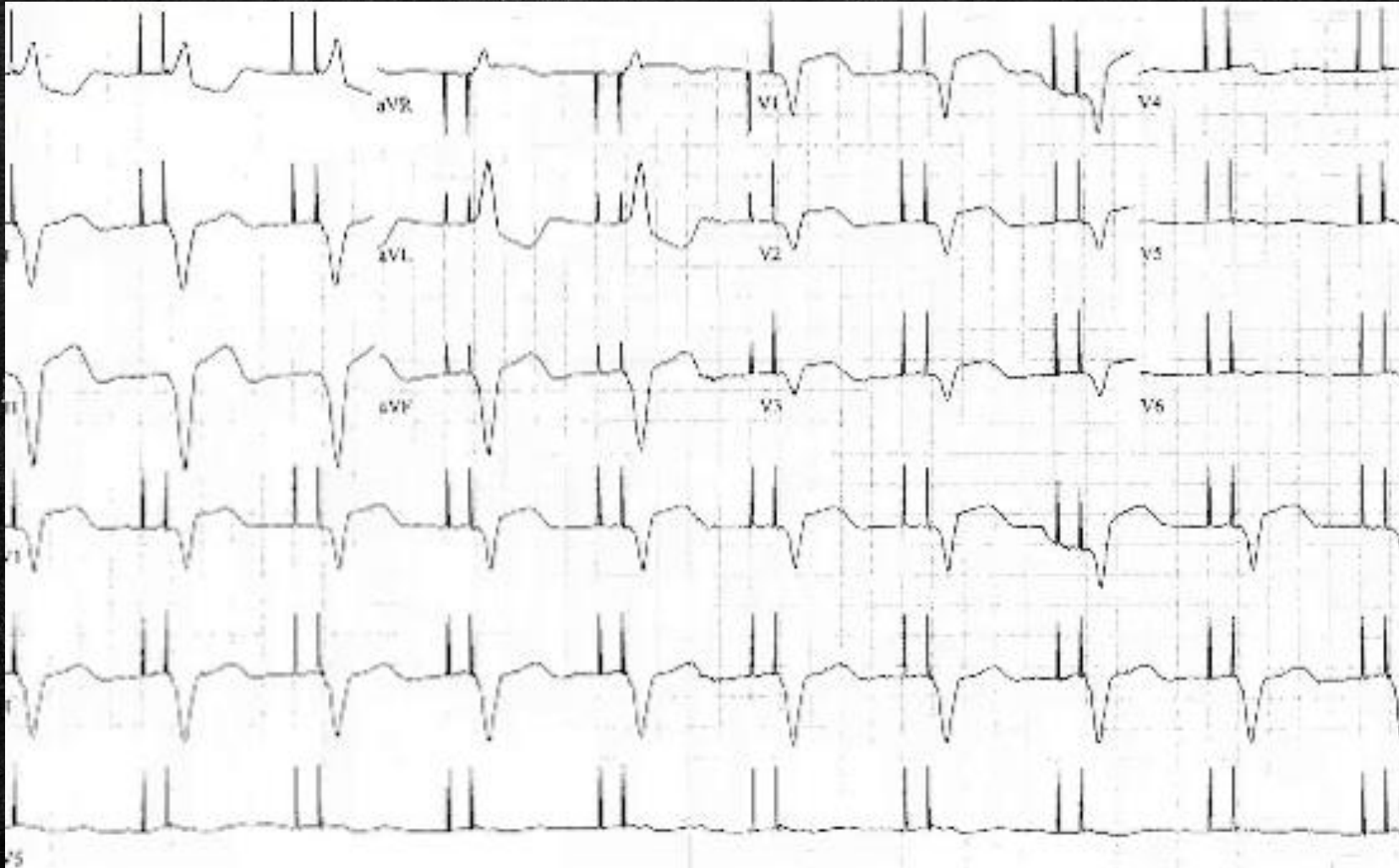
Sgarbossa A

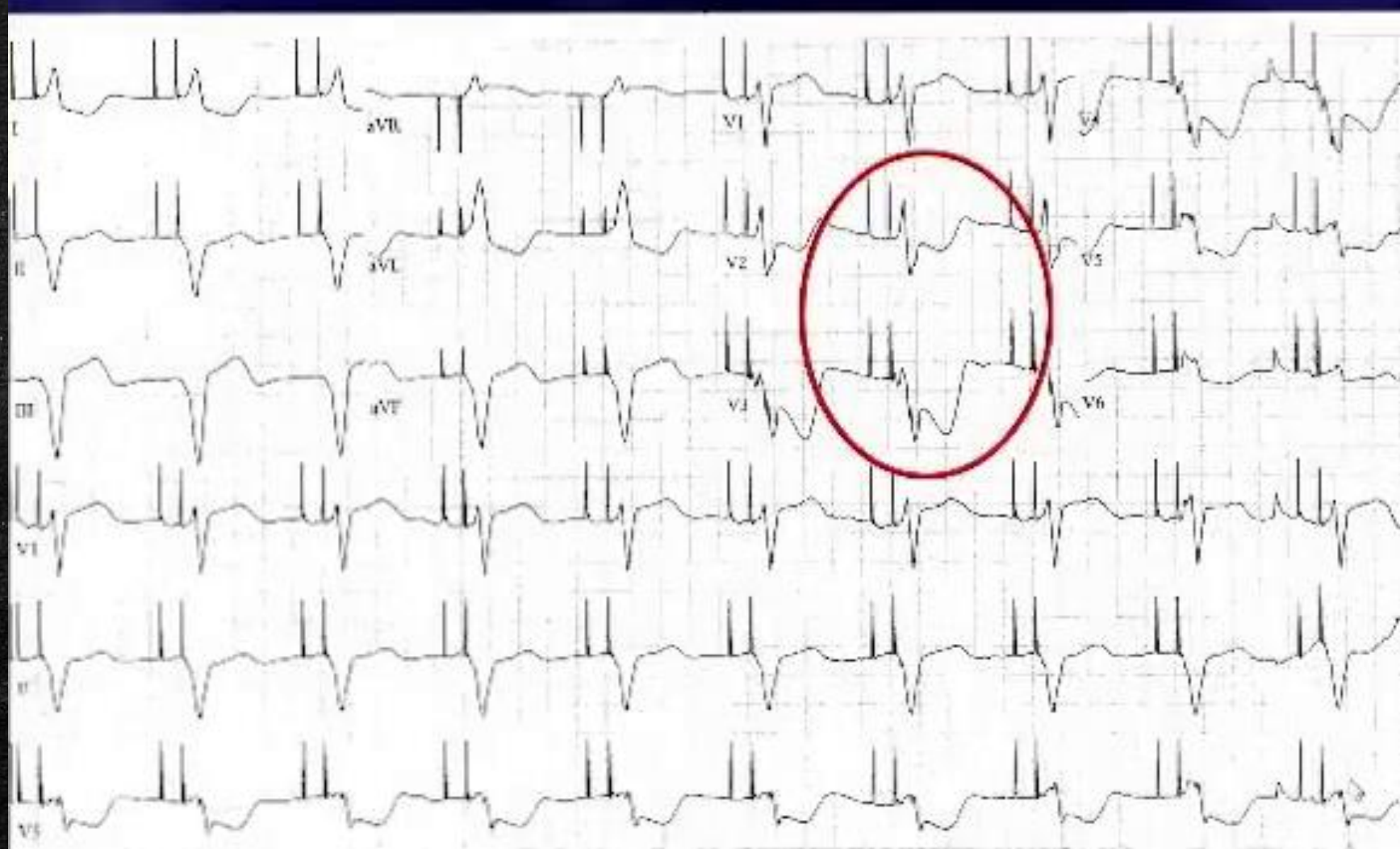




Sgarbossa C

Pacemaker olan hasta

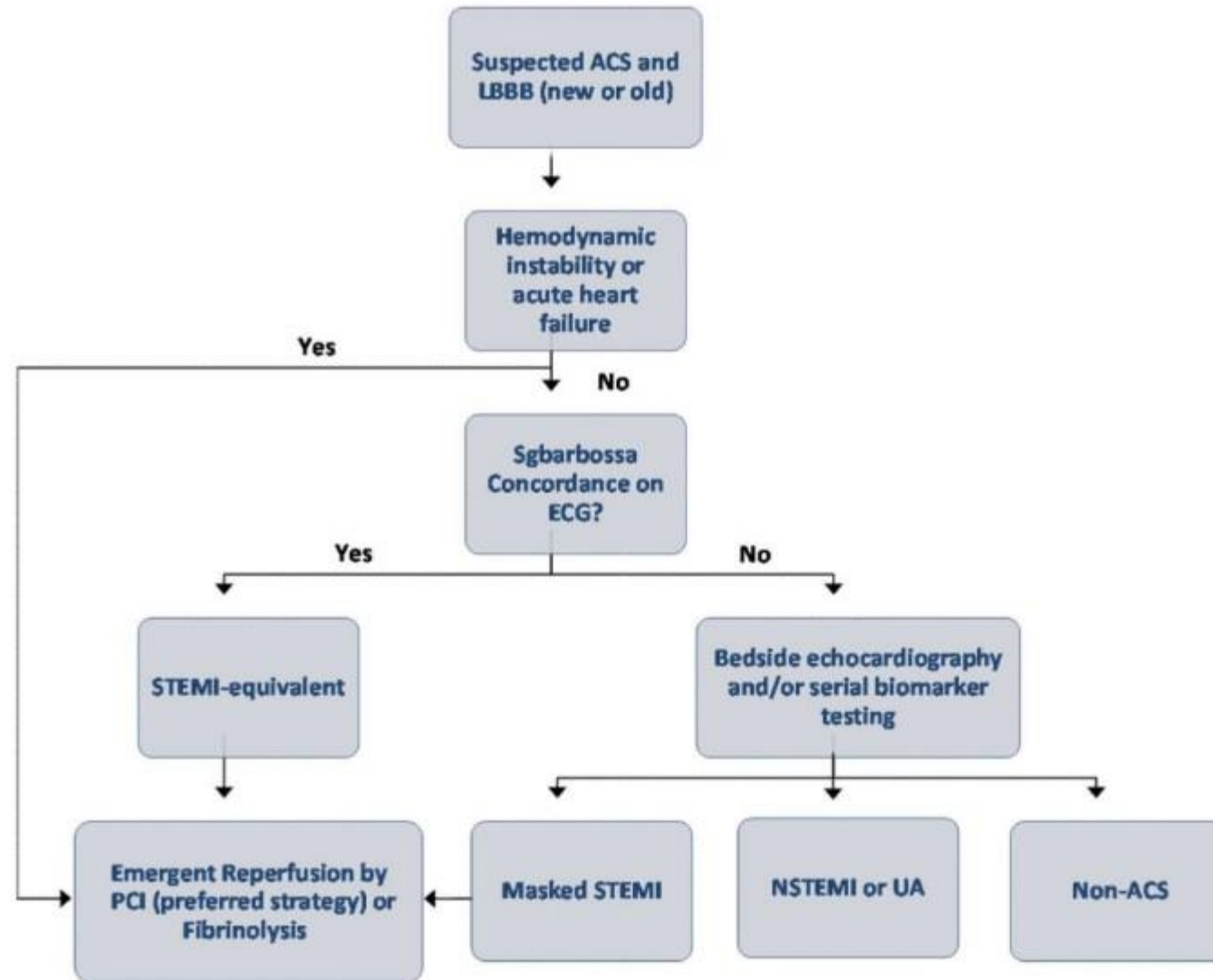


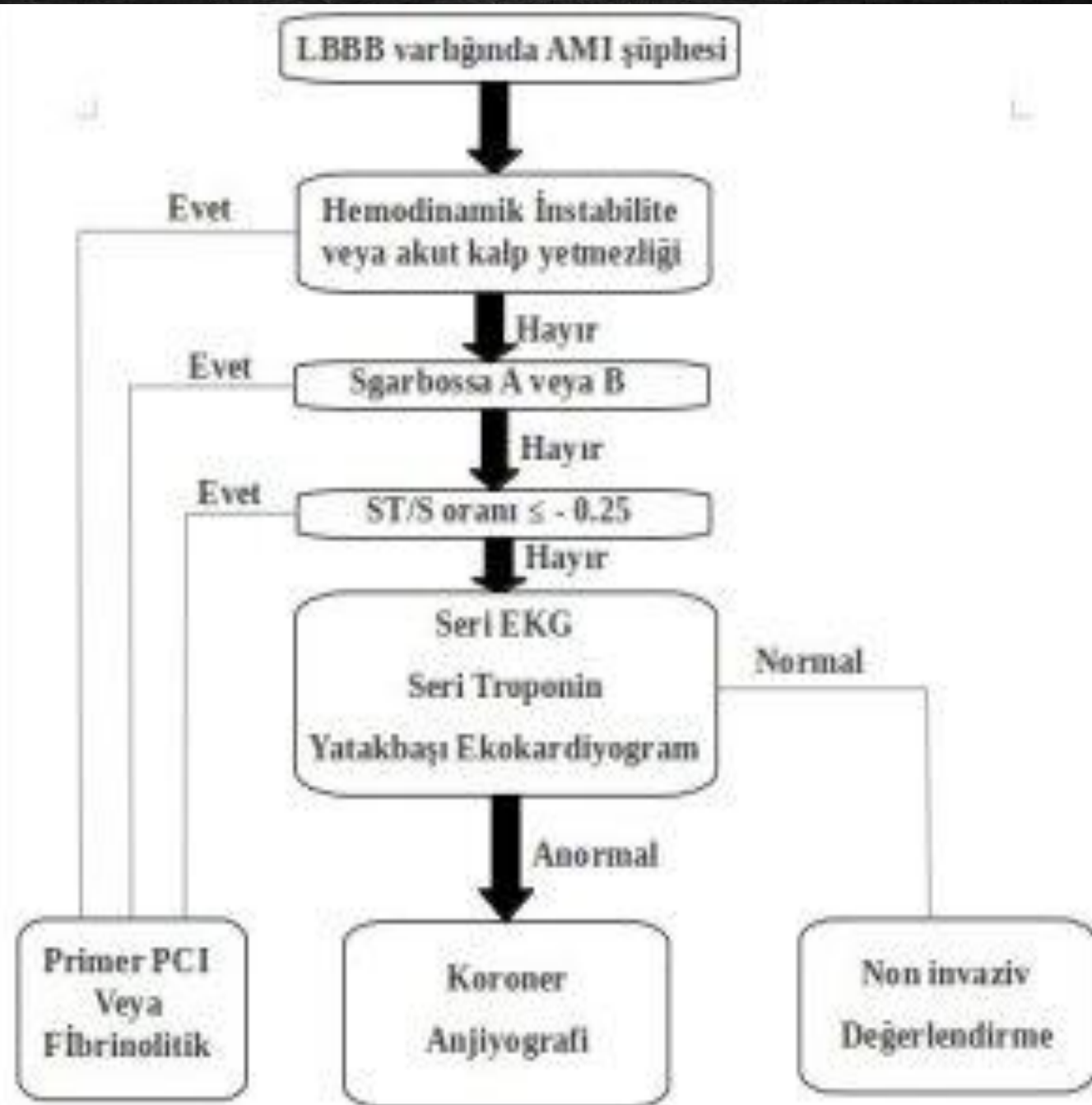


VIEWPOINT

Evolving Considerations in the Management of Patients With Left Bundle Branch Block and Suspected Myocardial Infarction

Ian J. Neeland, MD,*† Michael C. Kontos, MD,‡ James A. de Lemos, MD*†
Dallas, Texas; and Richmond, Virginia

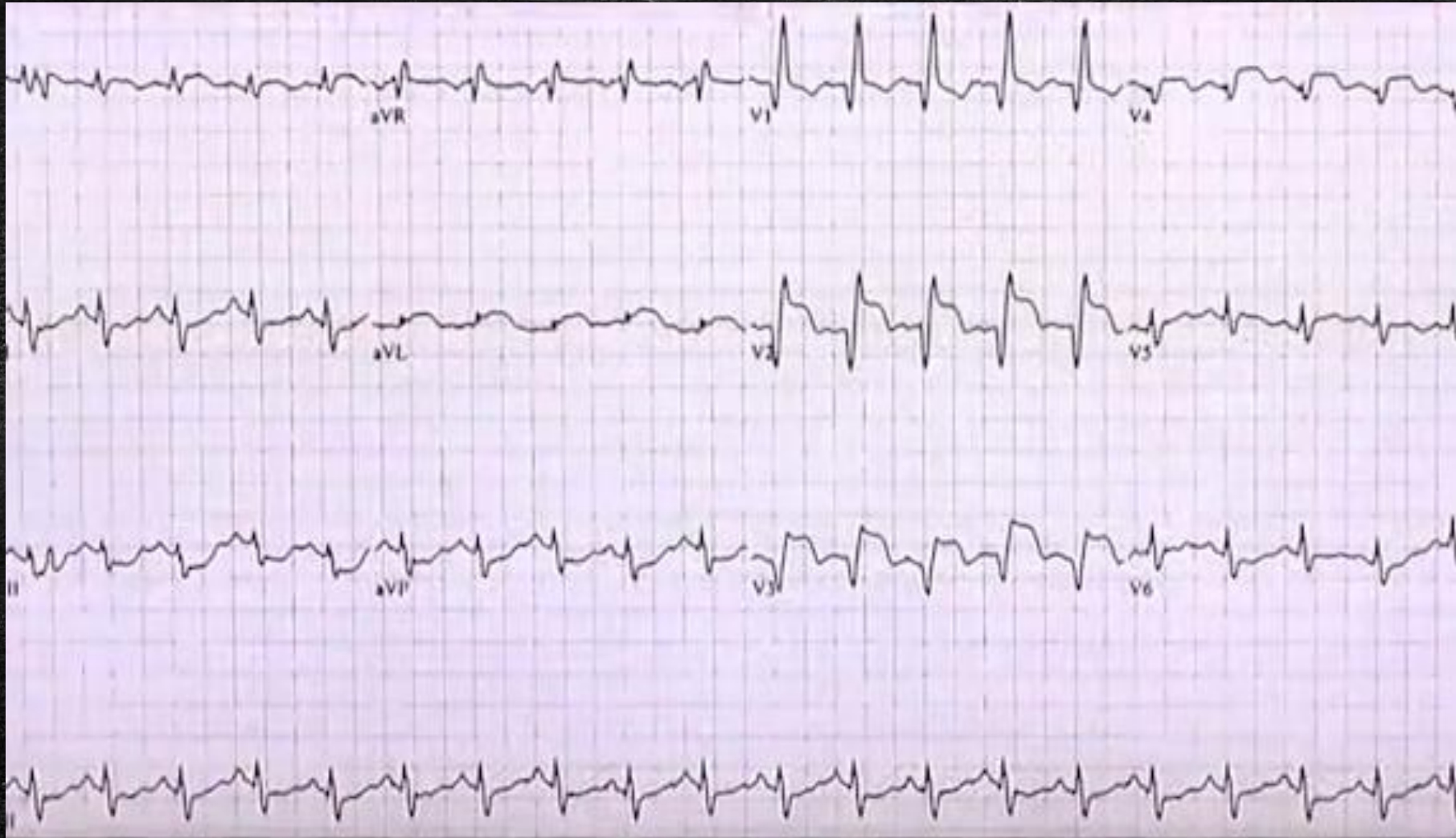




Sağ Dal Bloğu

- ⌚ Doğumsal olarak yada toplumun %10'unda tamamen normal olarak görülebilir.
- ⌚ İskemik kalp hastalıkları, hipertansiyon, myokardit, pulmoner emboli, romatizmal kalp hastalıkları, kardiomyopati ve perikarditte de görülebilir.
- ⌚ Sağ dal bloğu kriterleri;
 - QRS 0.12 sn'den uzundur
 - Genellikle DI, aVL, V₅ ve V₆'da derin S dalgası görülür.
 - V₁, V₂ ve sıklıkla V₃ derivasyonunda ikinci bir R dalgası izlenir

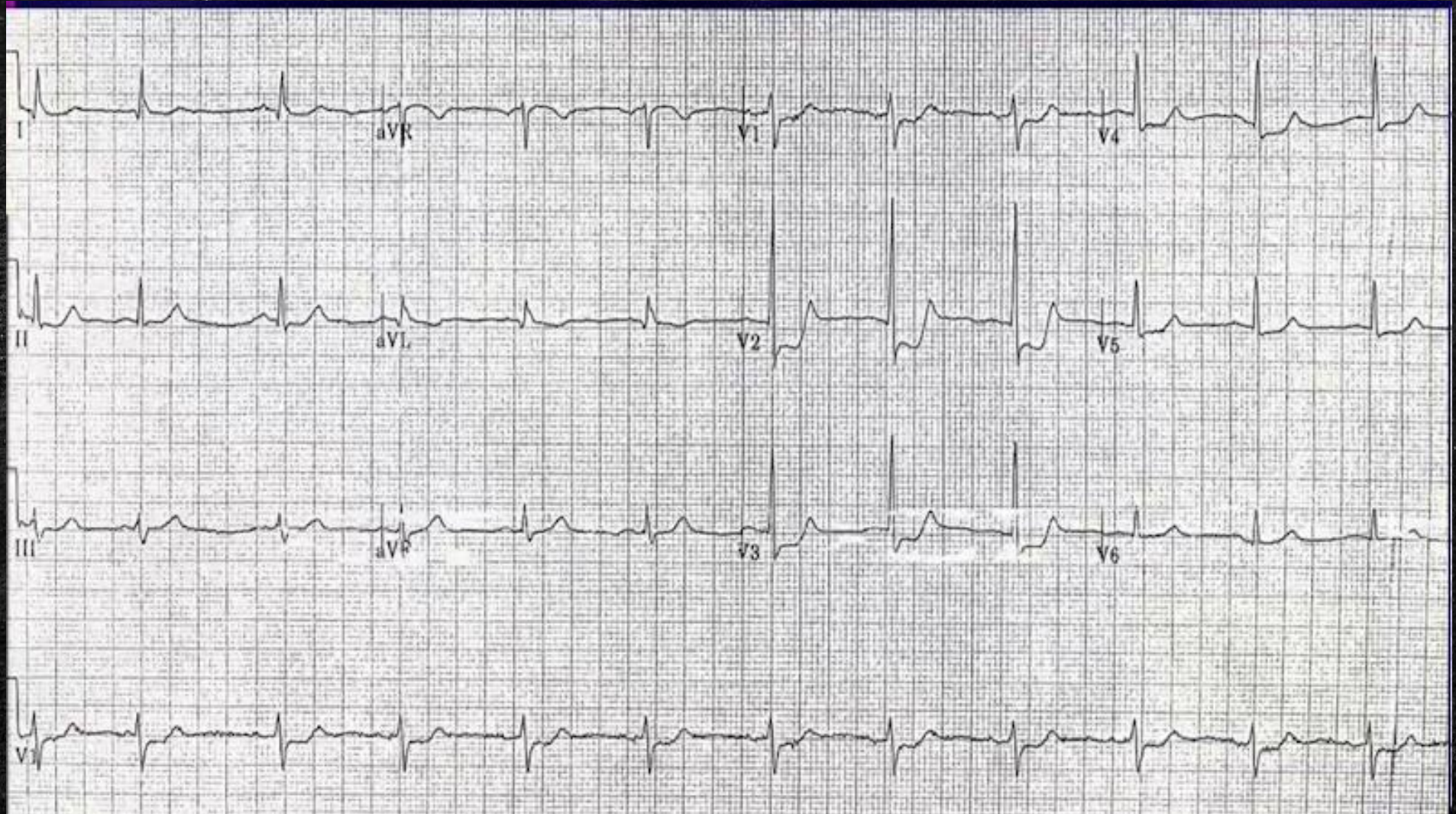




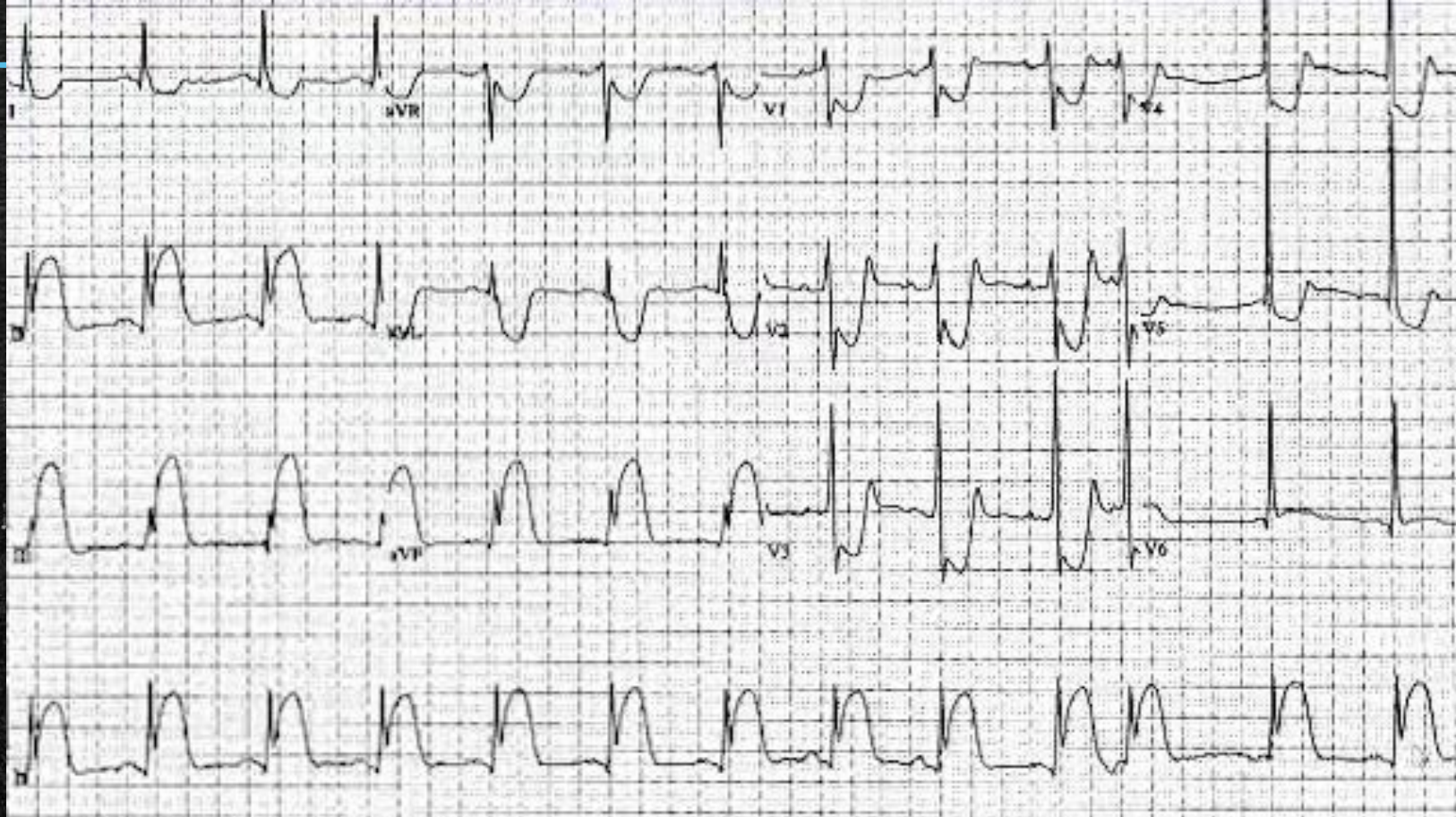
RBBB+ Anterolateral MI

İzole Posterior MI

- ⌚ Kalbin inferobazal kısmının infarktı
- ⌚ Genellikle RCA veya Cx oklüzyonuna bağlı inferior MI ile birliktelik gösterir
- ⌚ Septal MI (V1-V2) nın ayna görüntüsü
- ⌚ Büyük r dalgası (Qs yerine)
- ⌚ $V1-3 \geq 0.05$ mV ST çökmesi (ST elevasyonu yerine)
- ⌚ Belirgin pozitif T dalgaları (T inversiyonu yerine)



izole posterior MI

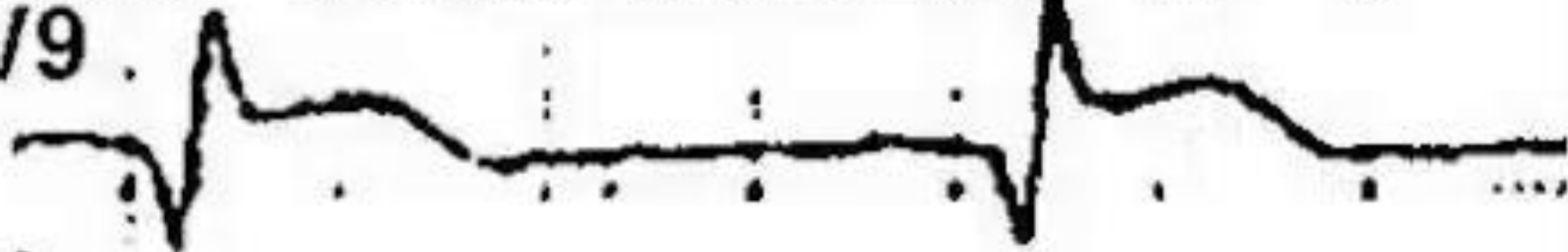


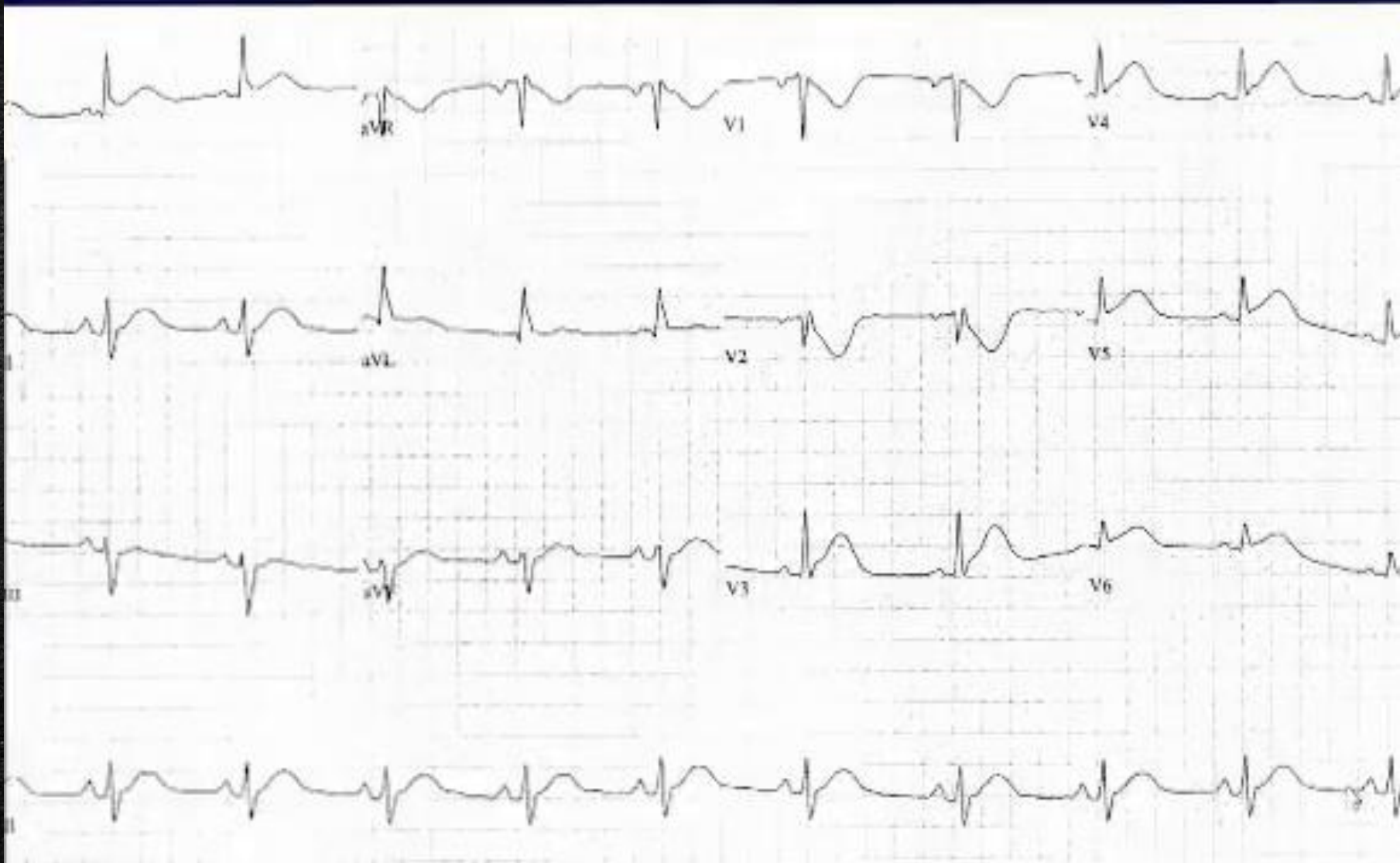
Inferior+posterior MI

V8



V9



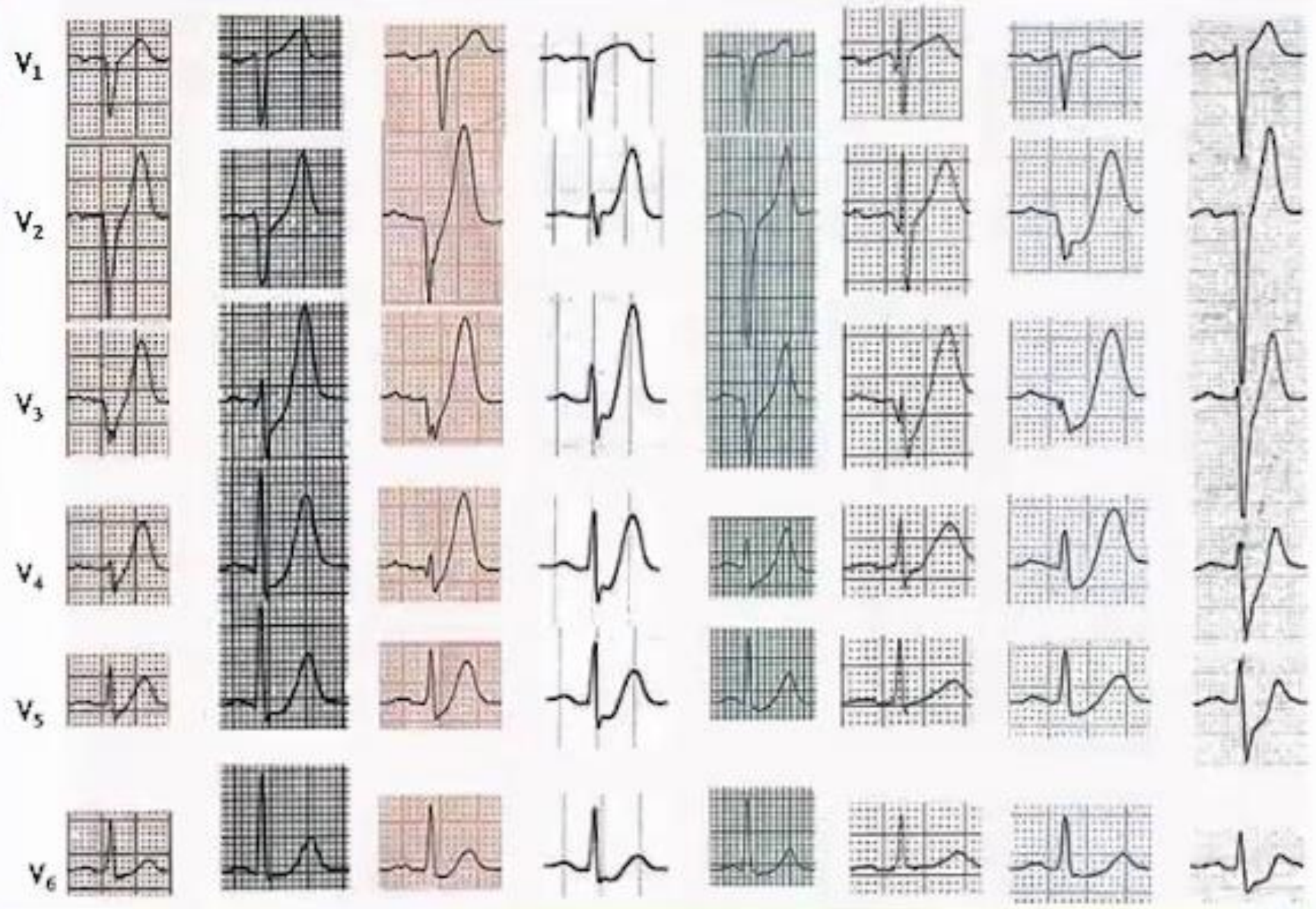


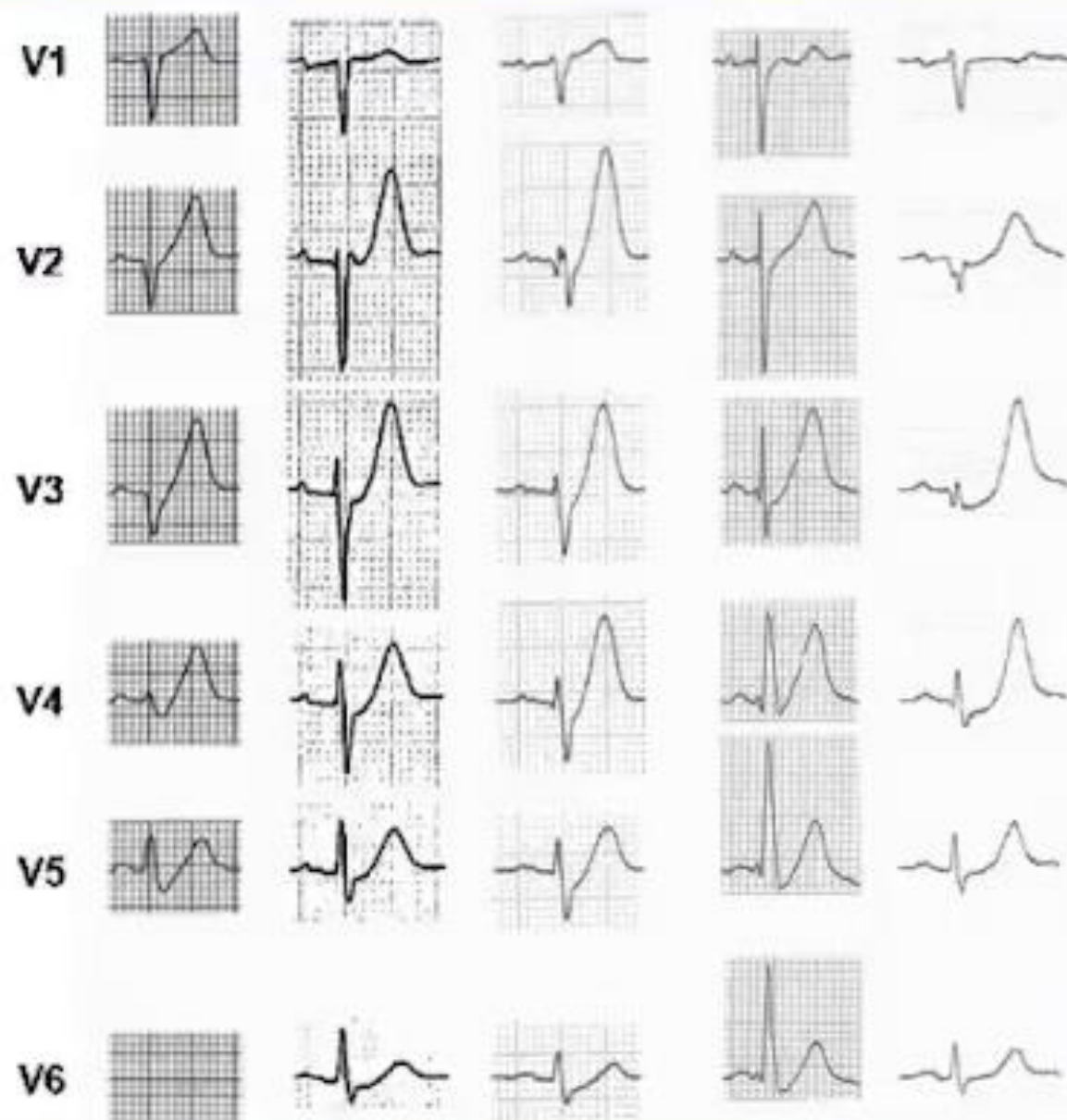
Posterior derivasyonlarda STEMI

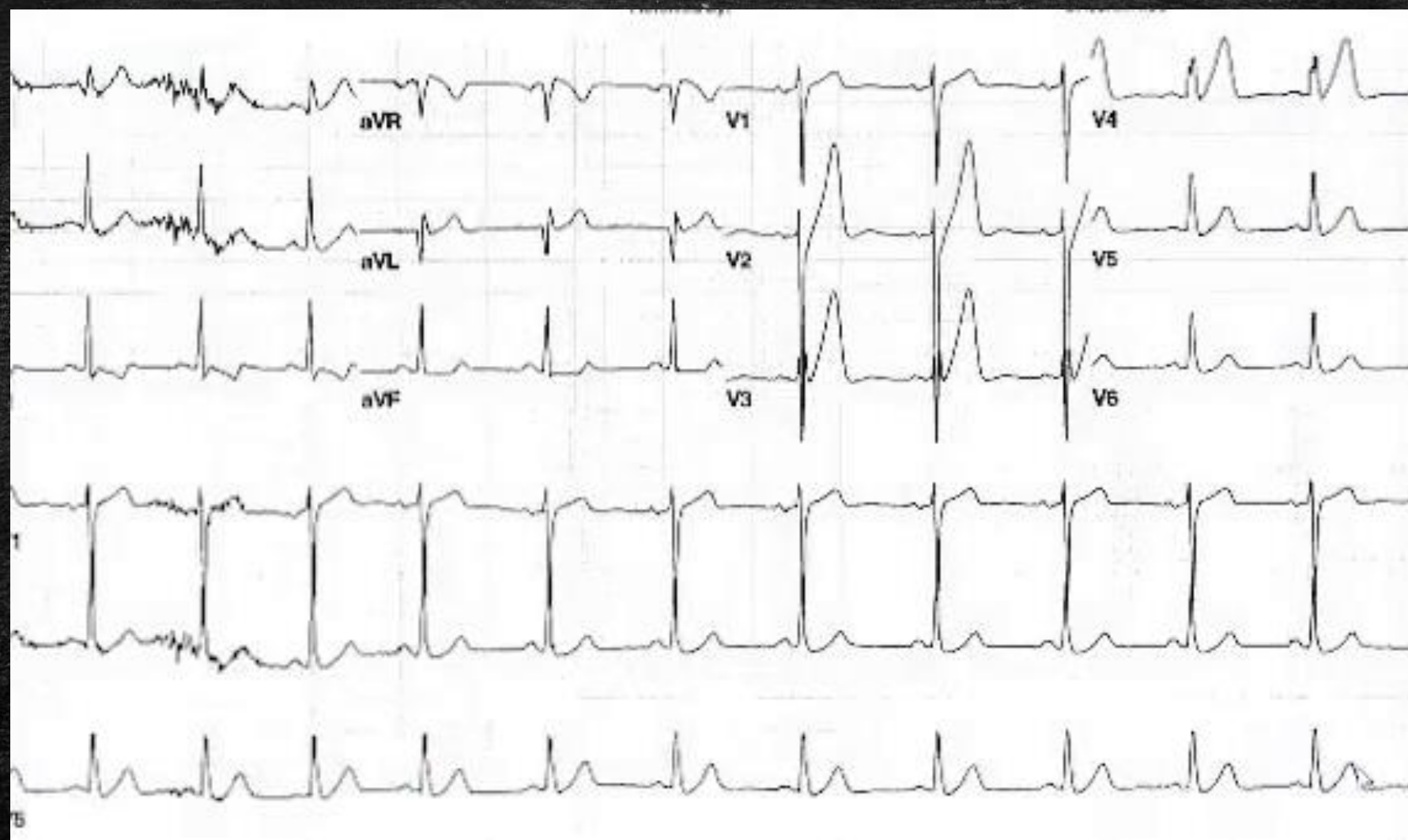
De Winter's T dalgaları

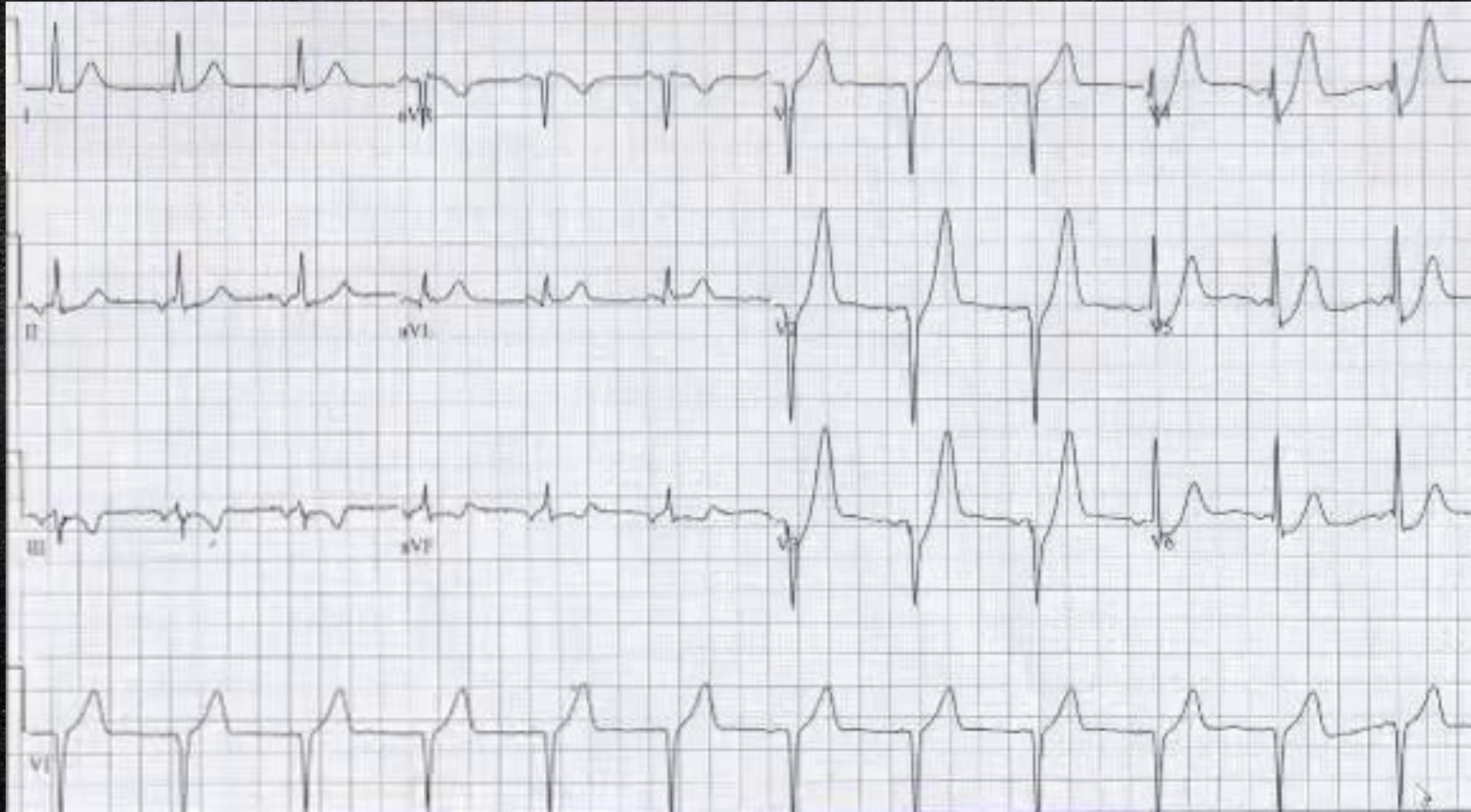
Proksimal LAD akut tıkanıklığı

- ⌚ Anterior MI olan 35 hasta
- ⌚ Prekordial leadlerde J noktasında 1-3mm ST depresyonu
- ⌚ Uzun simetrik T dalgaları









Unutulan Derivasyon : aVR

⌚ aVR derivasyonunuda ST segmenti izoelektrik hattadır.

aVR de ST segment yüksekliği varsa (1 mm ve ↑)

-LMCA

-Proximal LAD

-3 damar hastalığı

⌚ aVR'de STE

⌚ + aVL'de STE → LMCA

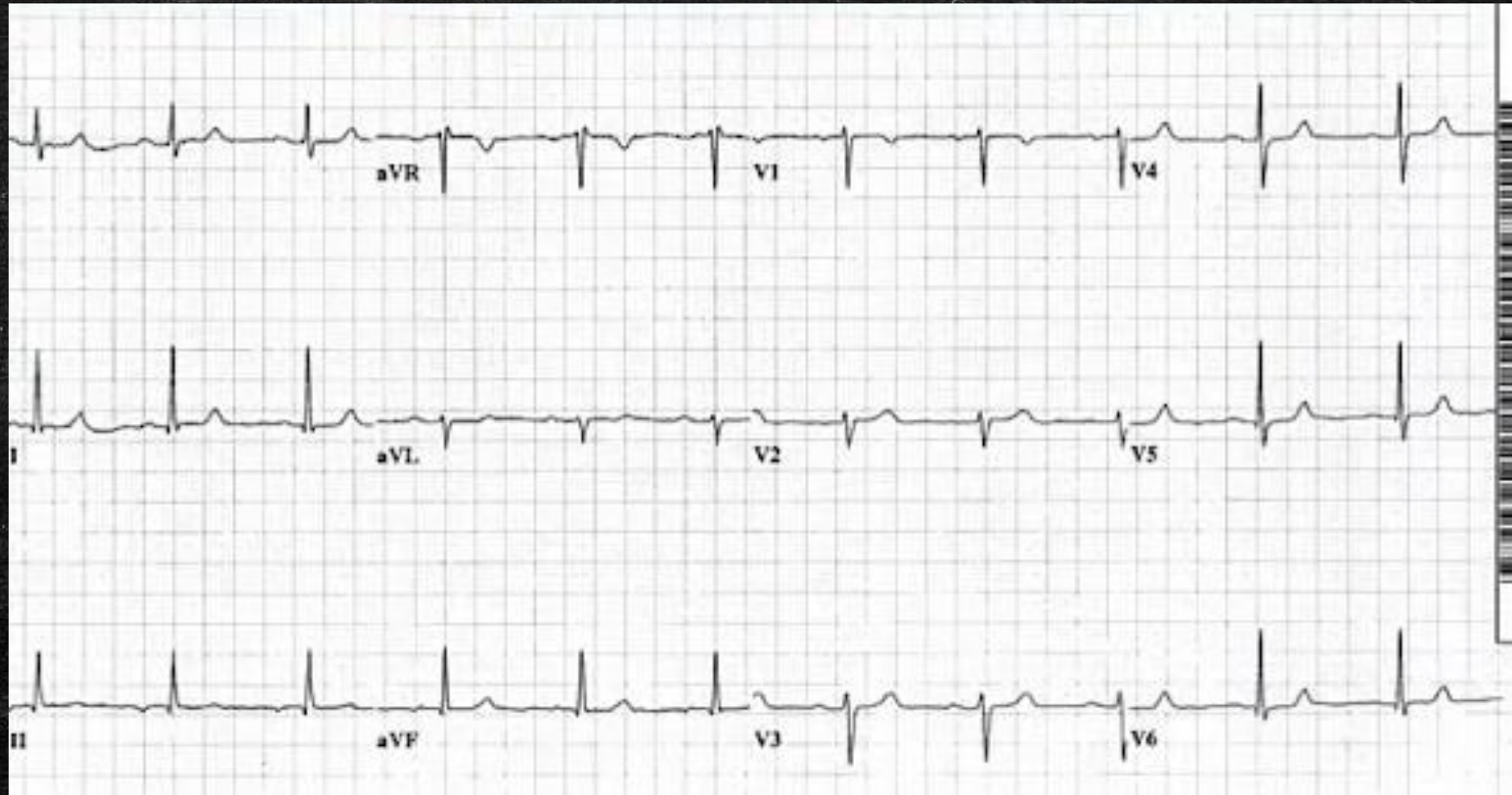
⌚ + V₁'de STE → LMCA veya proximal LAD

⌚ aVR STE > V₁ STE → LMCA

⌚ V₁ veya aVR de ST yükselmesi ile birlikte 8 veya daha fazla yüzey derivasyonunda
0.1 mV ST çökmesi

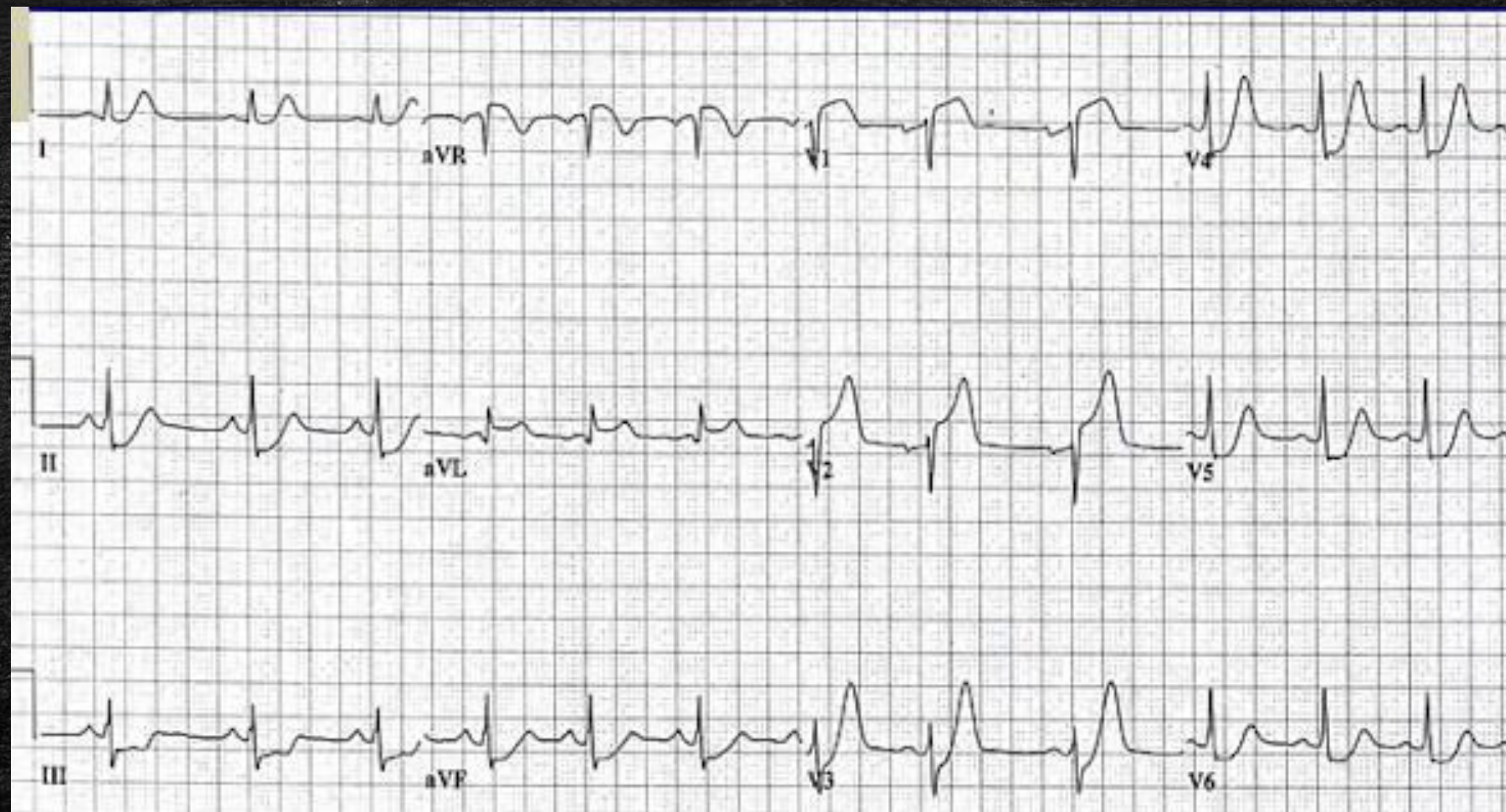
⌚ ilaç tedavisi ile mortalite yaklaşık %70

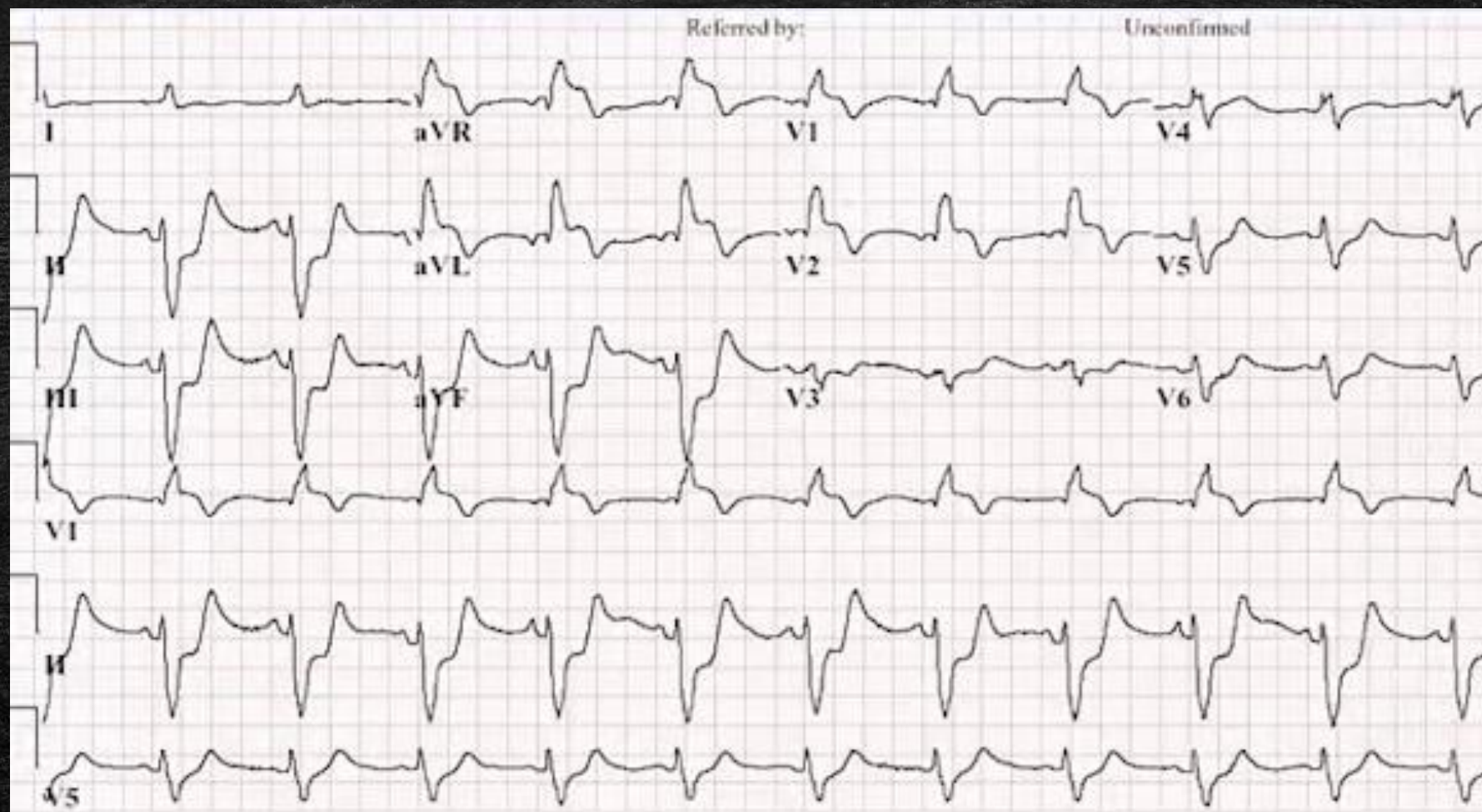
⌚ PKG ile bu oran %40'a iniyor.

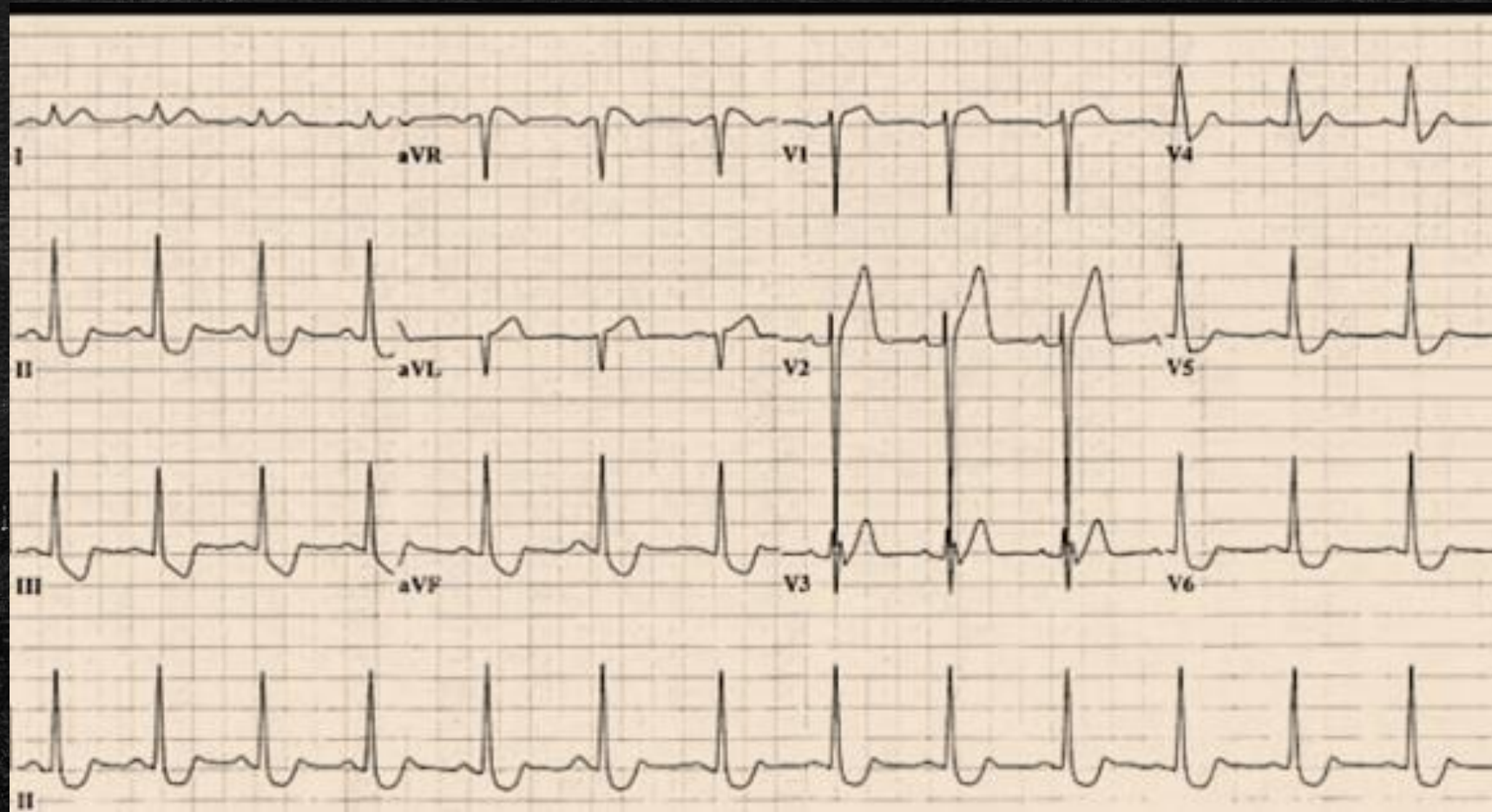


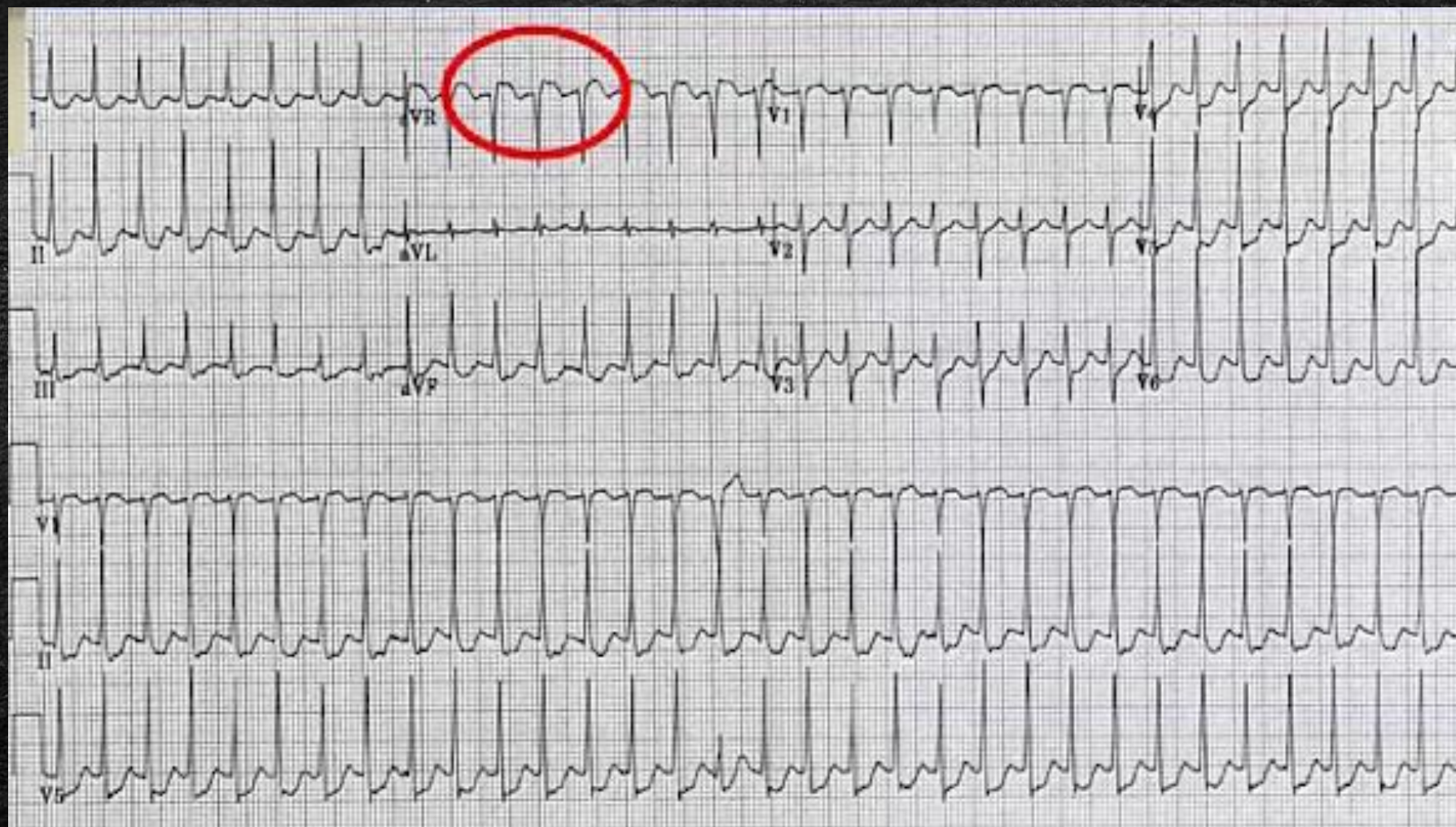
Referred by:



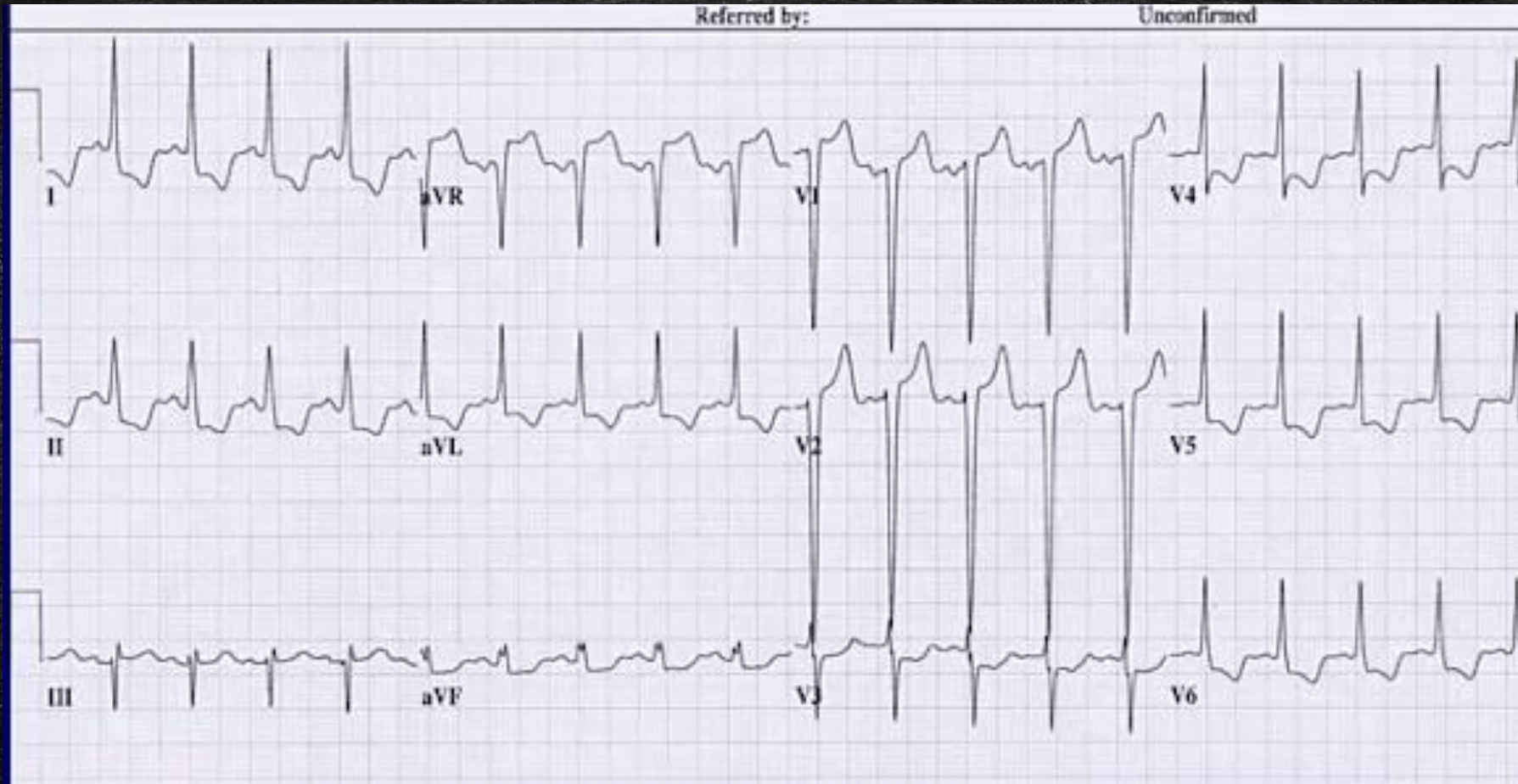




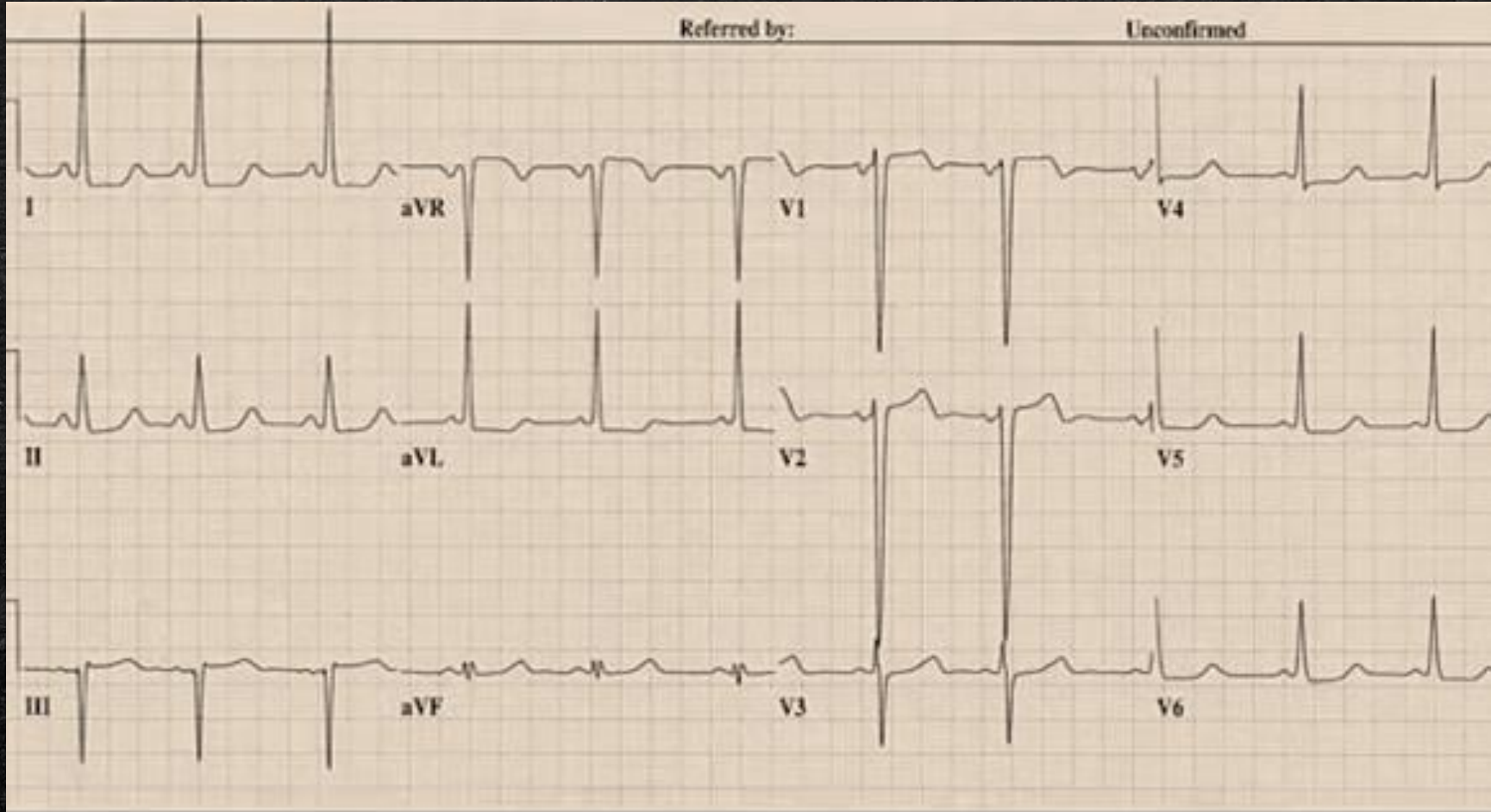




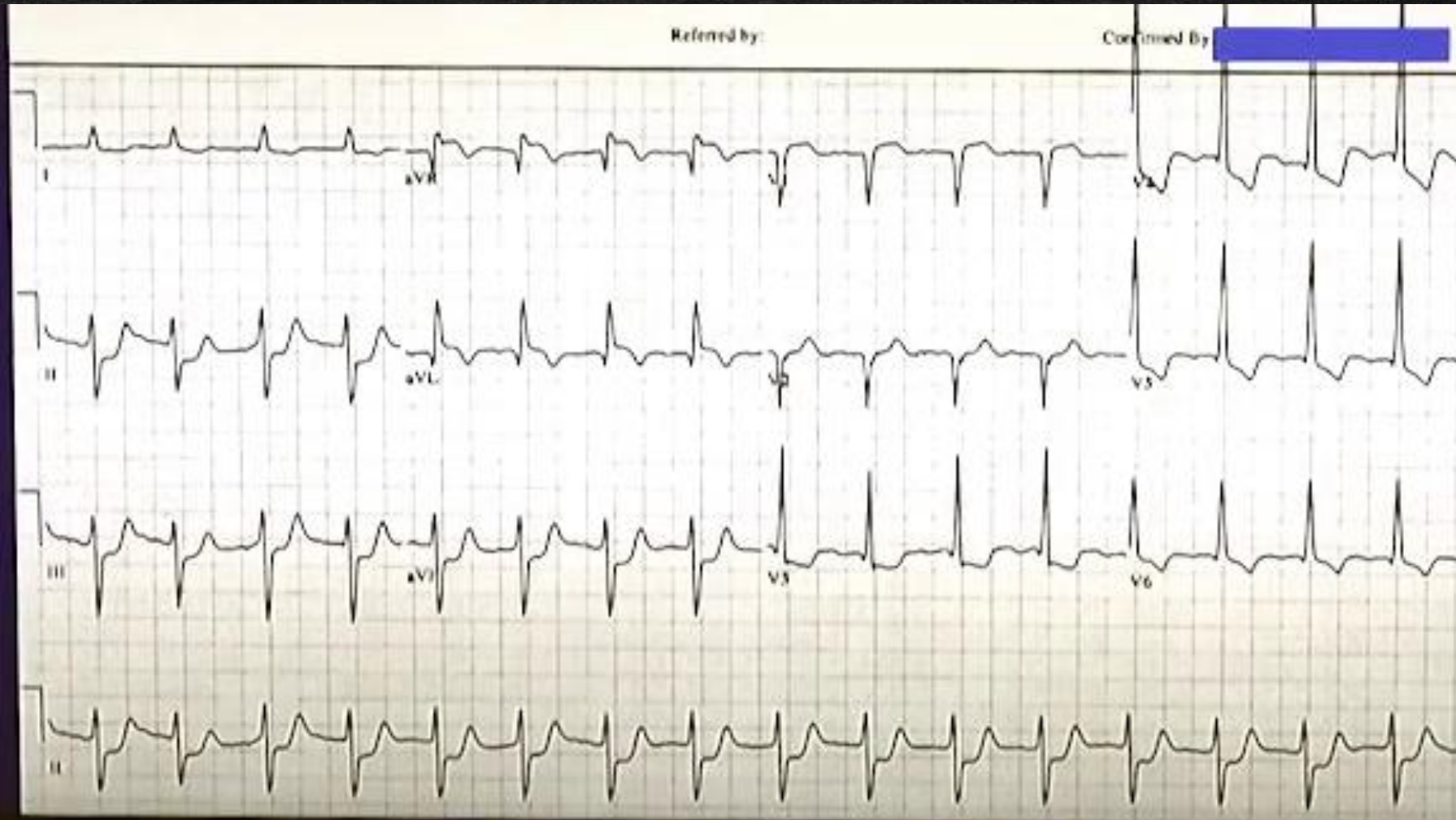
SVT + aVR STE



Yüksek kan basıncı (240/140 mmHg) + aVR STE



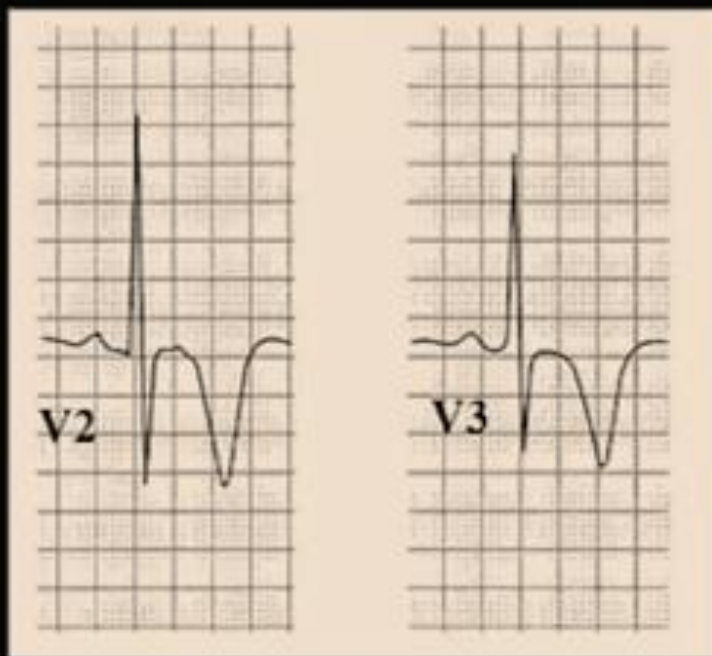
Yüksek kan basıncı (190/100 mmHg) + aVR STE



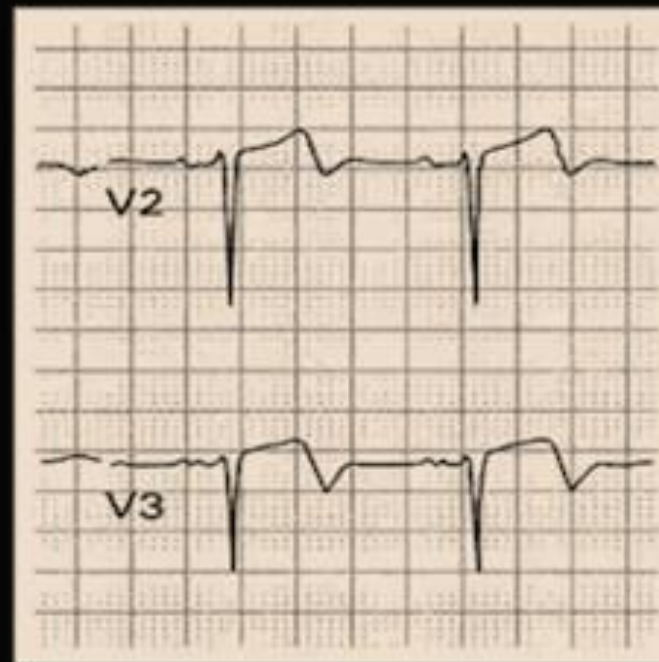
LVH+ strain vs LMCA ???
Kan basıncı normal

Wellen's Sendrom

- ⌚ EKG'de $V_2, V_3 \pm V_4$ de T dalga değişikliği
- ⌚ Proksimal LAD kritik tıkanıklığını öngörür
- ⌚ Anterior MI için risk
- ⌚ 2 tipi var



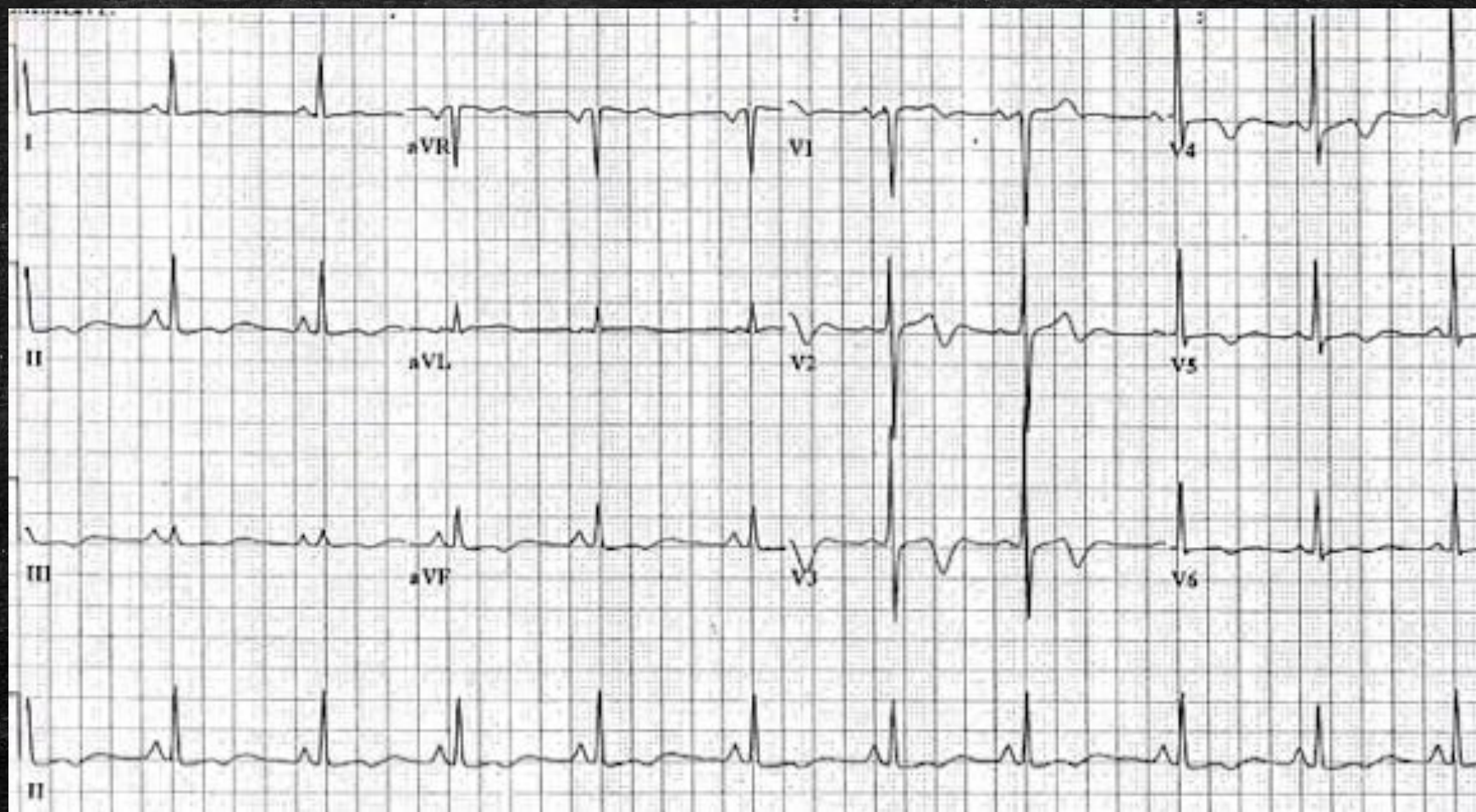
Type 1

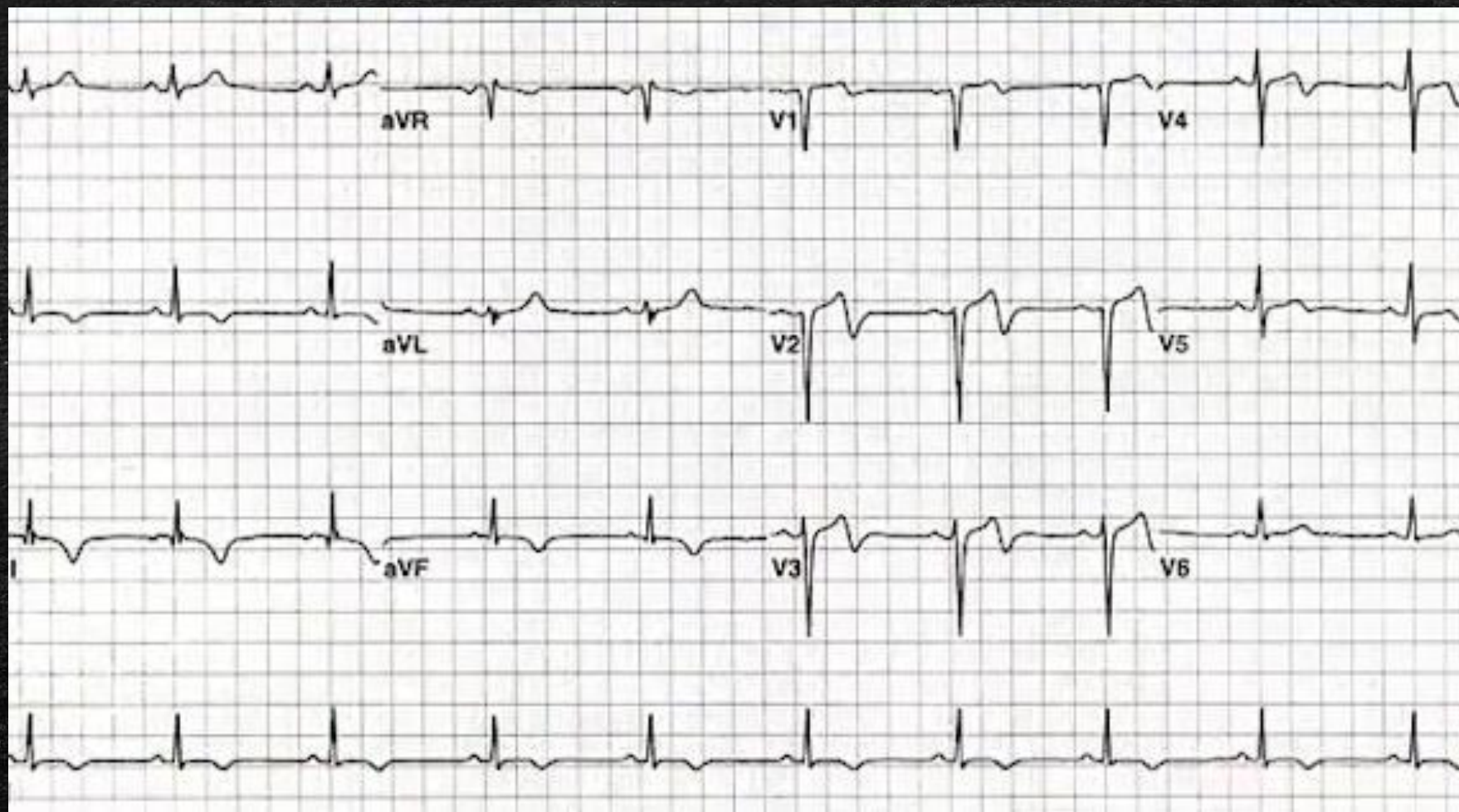


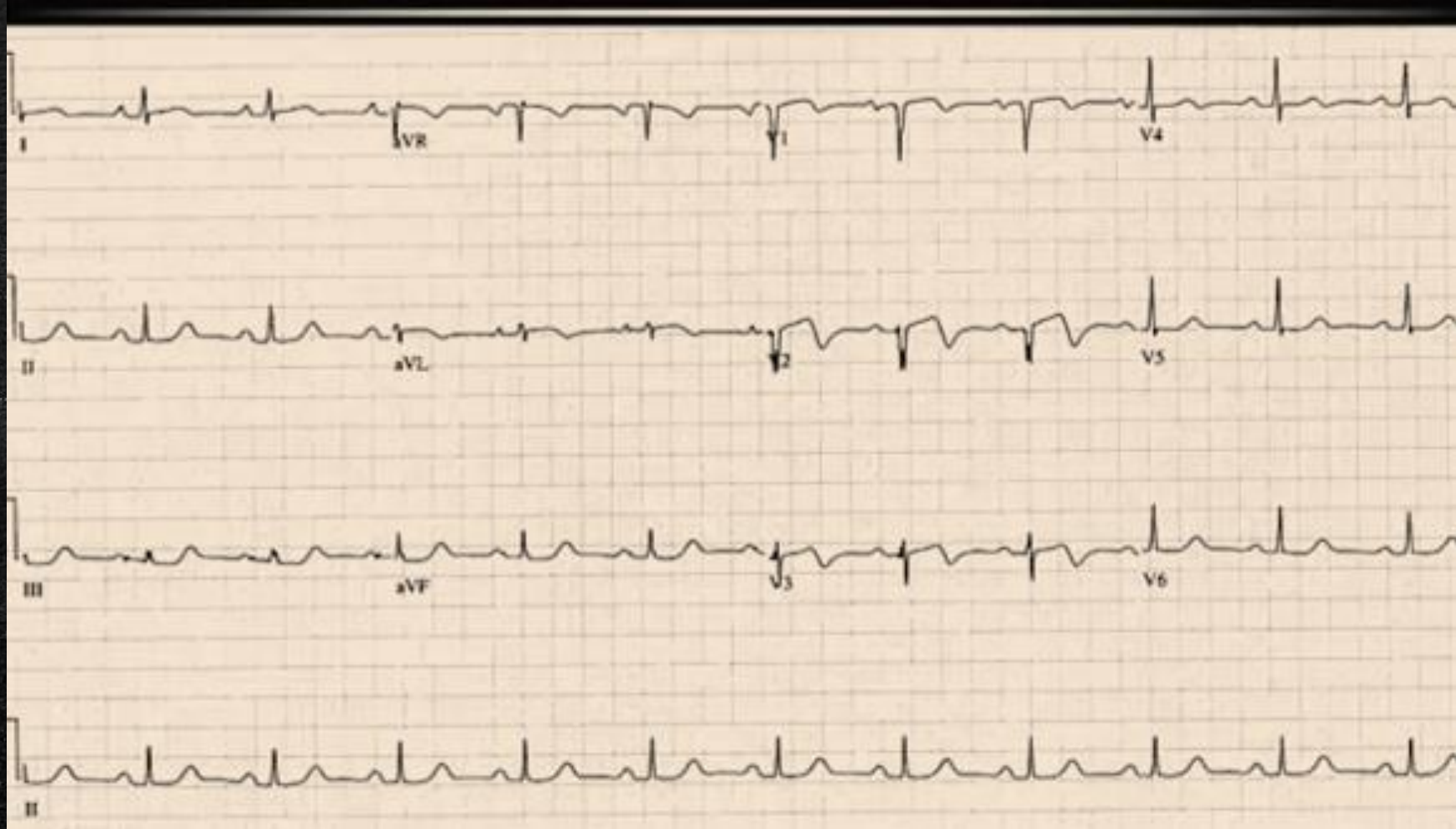
Type 2

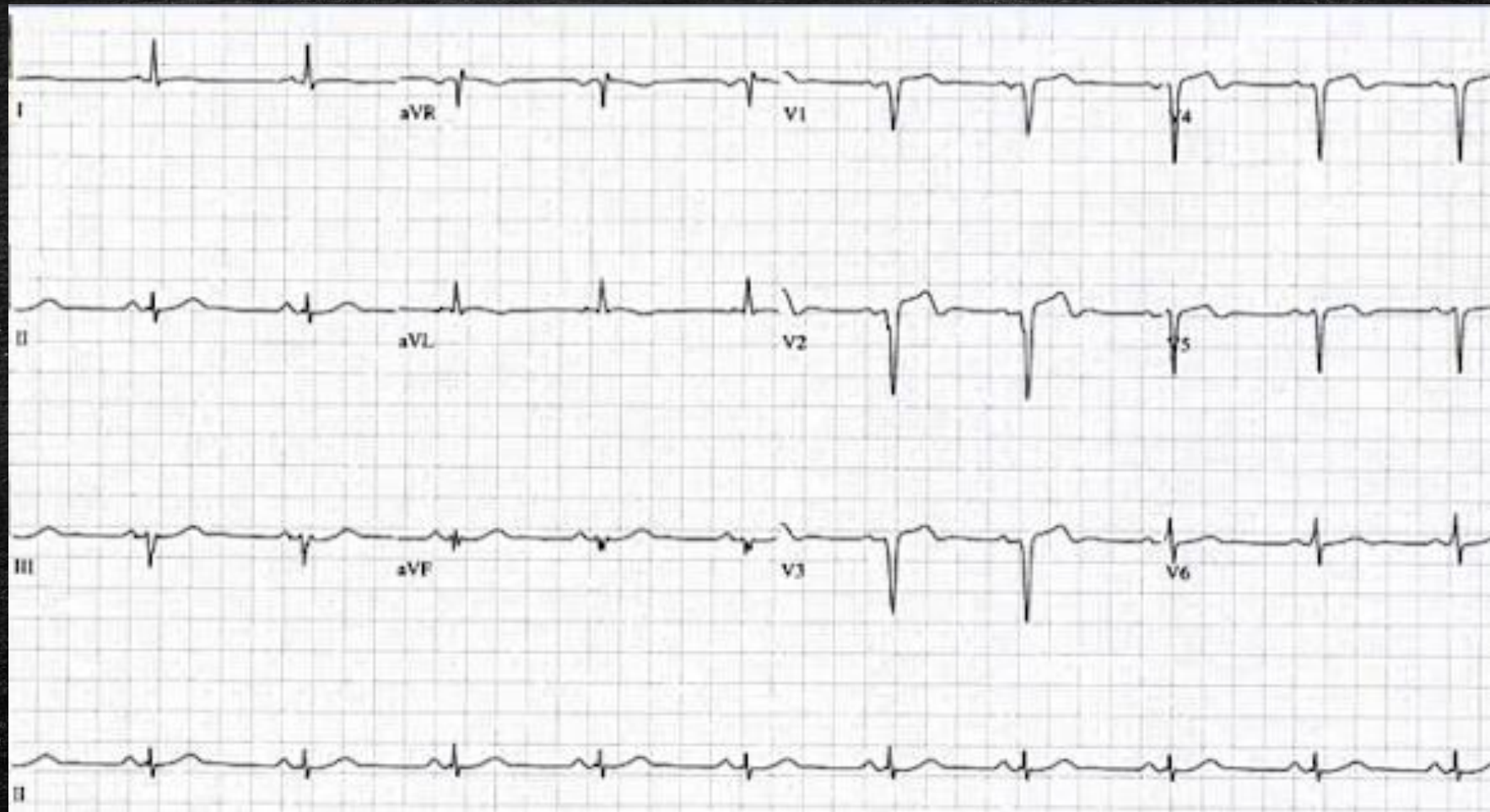
⌚ **Dikkat!!!!!!**

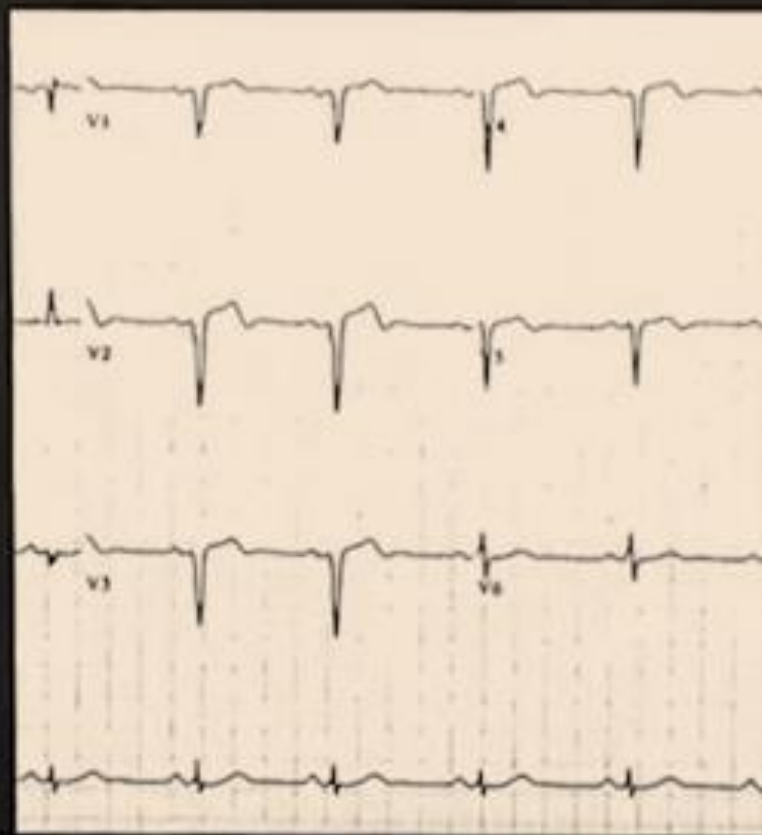
- ⌚ Genellikle non spesifik ST-T değişiklikleri şeklinde yorumlanır.
- ⌚ ST değişikliği genelde eşlik etmez
- ⌚ Ağrı geçtikten sonra bile EKG değişikliği tesbit edilebilir
- ⌚ Kardiyak enzimler normaldir

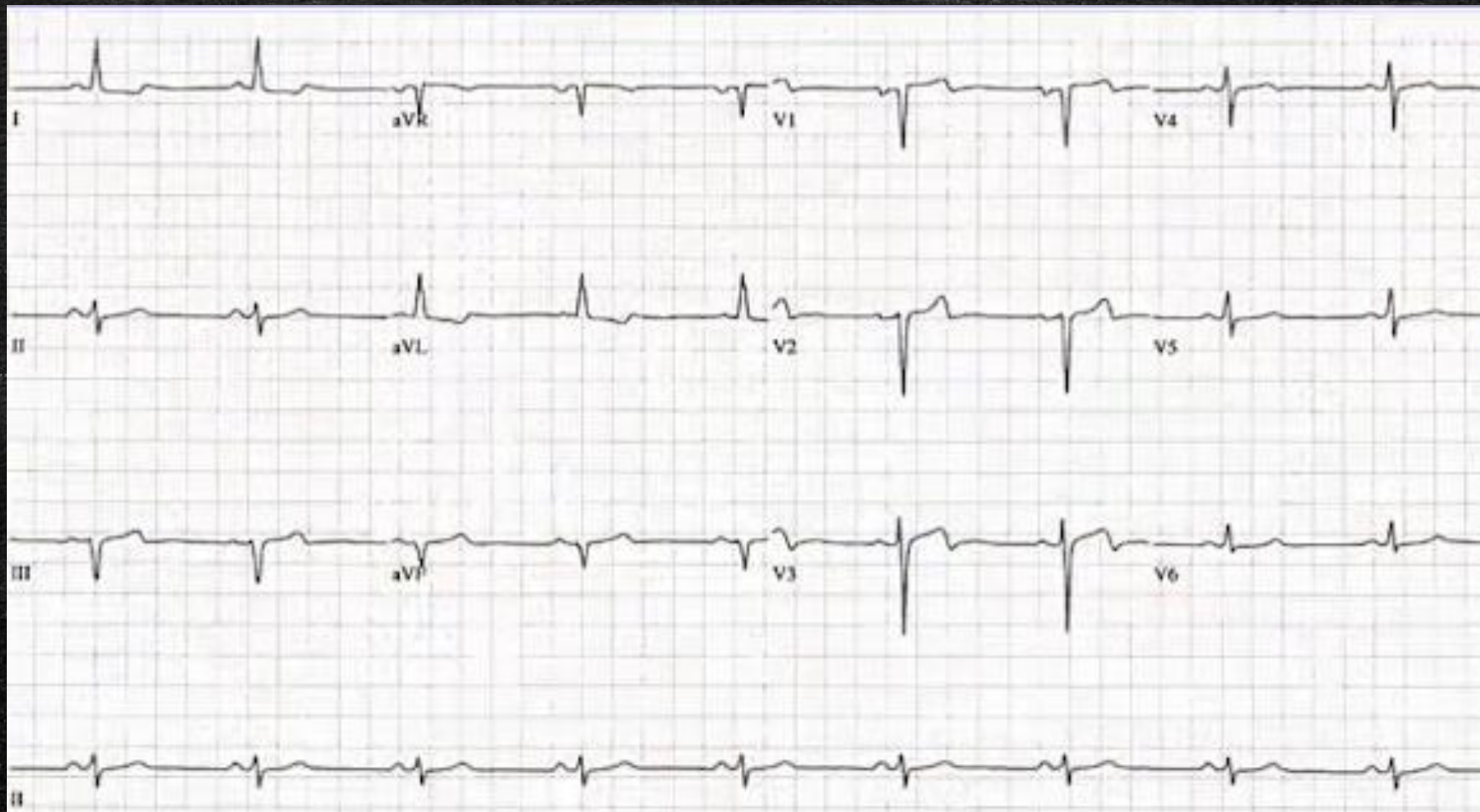


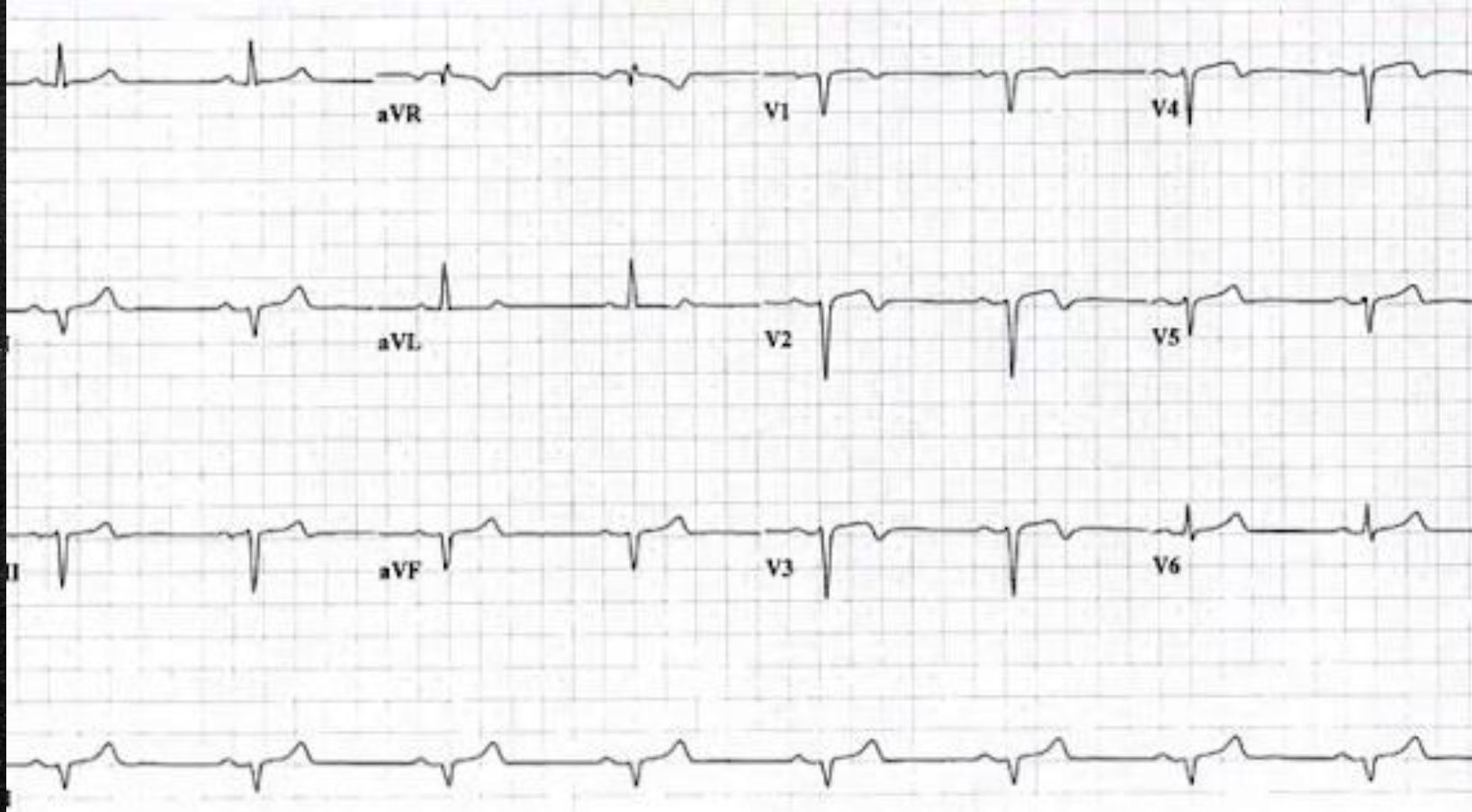








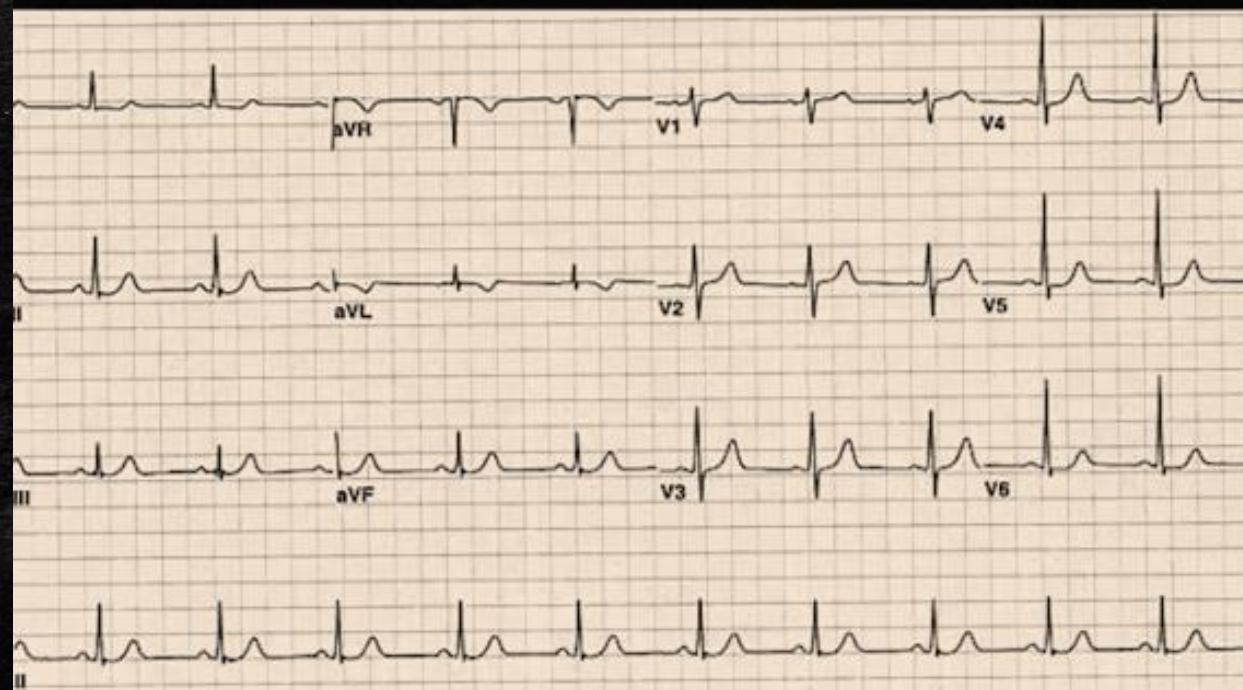
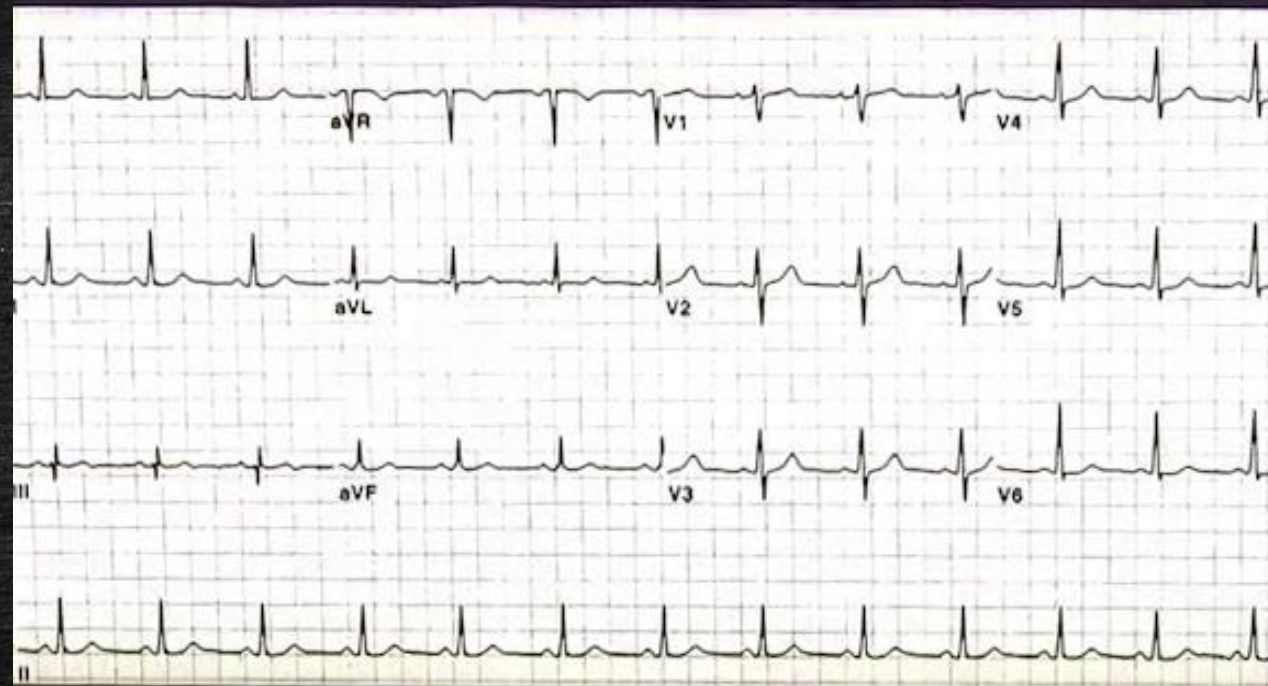




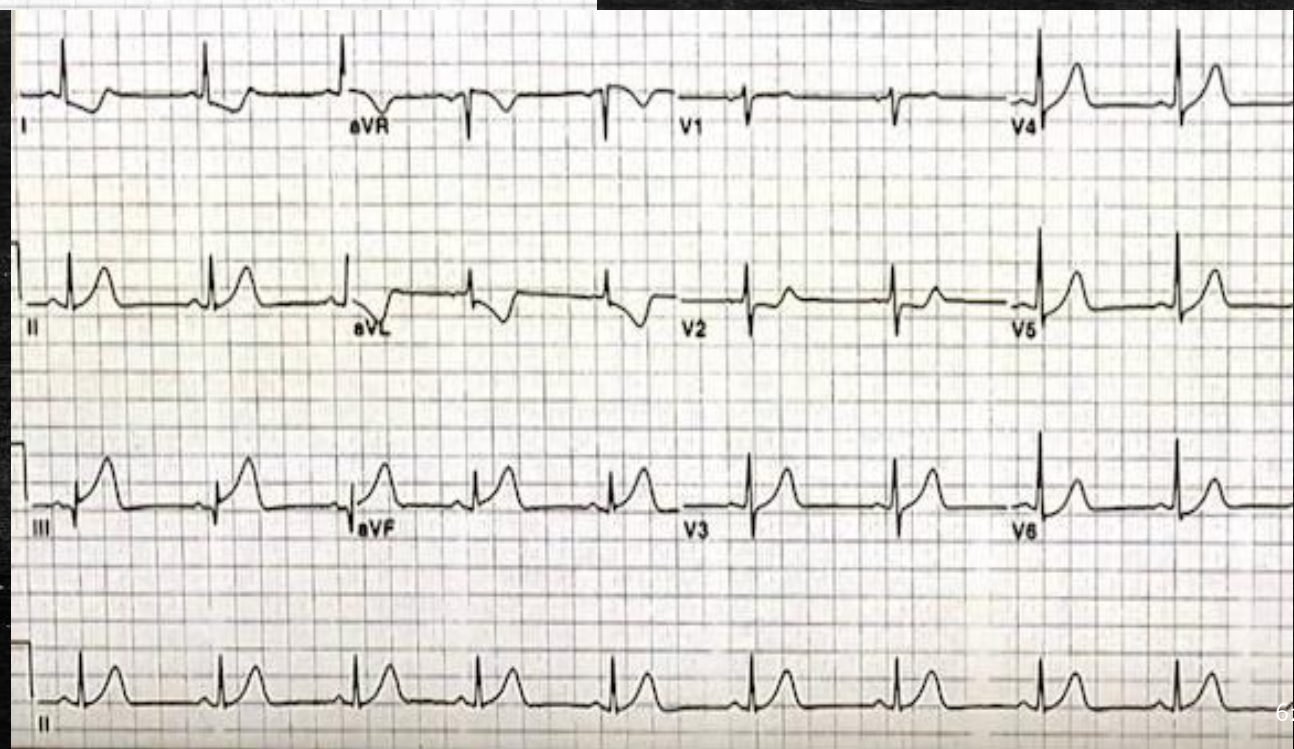
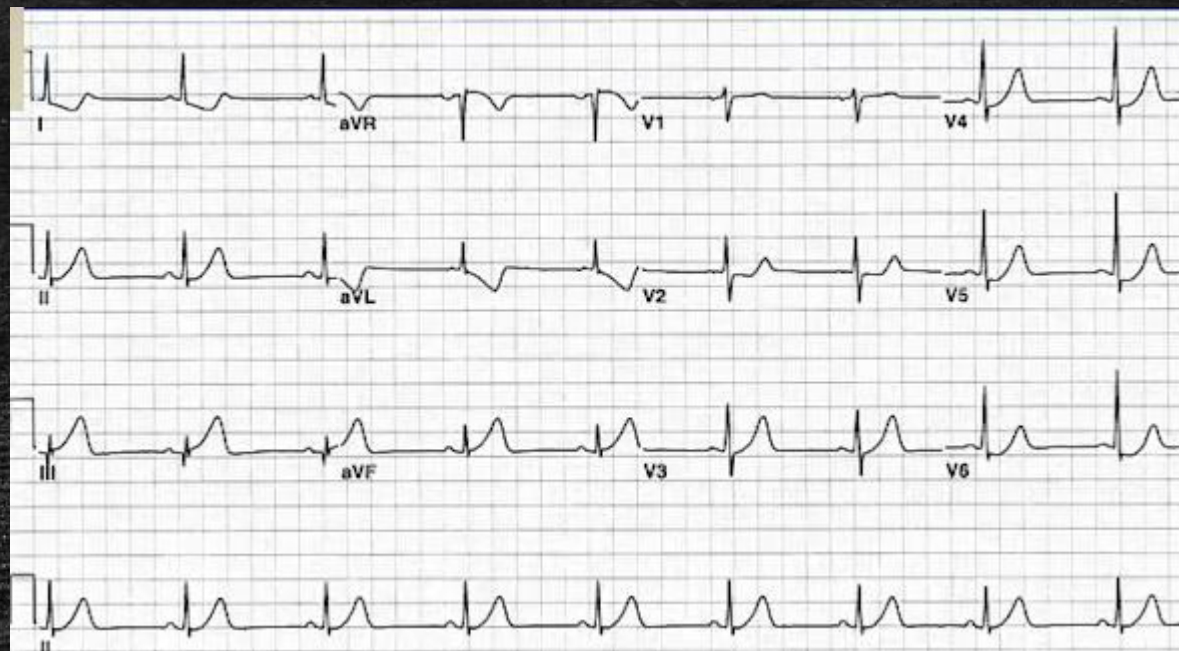
aVL'deki erken resiprokal değişiklikler

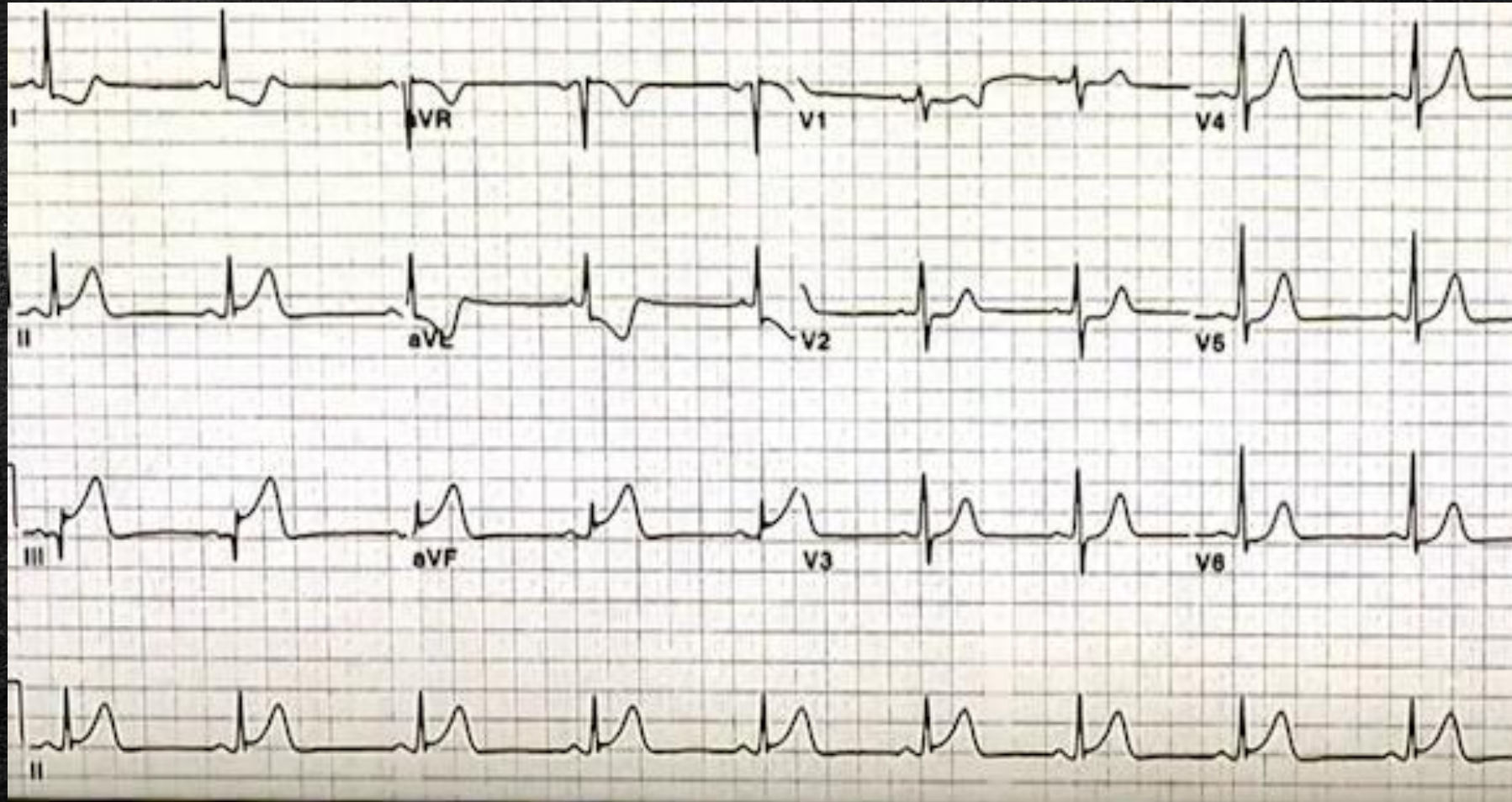
- ⌚ İnferior STEMI gelişmeden hemen önce
- ⌚ İnferior MI sıklıkla reflü benzeri semptomlarla birlikte dir
- ⌚ yanma, dispepsi, geğirme
- ⌚ LBBB ve sol ventrikül hipertrofisi varsa normaldir.

-
- ⌚ 56 yaşında erkek,
 - ⌚ Retrosternal yanma hissi,geğirme ve bulantı hissi ile başvuruyor.
 - ⌚ Hipertansiyon +, sigara kullanımı+
 - ⌚ Triage da antiasit tedavisi alıyor
 - ⌚ Biraz düzelme olunca gitmek istiyor
 - ⌚ Fakat yoğun birgün....
 - ⌚ Taburculuğu beklerken terlemeye başlıyor
 - ⌚ EKG çekiliyor...

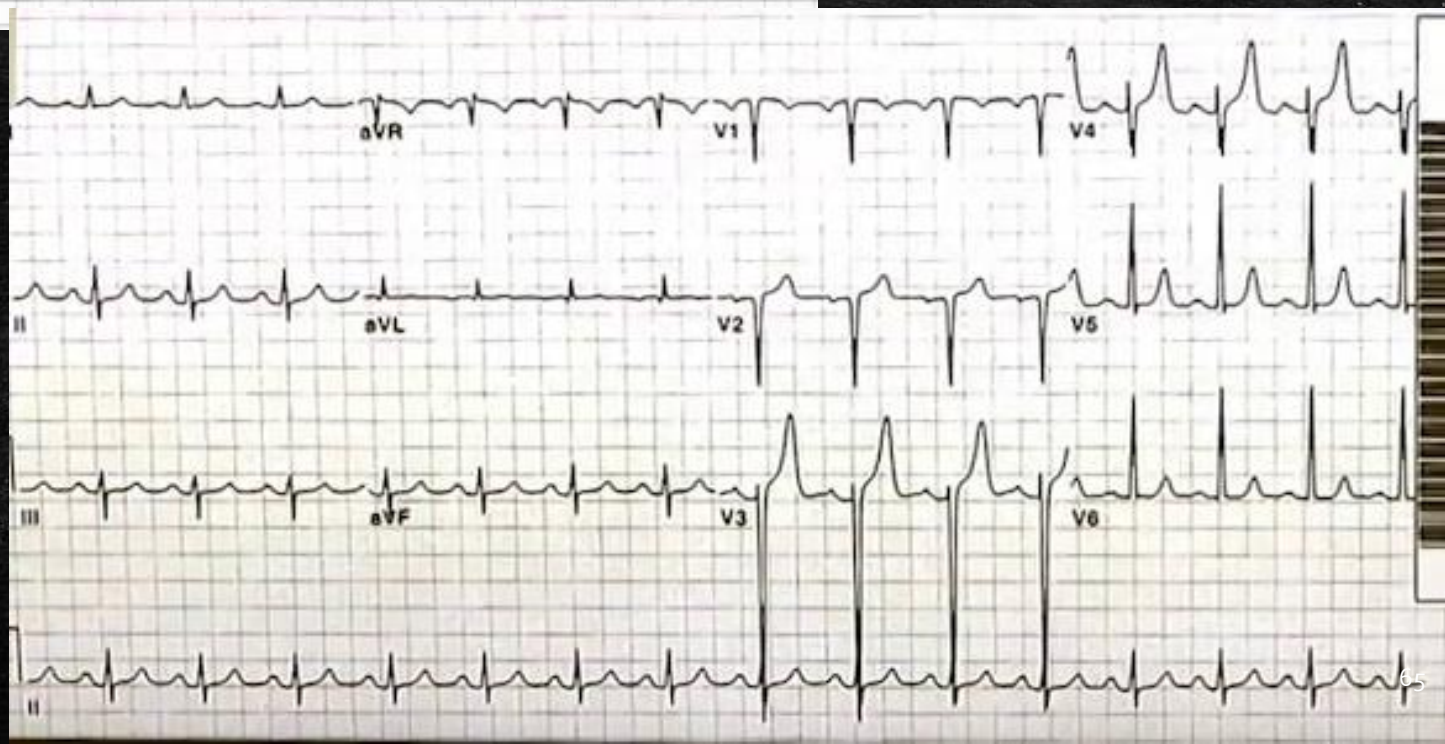
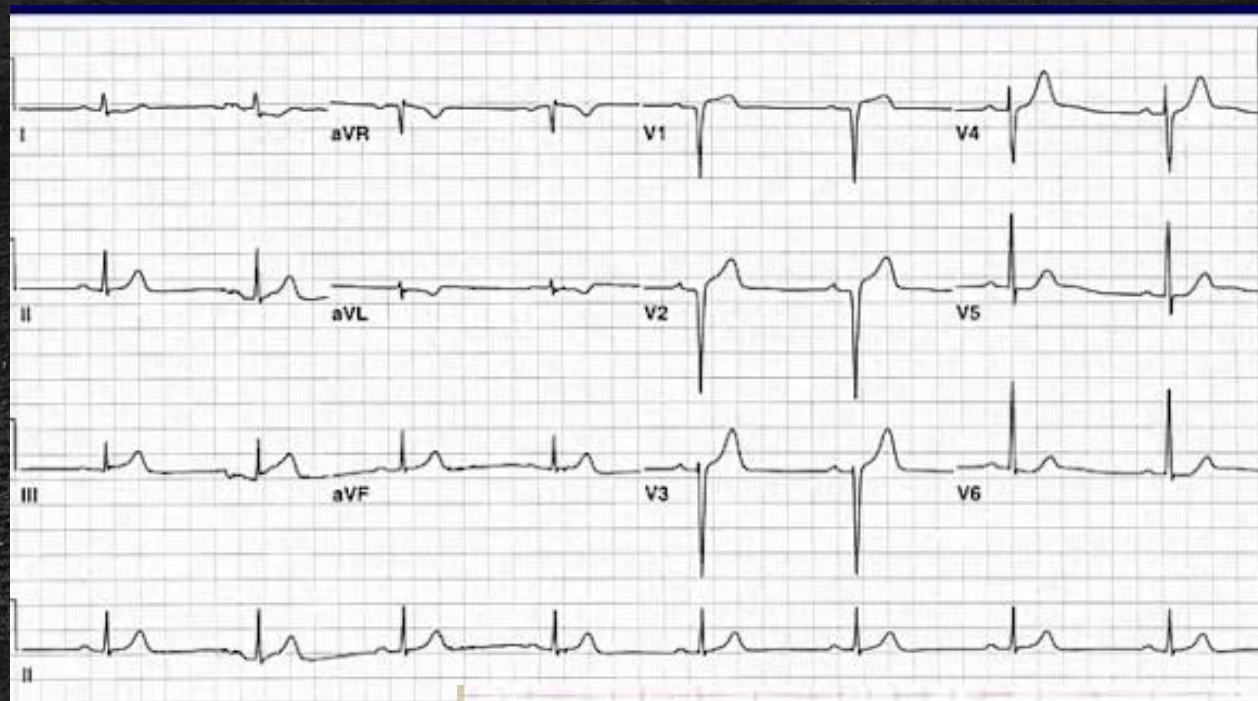


-
- ⌚ EKG normal olarak değerlendiriliyor,
 - ⌚ Bir daha antiasit veriliyor
 - ⌚ Fakat hastanın semptomları devam ediyor,
 - ⌚ Hastadan seri EKG çekiliyor

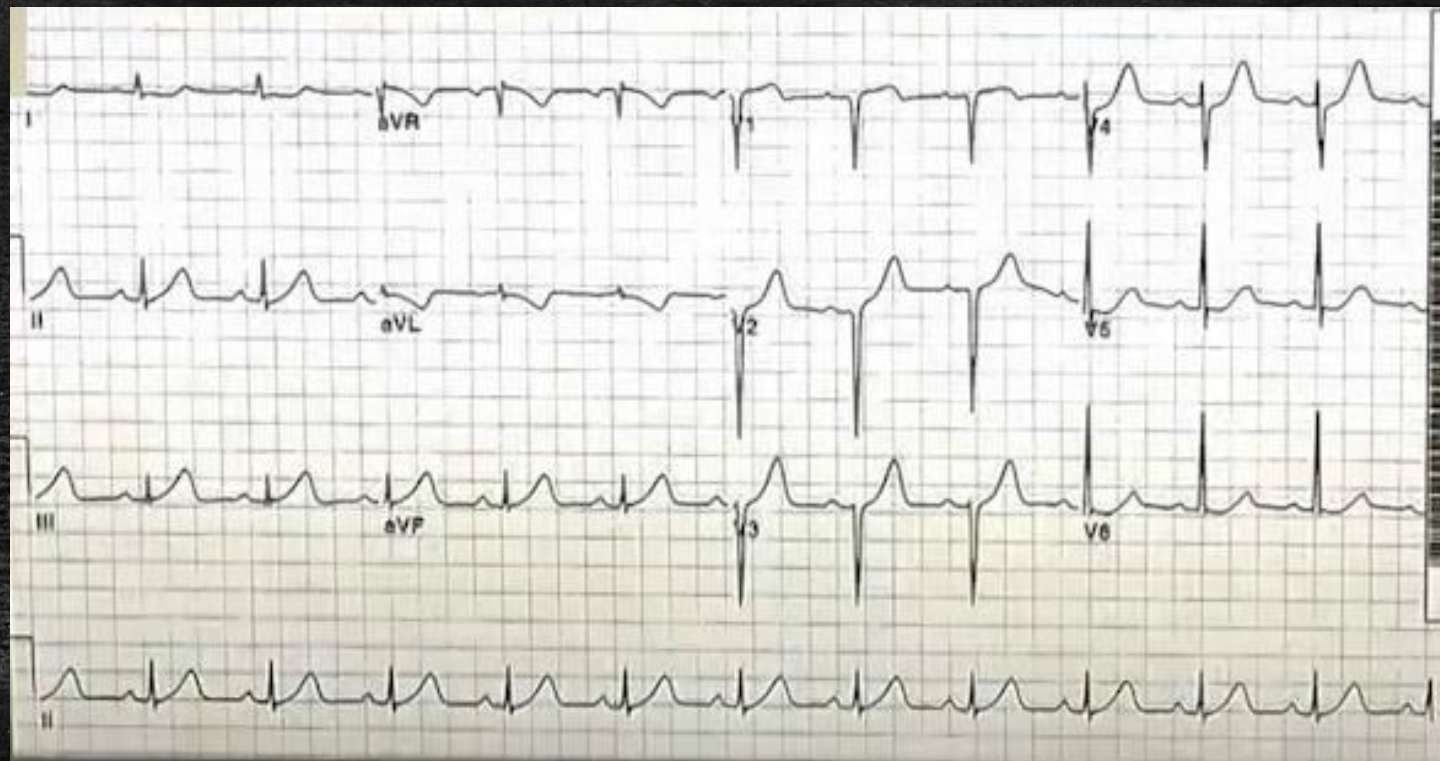




-
- ⌚ 47 yaşında erkek hasta sabahtan beri devam eden reflü şikayeti ile geliyor
 - ⌚ Substernal yanma,geğirme +
 - ⌚ Daha önce GÖR tanısı yok
 - ⌚ Geçirilmiş septal MI hikayesi var
 - ⌚ Antiasit ve H₂ reseptör antagonisti ile semptomları düzelmiş.
 - ⌚ EKG'de eski septal MI ve non spesifik ST-T değişiklikleri mevcut

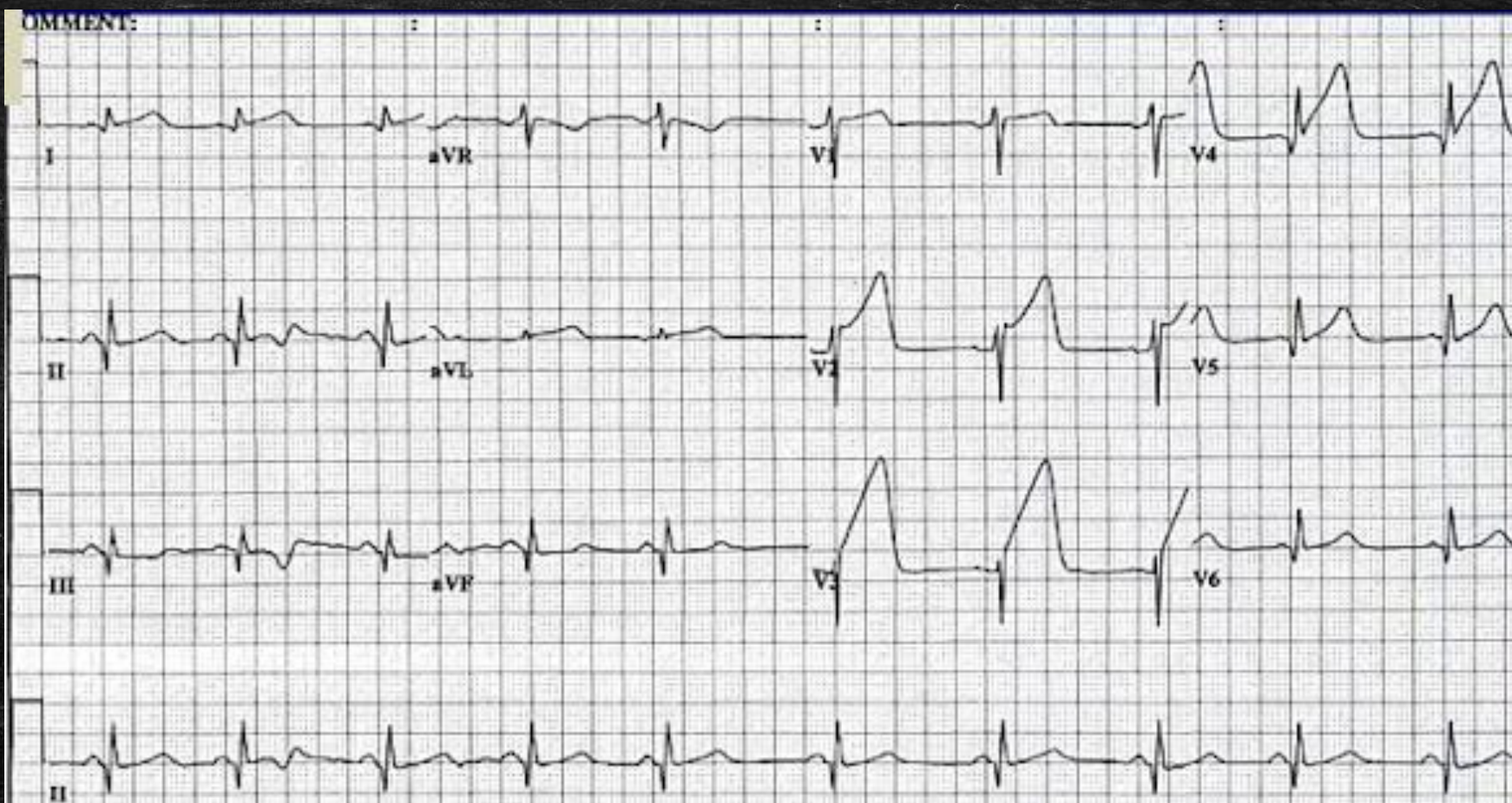


-
- ⌚ Hasta H₂ res antagonisti ile taburcu ediliyor.
 - ⌚ 2 saat sonra aynı semptomlarla başvuruyor
 - ⌚ EKG...

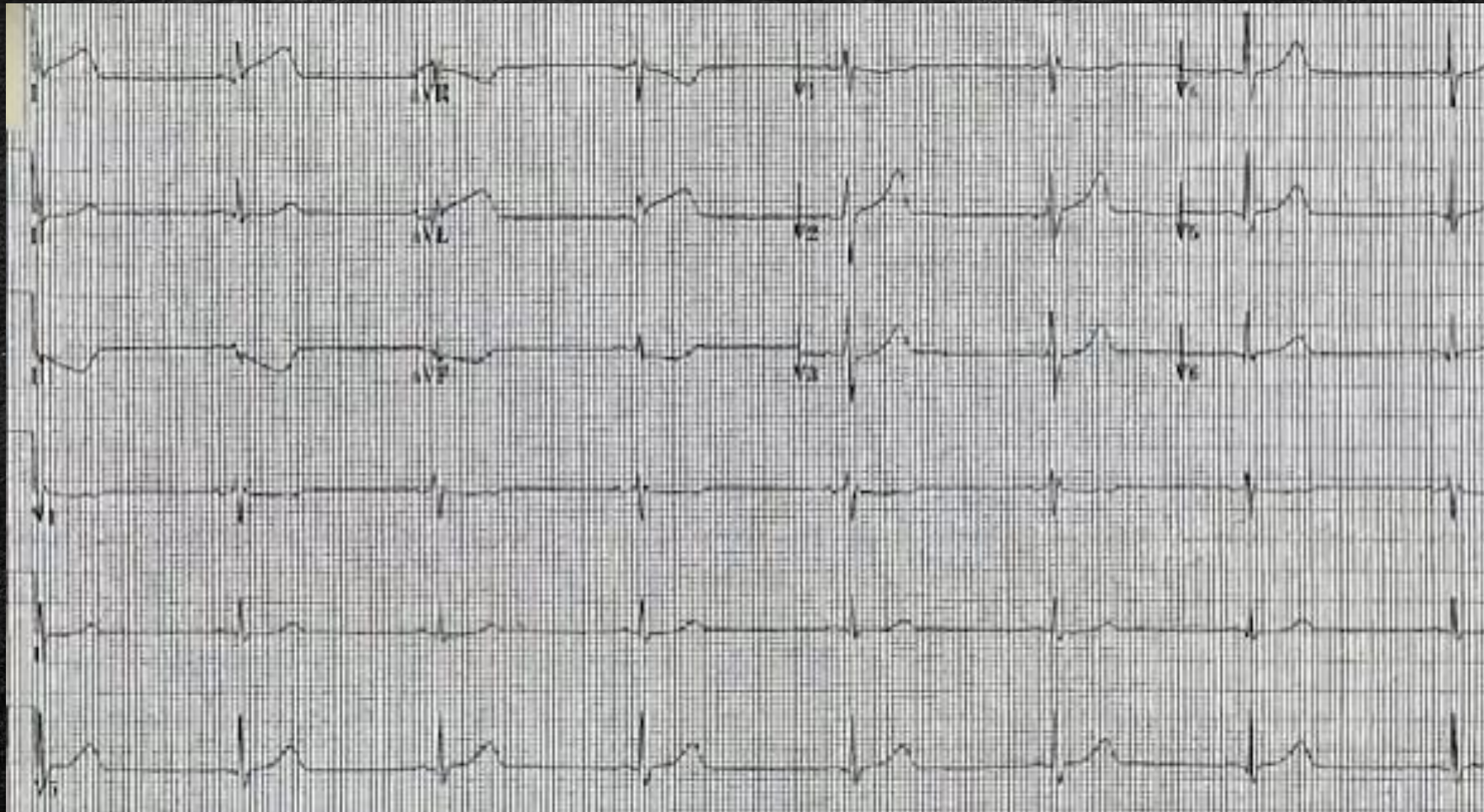


Hiperakut T dalgası

- ⌚ T dalgasının boyutu değil morfolojisi önemli
- ⌚ T dalgasının yükselirken düzleşmesi
- ⌚ T dalgası normalde yükselirken konkavlaşır.







Hiperkalemi

- ⌚ T'lerin sivrileşmesi
- ⌚ QRS'in genişlemesi
- ⌚ PR'nin uzaması
- ⌚ P'lerin düzleşmesi
- ⌚ Pseudo AKS-yeni dal blokları,ST değişiklikleri
- ⌚ Taşidisritmiler
- ⌚ AV bloklar ve sinüs arresti (tuhaf görünümlü bradikardiler)
- ⌚ Sinüsoidal dalgalar

STE ve geniş QRS varlığında

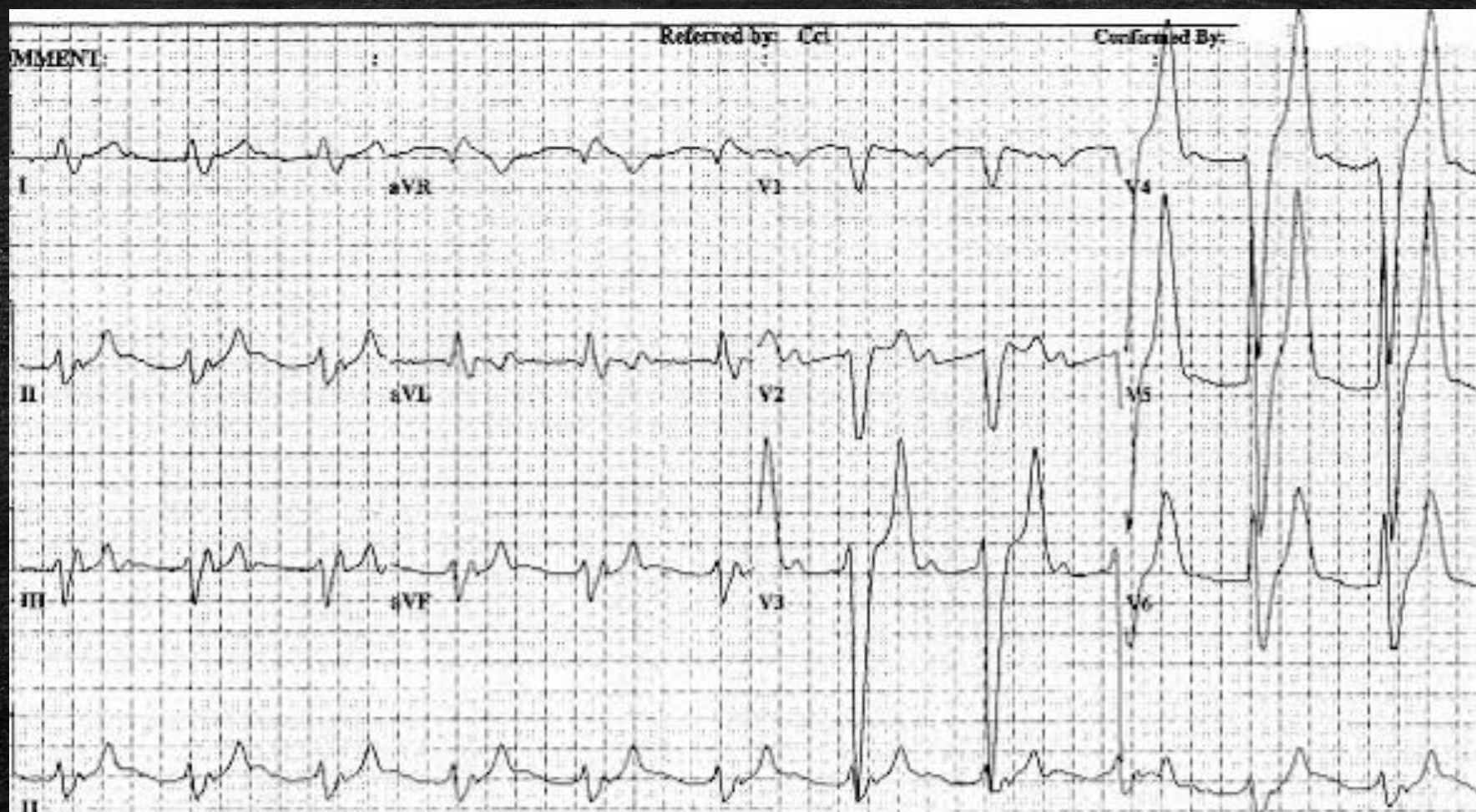
⌚ LBBB

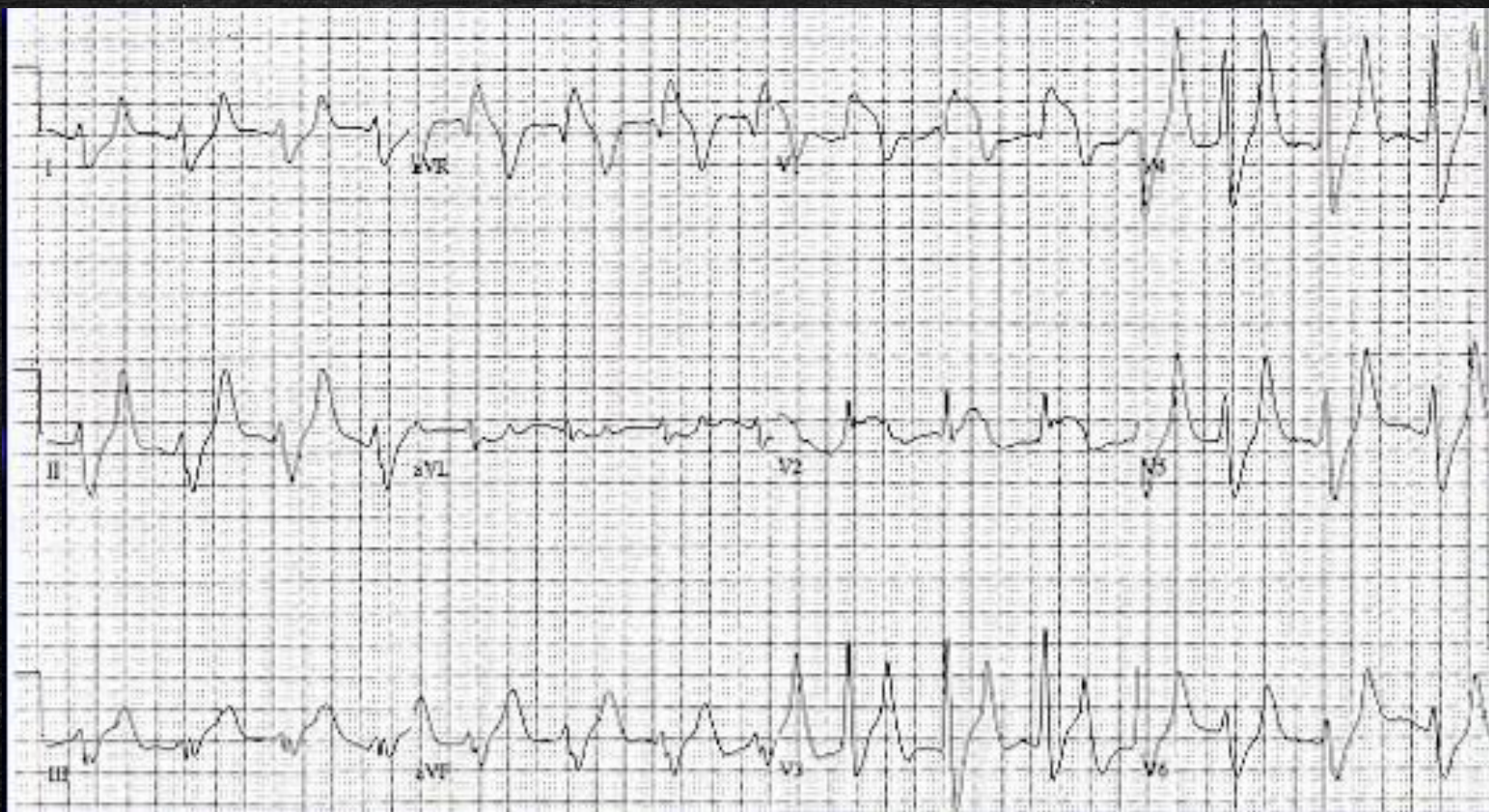
⌚ Pacemaker

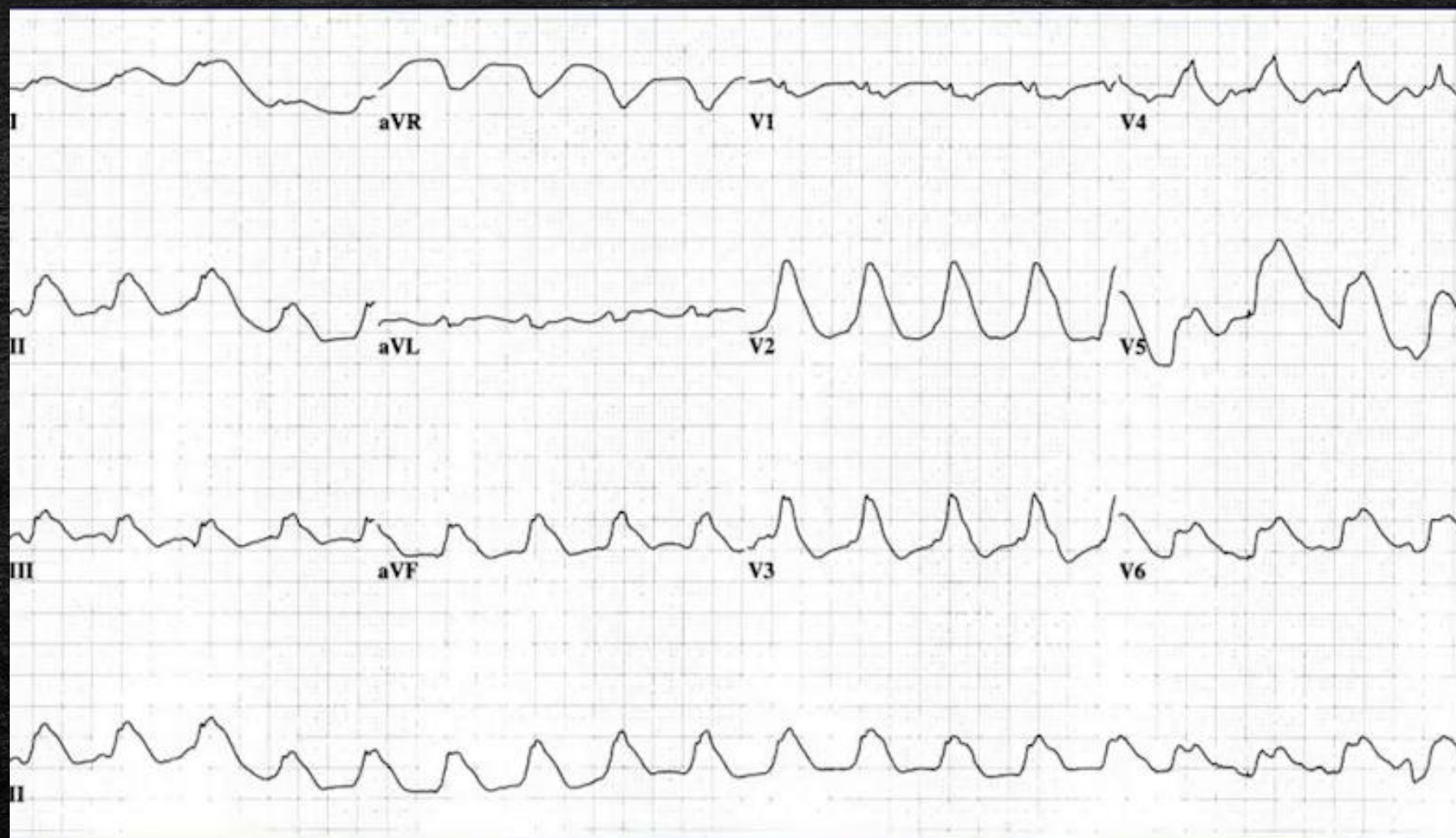
⌚ Hiperkalemi

düşün

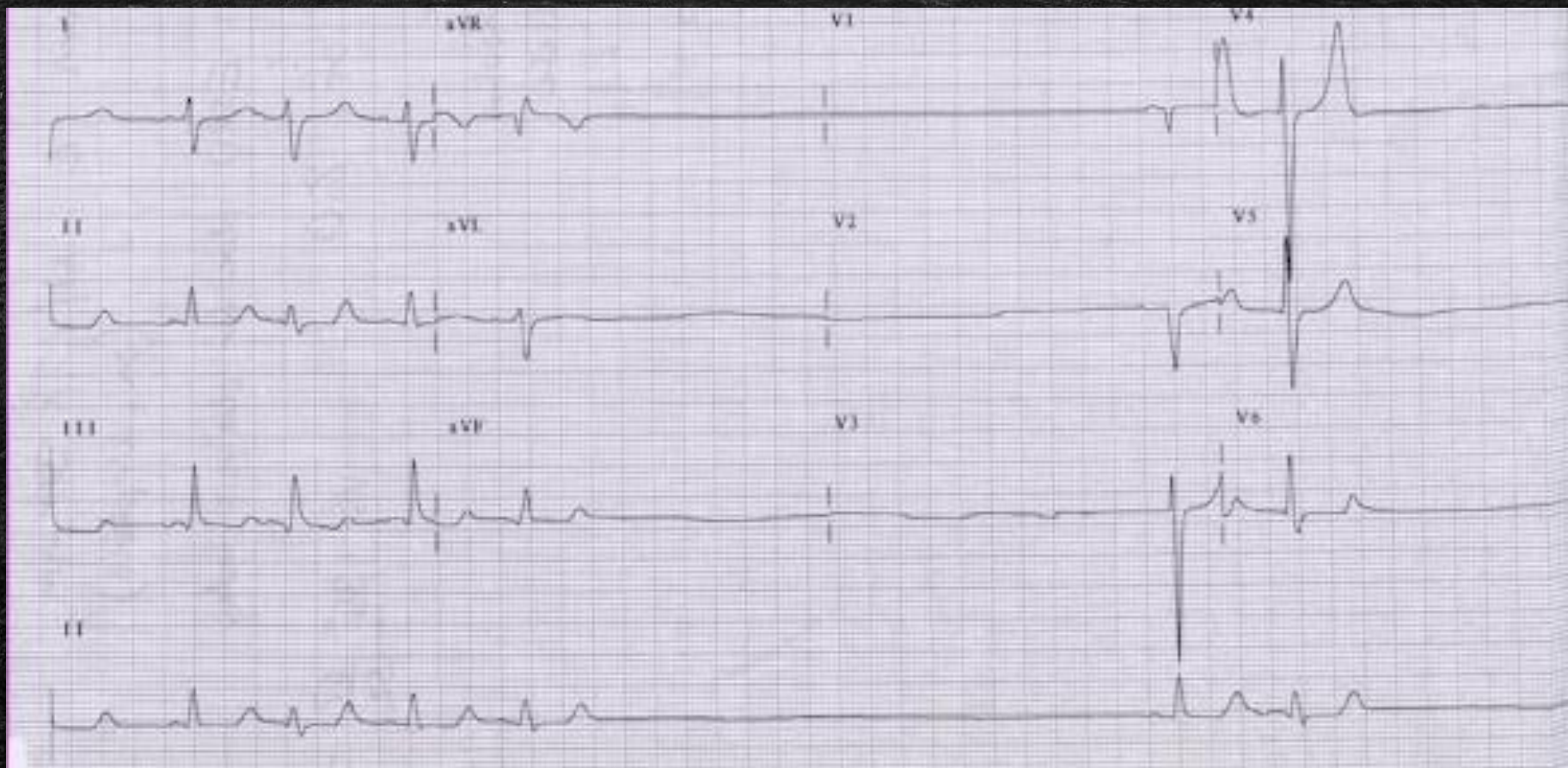
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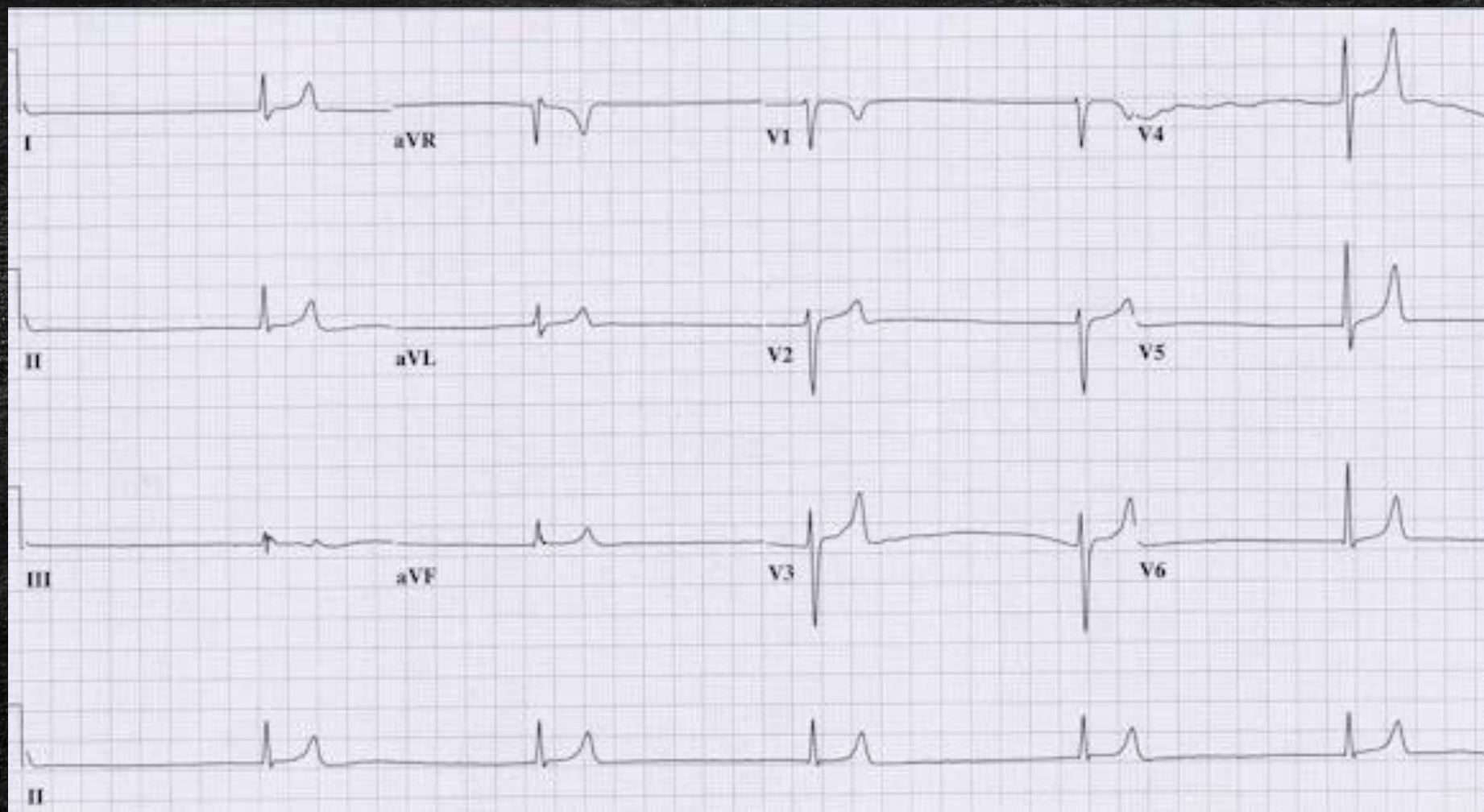


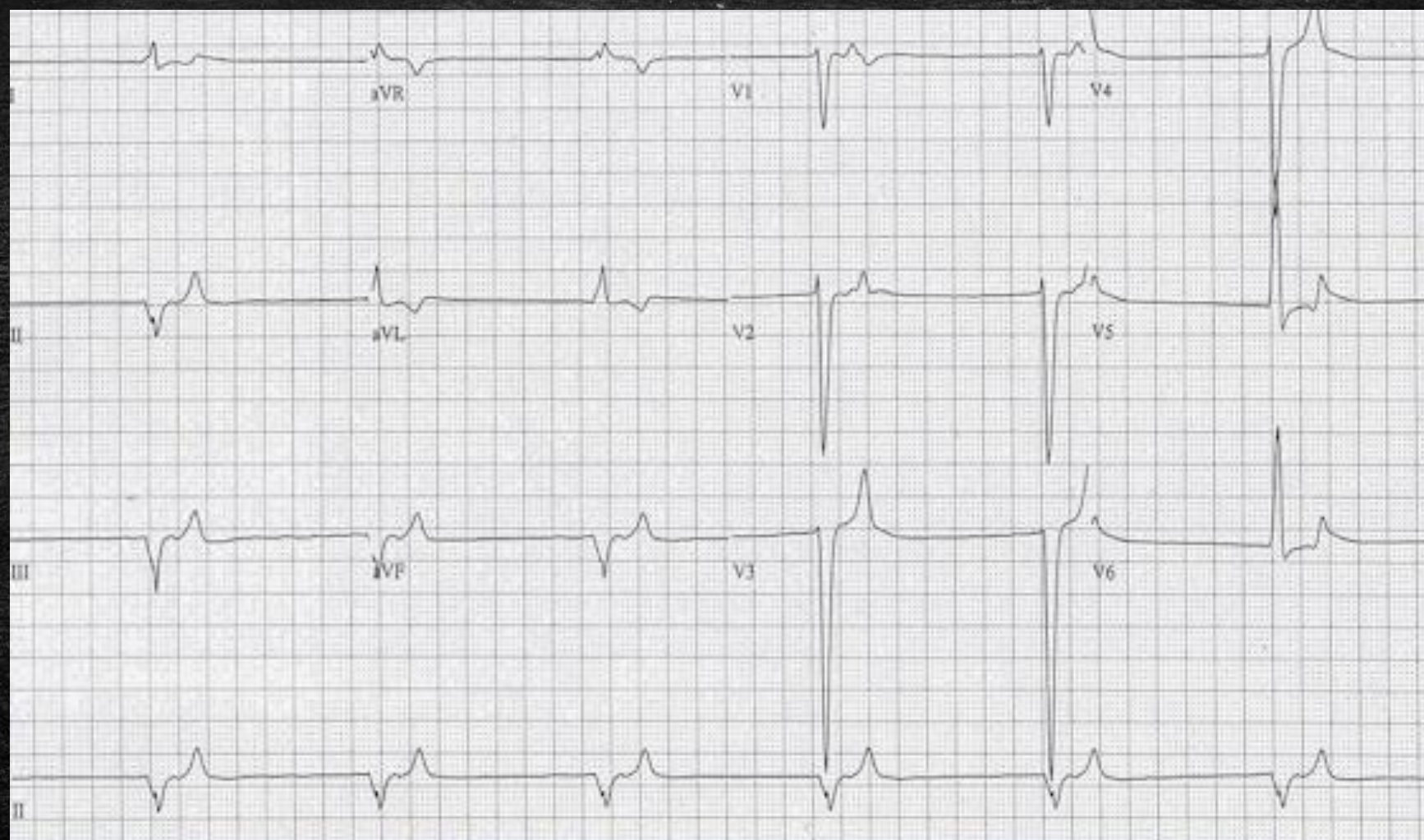




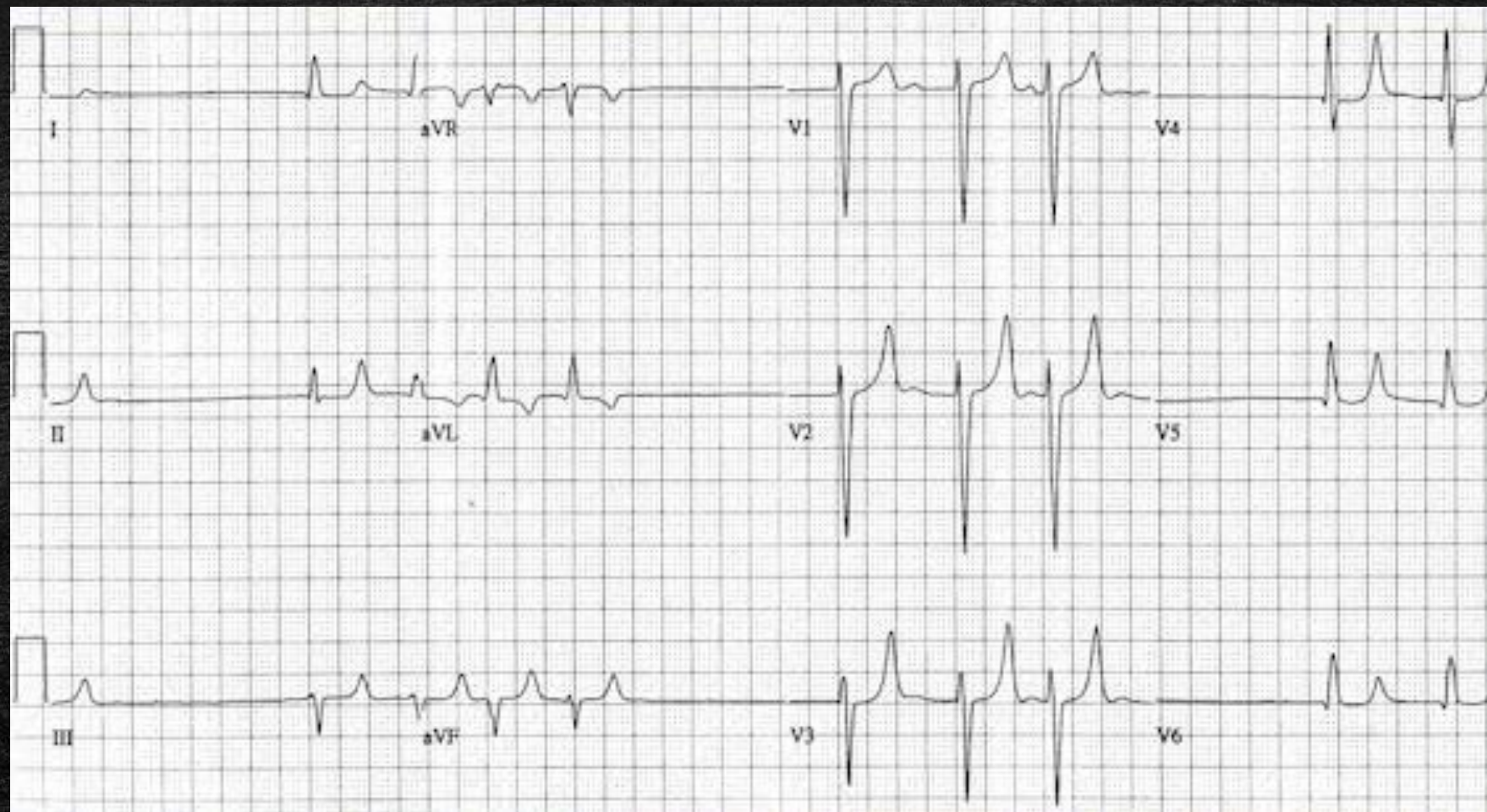


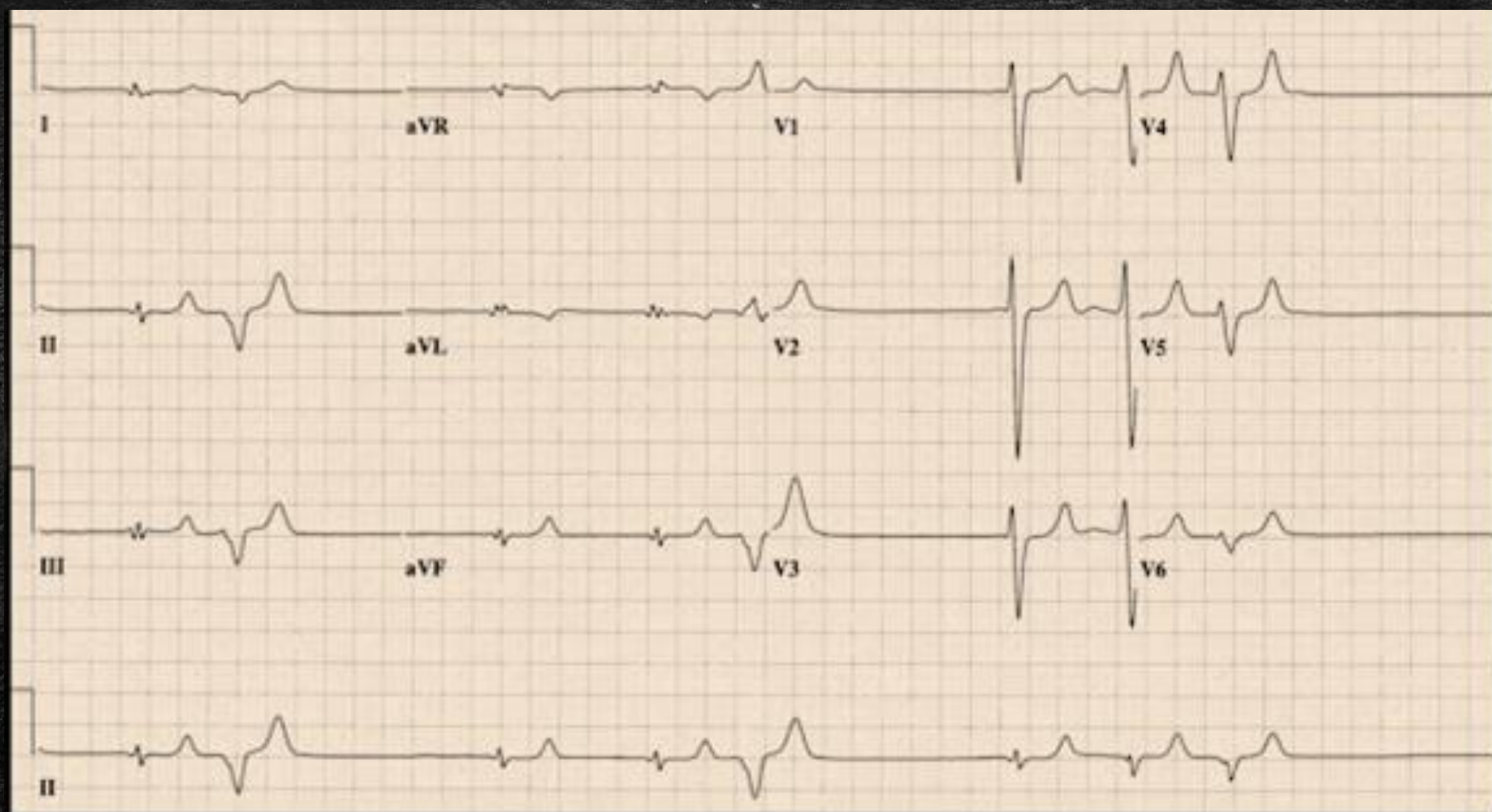


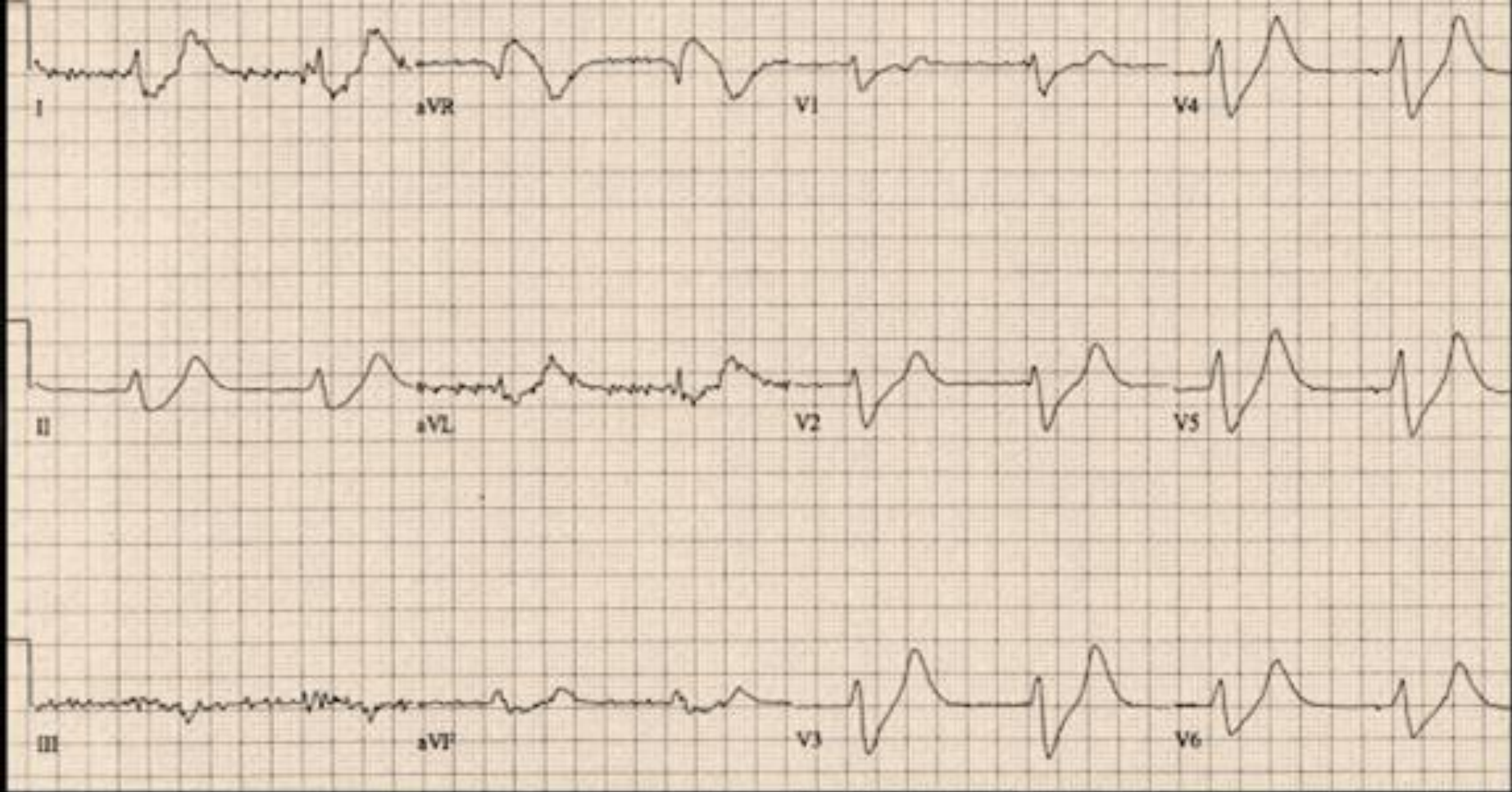


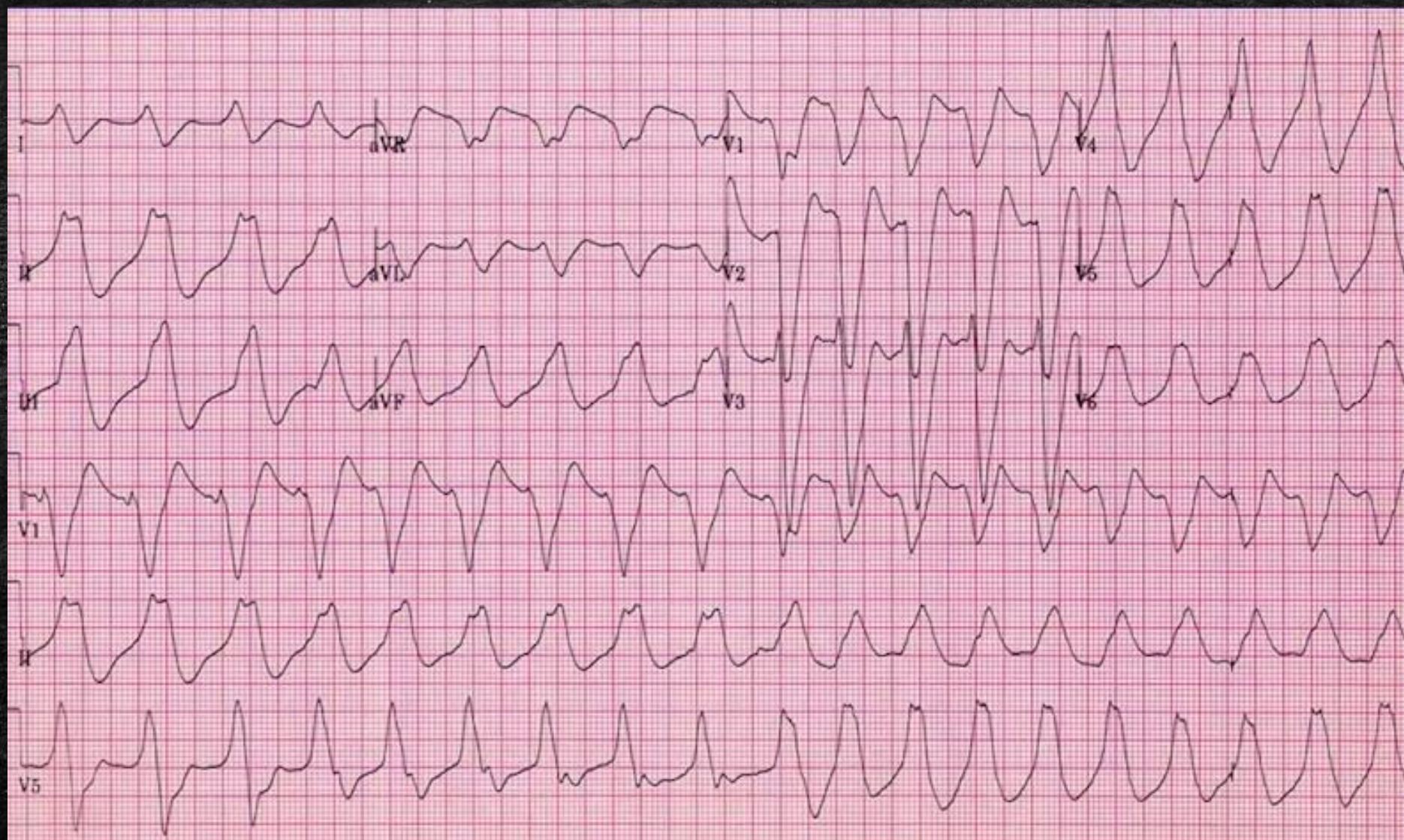












Perikardit

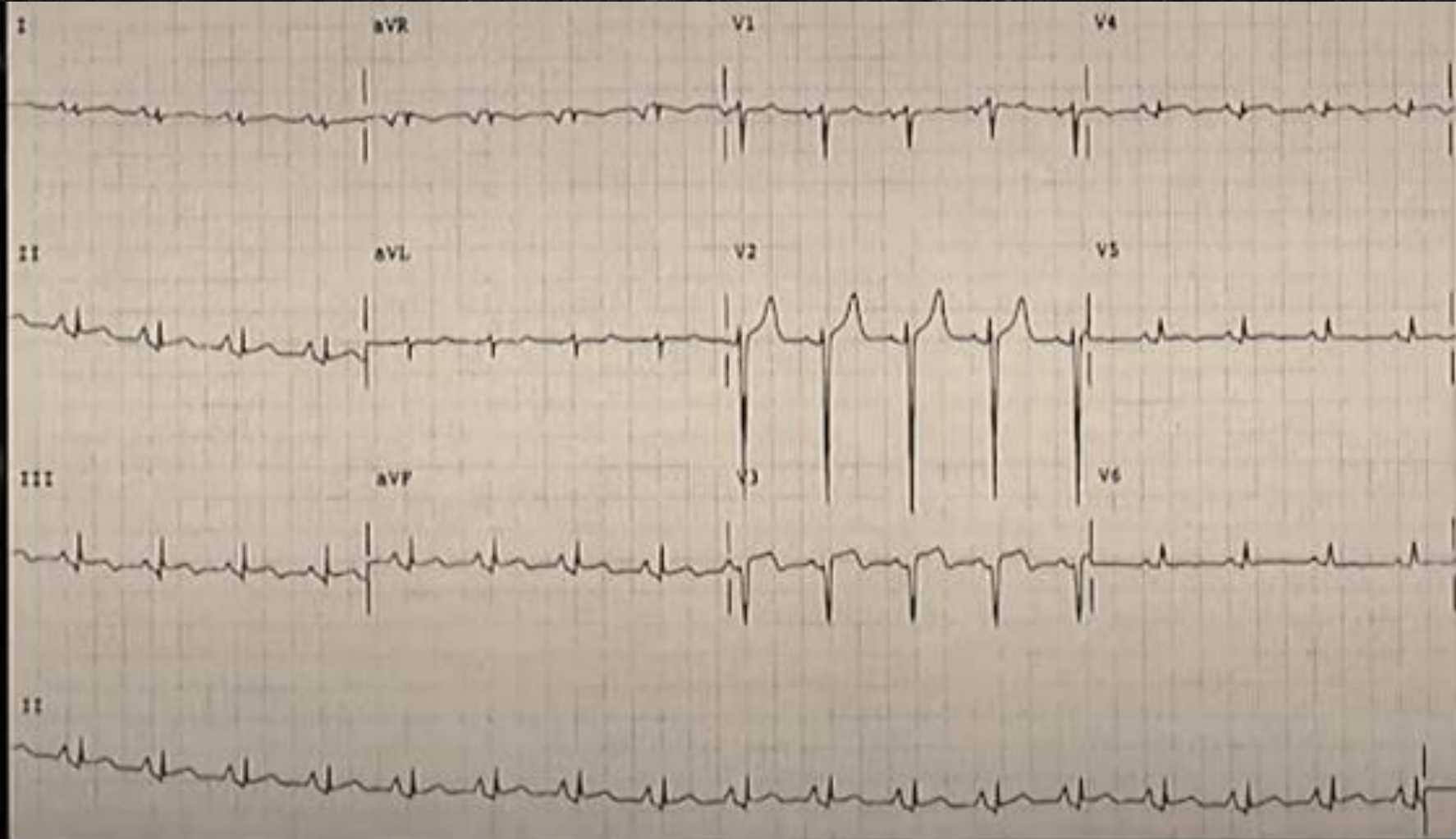
STEMI düşündüren bulgular

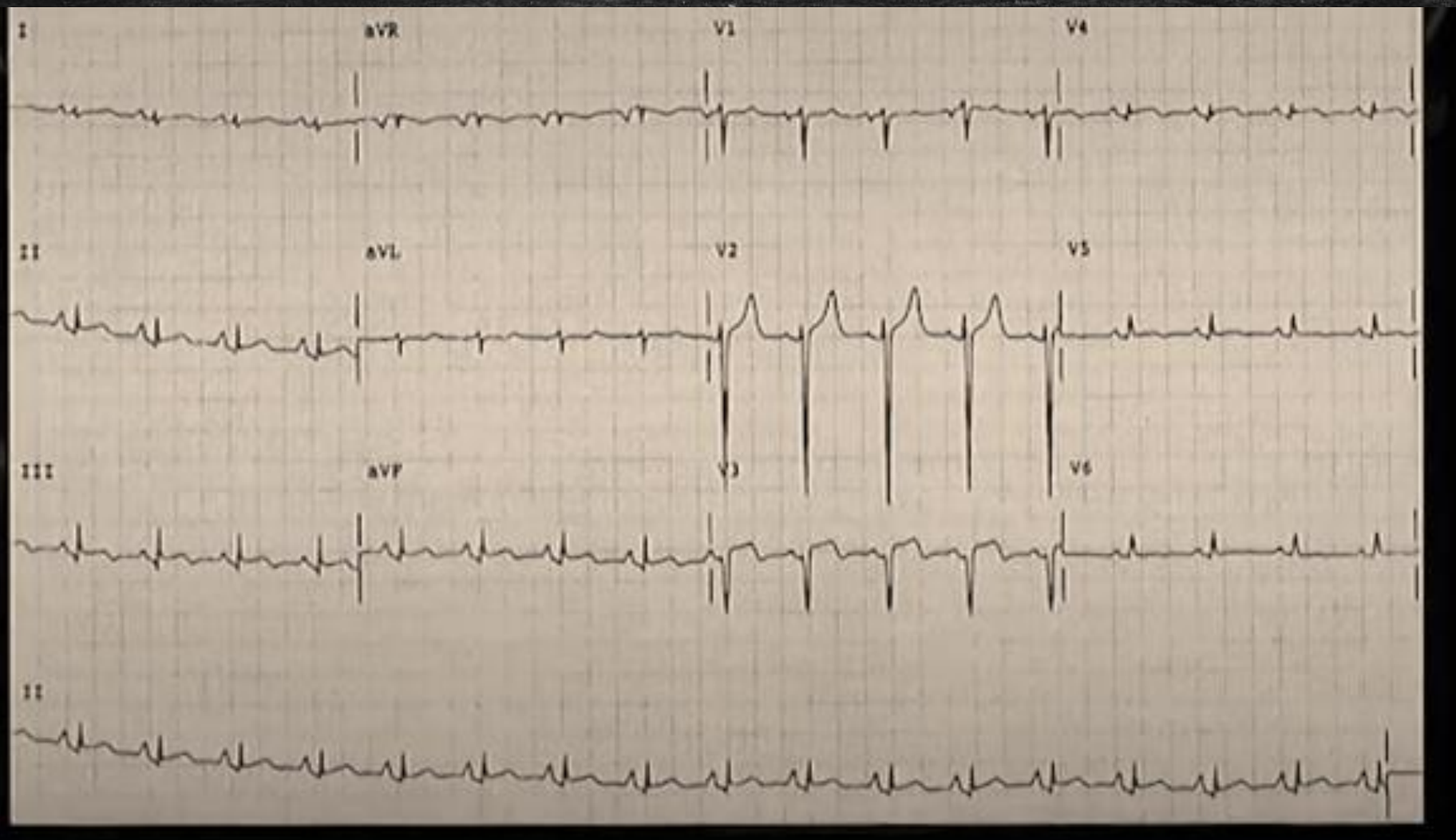
- ⌚ ST segment depresyonu (V1 ve aVR dışında)
- ⌚ STE DIII>DII
- ⌚ STE horizontal veya konveks
- ⌚ Yeni geliştiği saptanan Q dalgaları

Perikardit düşündüren bulgular

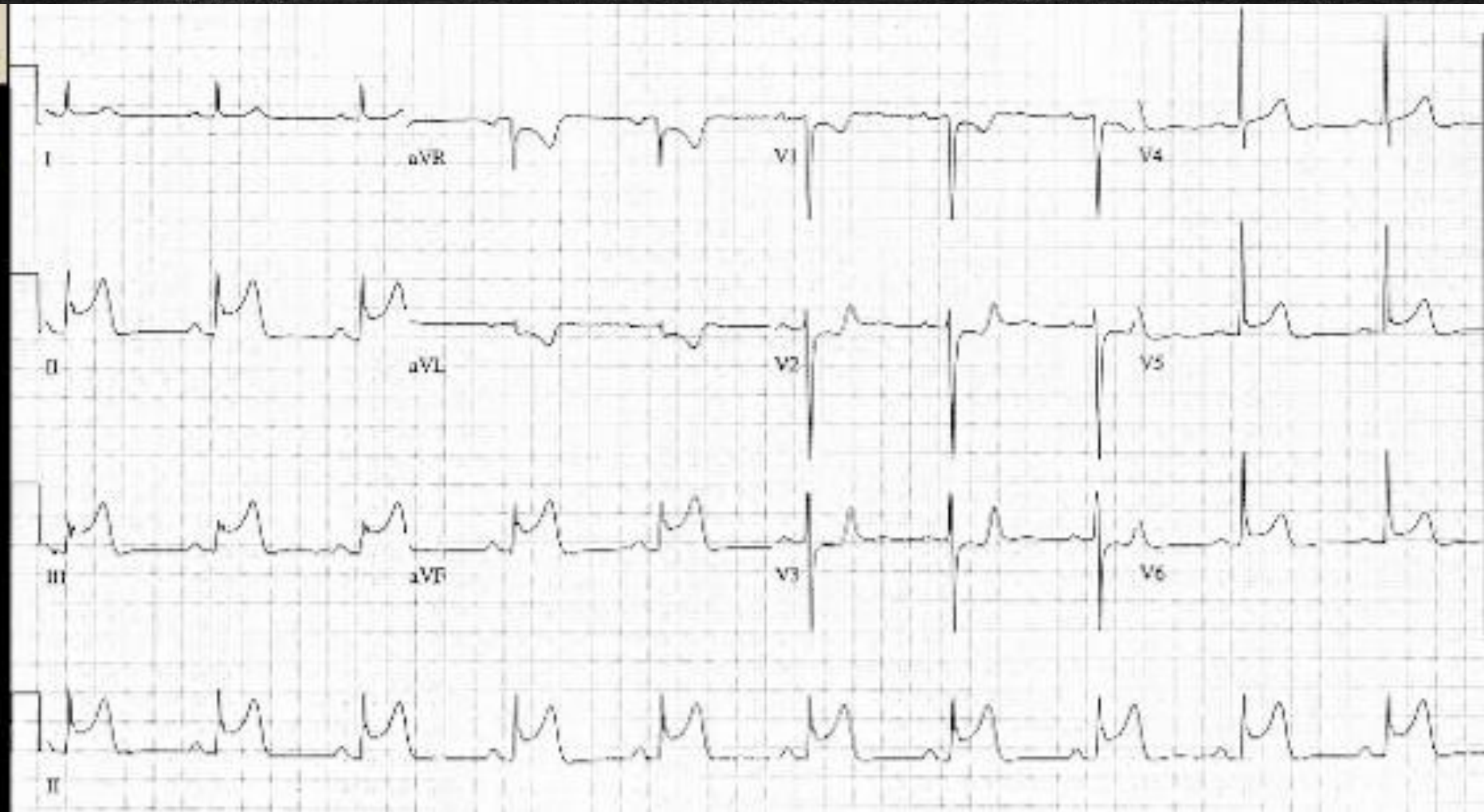
- ⌚ Birçok derivasyonda PR depresyonu (spesifik değil-transien olabilir)
- ⌚ Düşük voltaj+taşikardi
- ⌚ aVR de PR yüksekliği

Lupusu olan 42 yaşında erkek batıcı tarzda göğüs ağrısı ile geliyor . AP? STEMI?

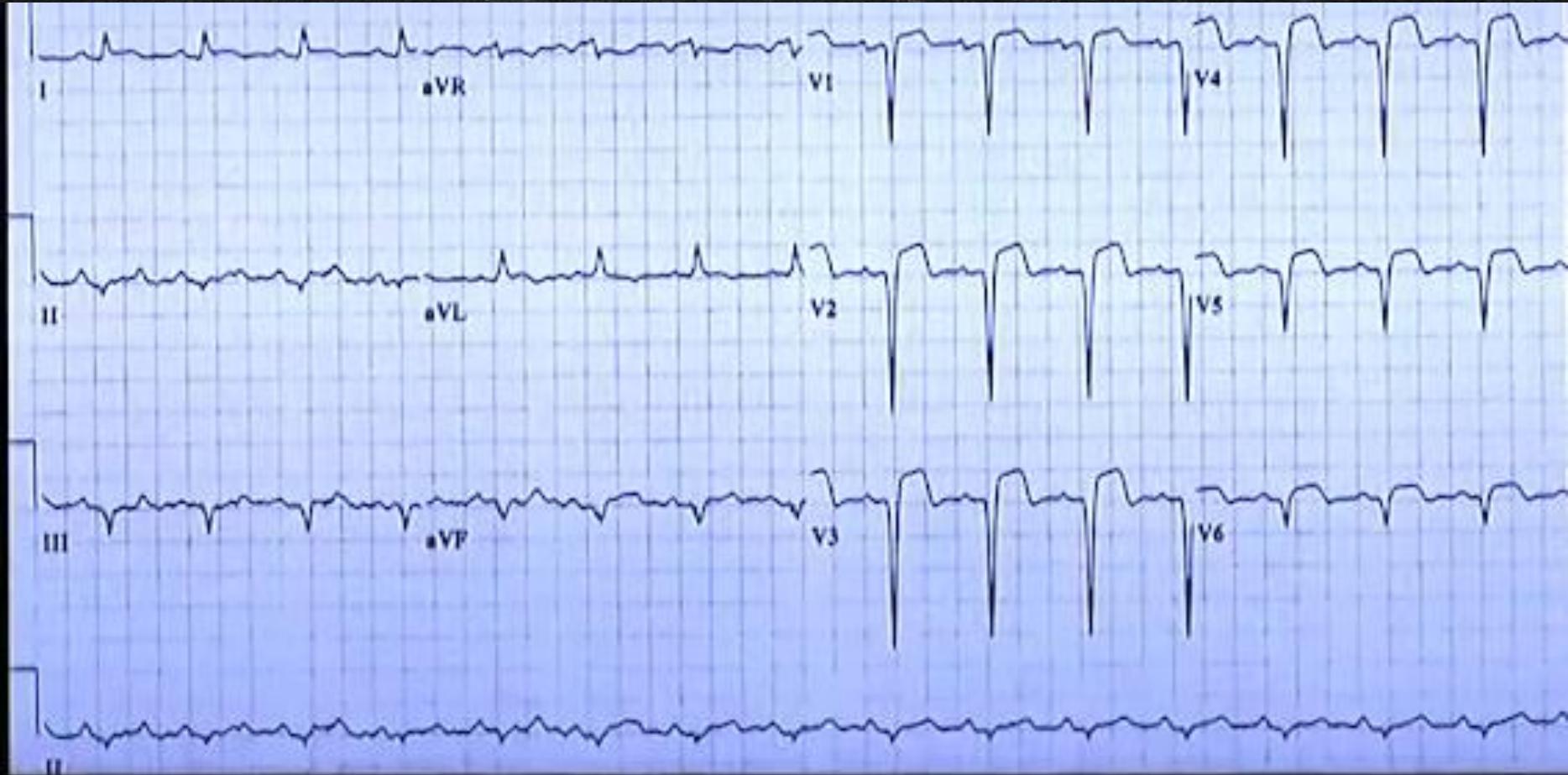




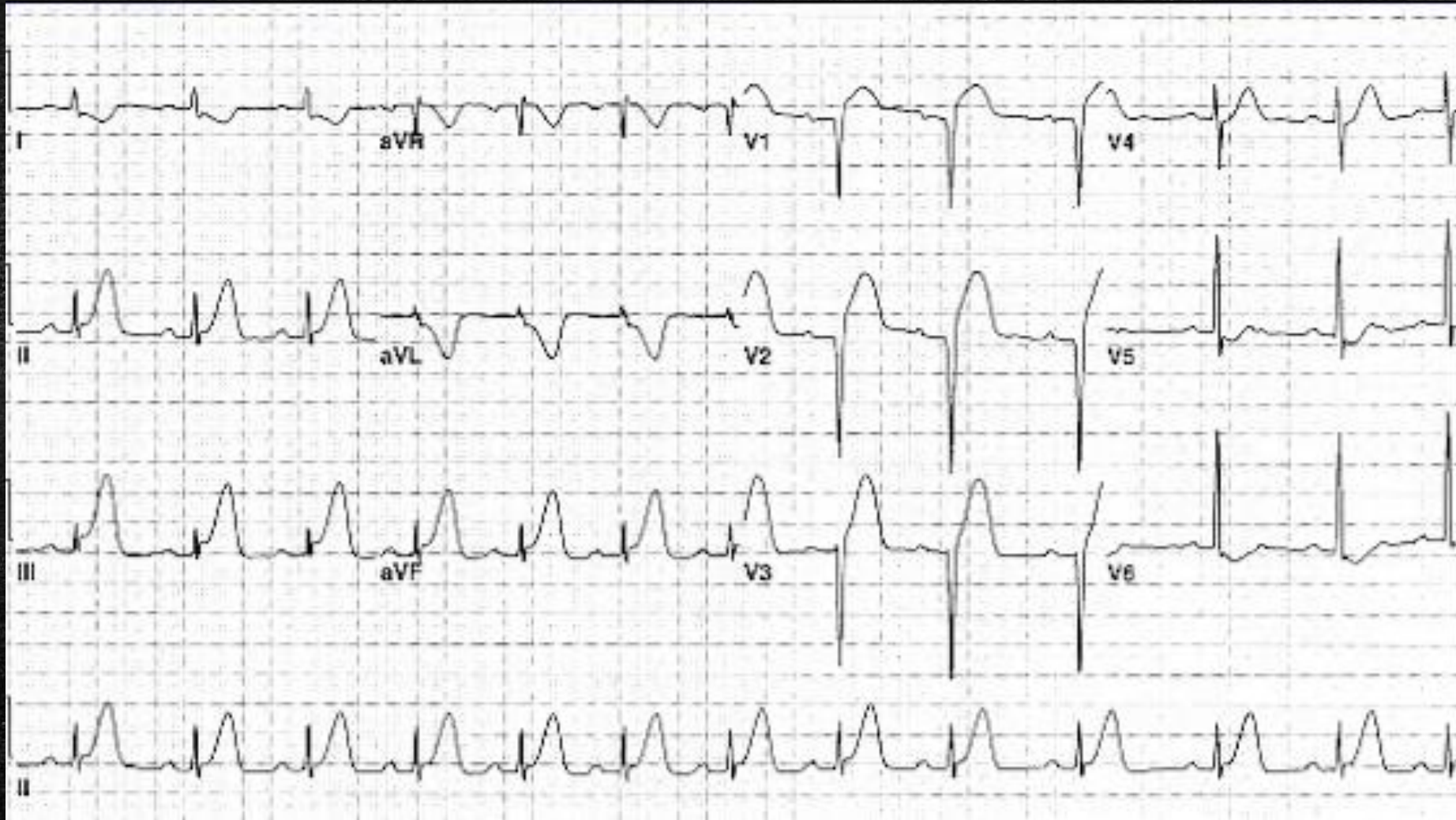
STEMI



STEMI



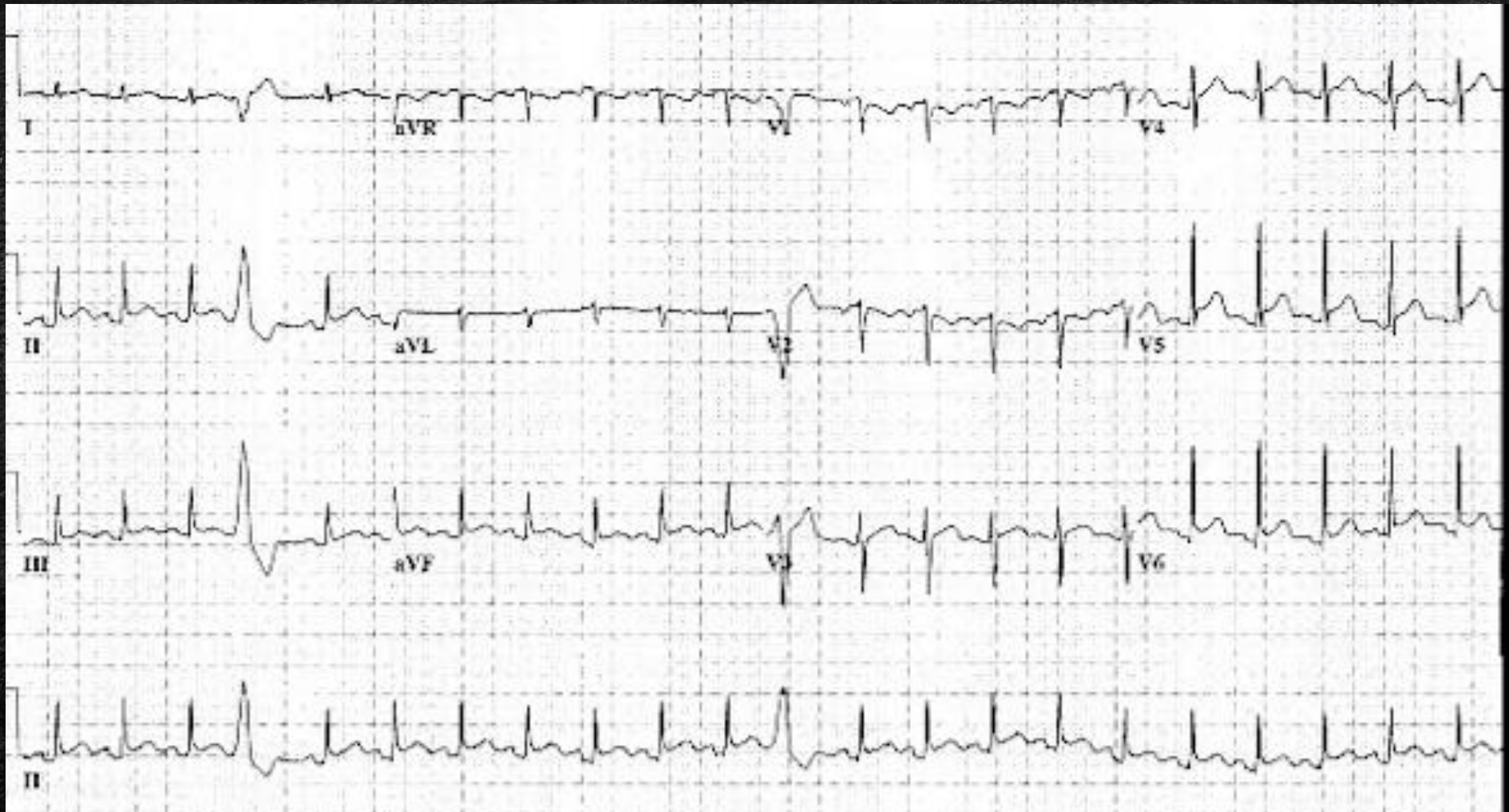
STEMI



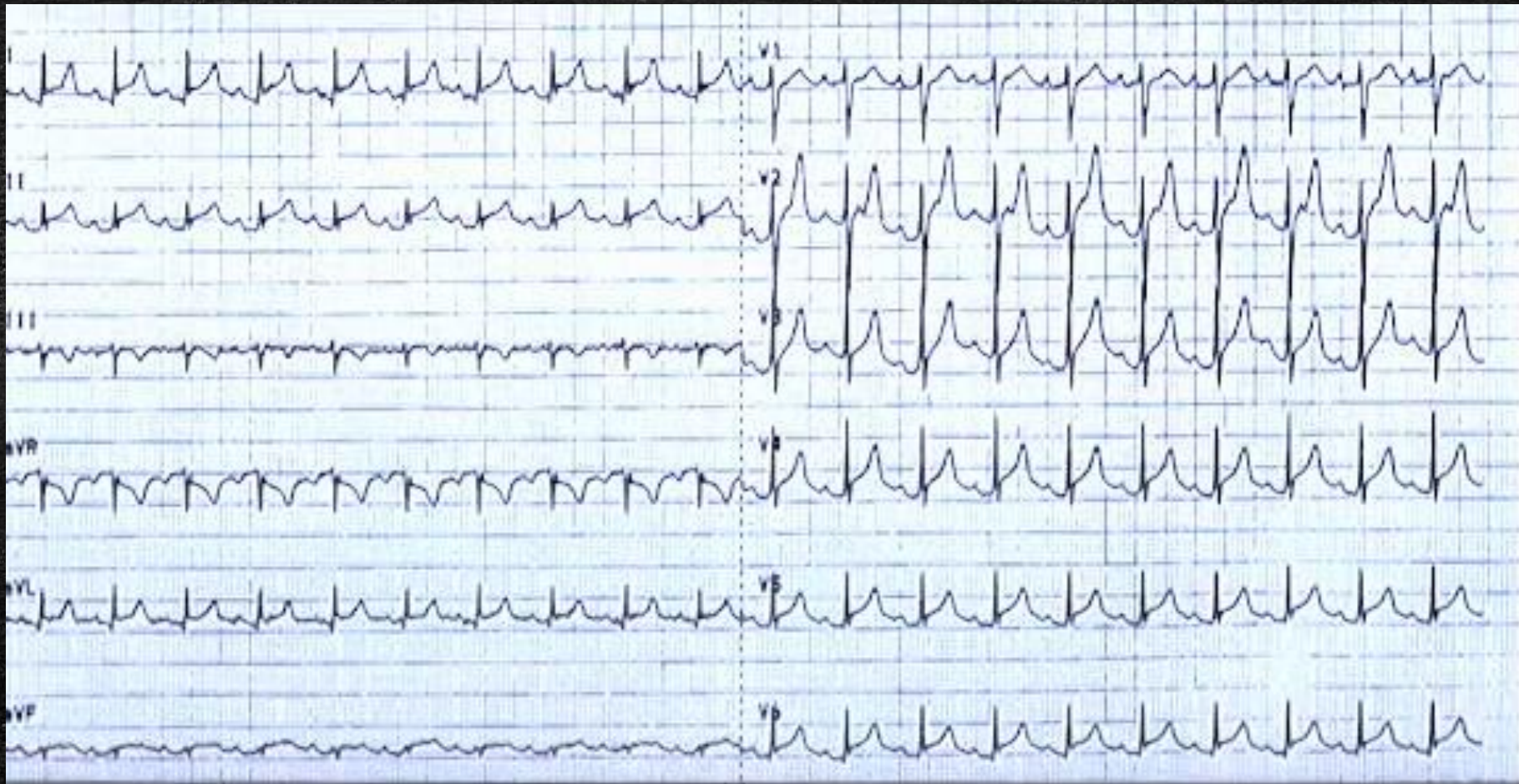
STEMI



Perikardit



Perikardit



Perikardit



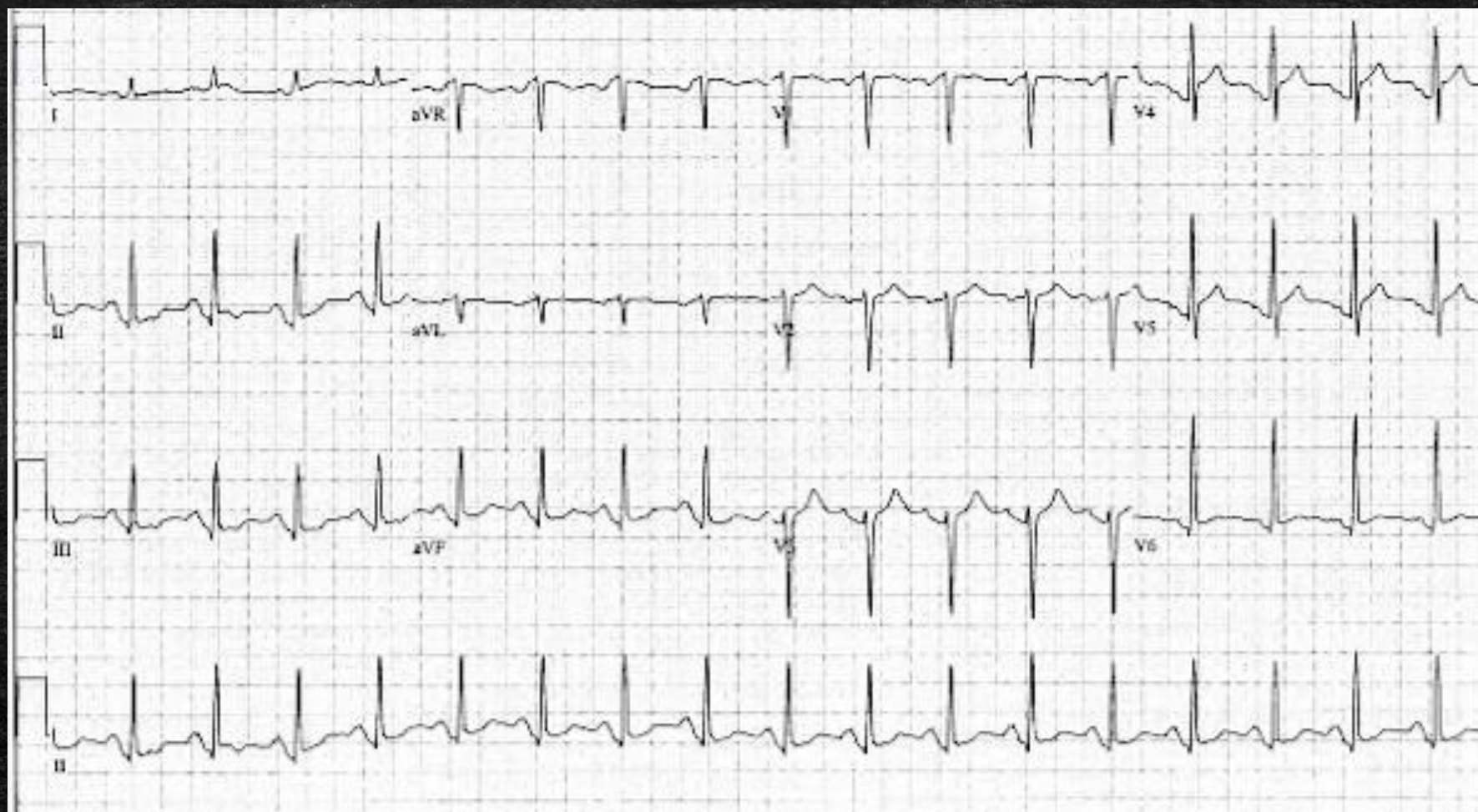
STEMI



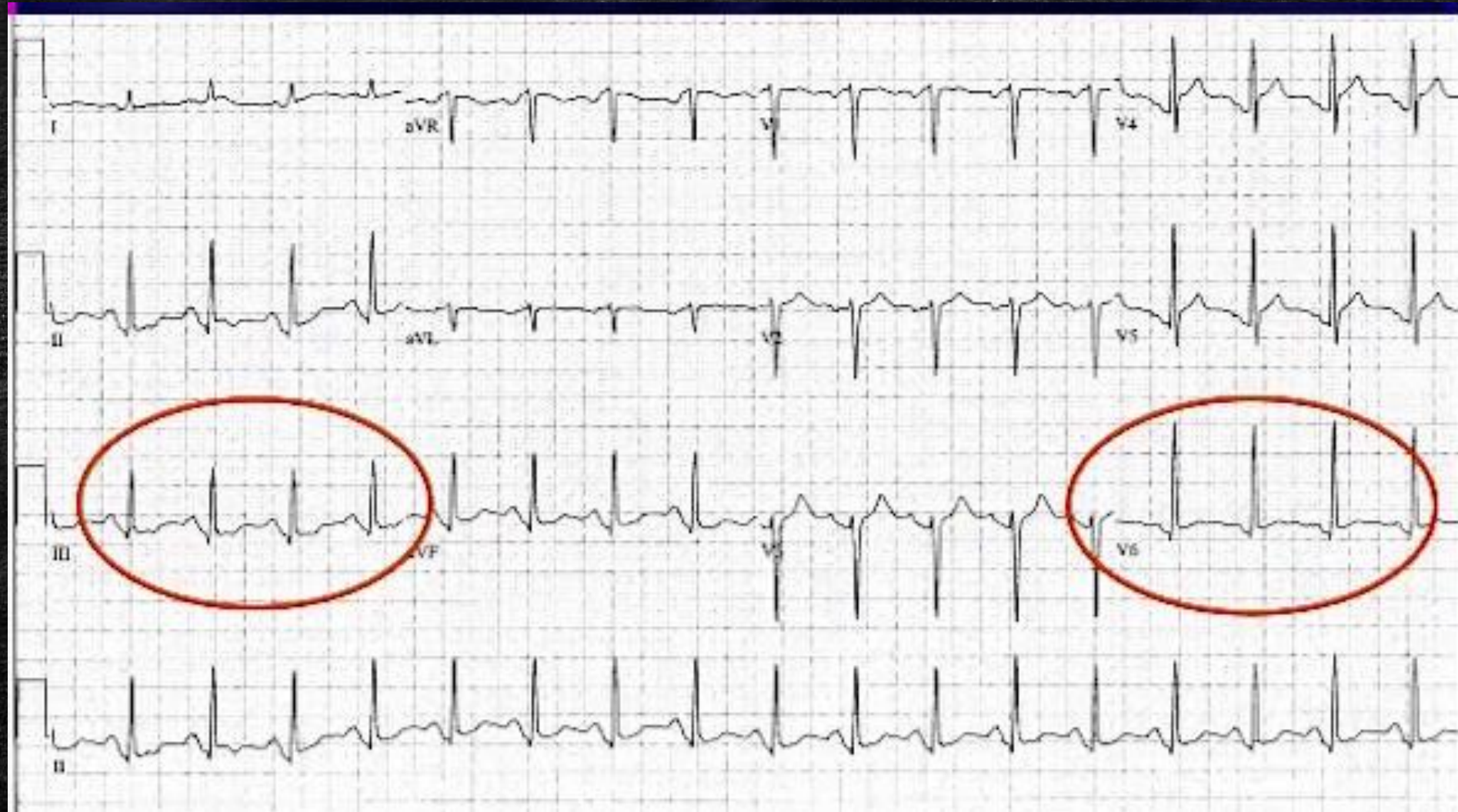
STEMI

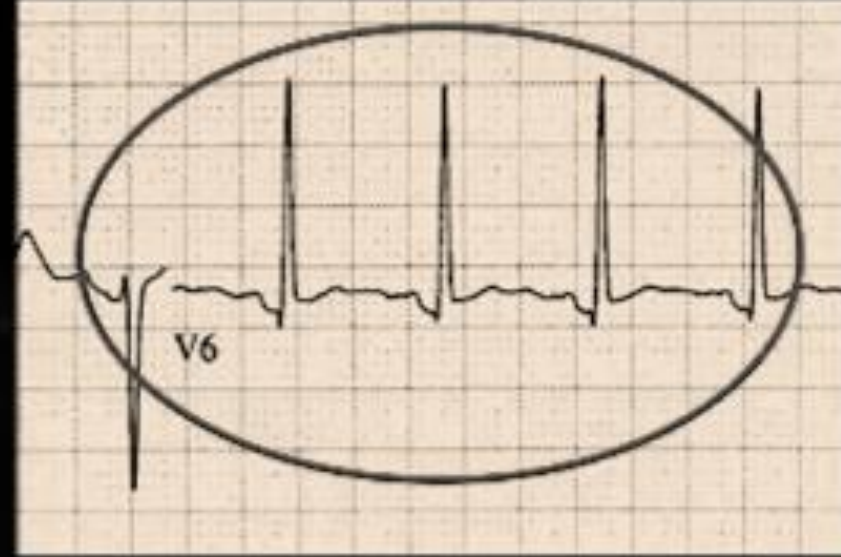
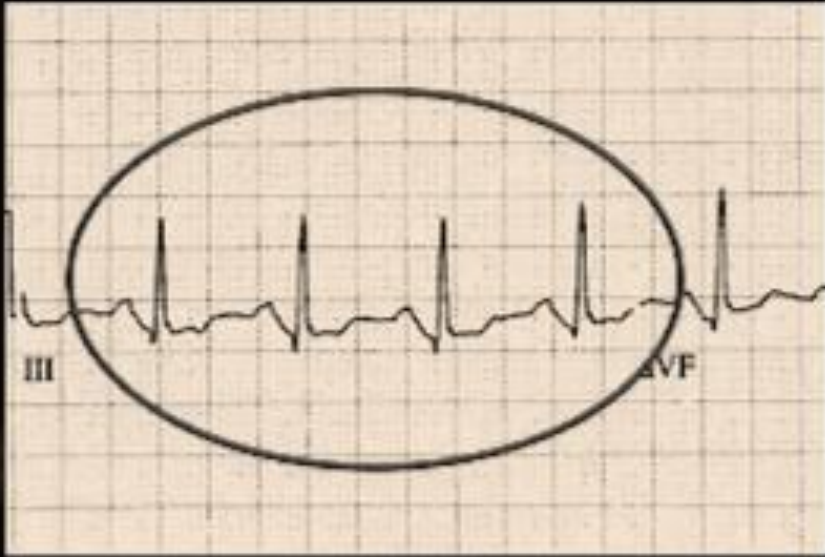


STEMI







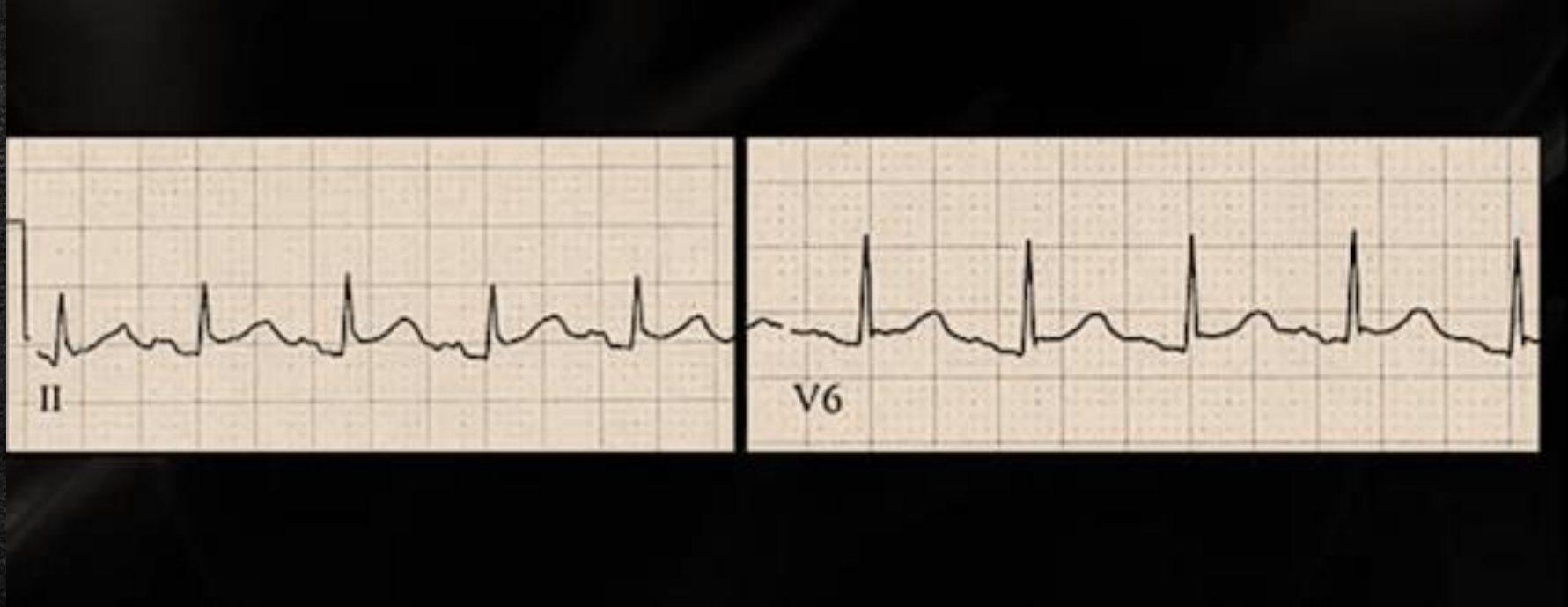


Diffüz iskemi

55 yaşında kadın hasta nefes darlığı ve
göğüste ağırlık hissi







Düşük voltaj+taşikardi=perikardiyal efüzyon

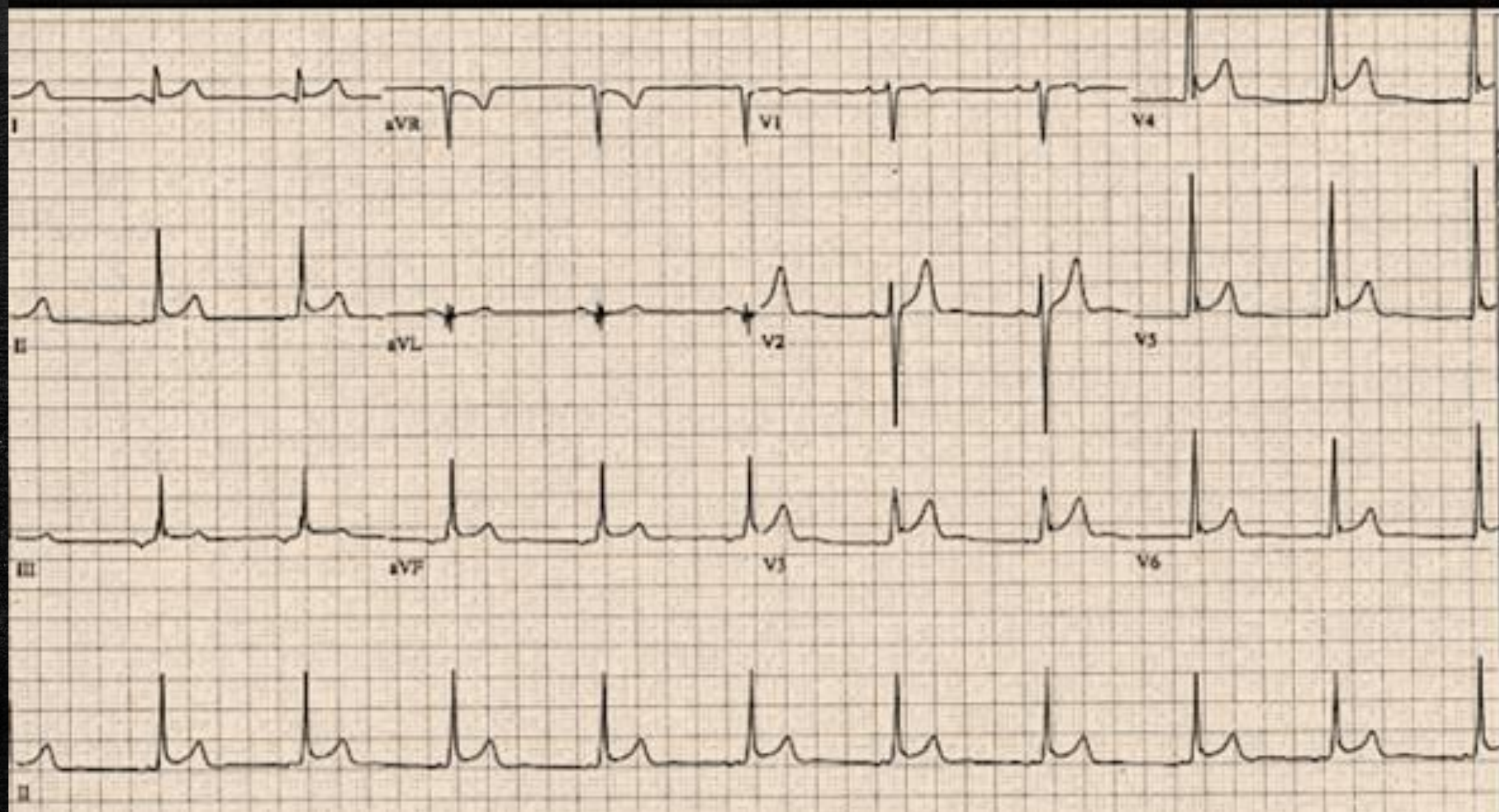
Benign Erken Repolarizasyon

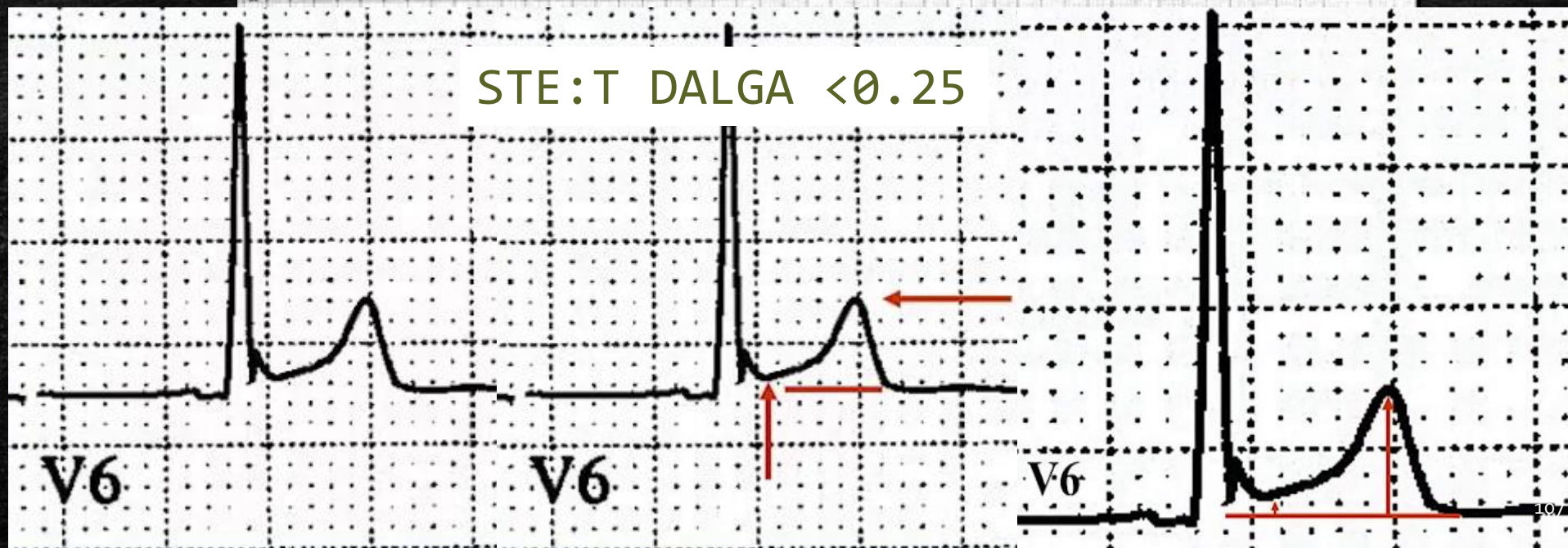
BER vs AMI

- ⌚ V6 ST/T
- ⌚ Resiprokal değişiklikler
- ⌚ ST konkav? Konveks?
- ⌚ İlerleyen değişiklikler
- ⌚ STE II? III?
- ⌚ Olta iğnesi (V₄, V₅, V₆)

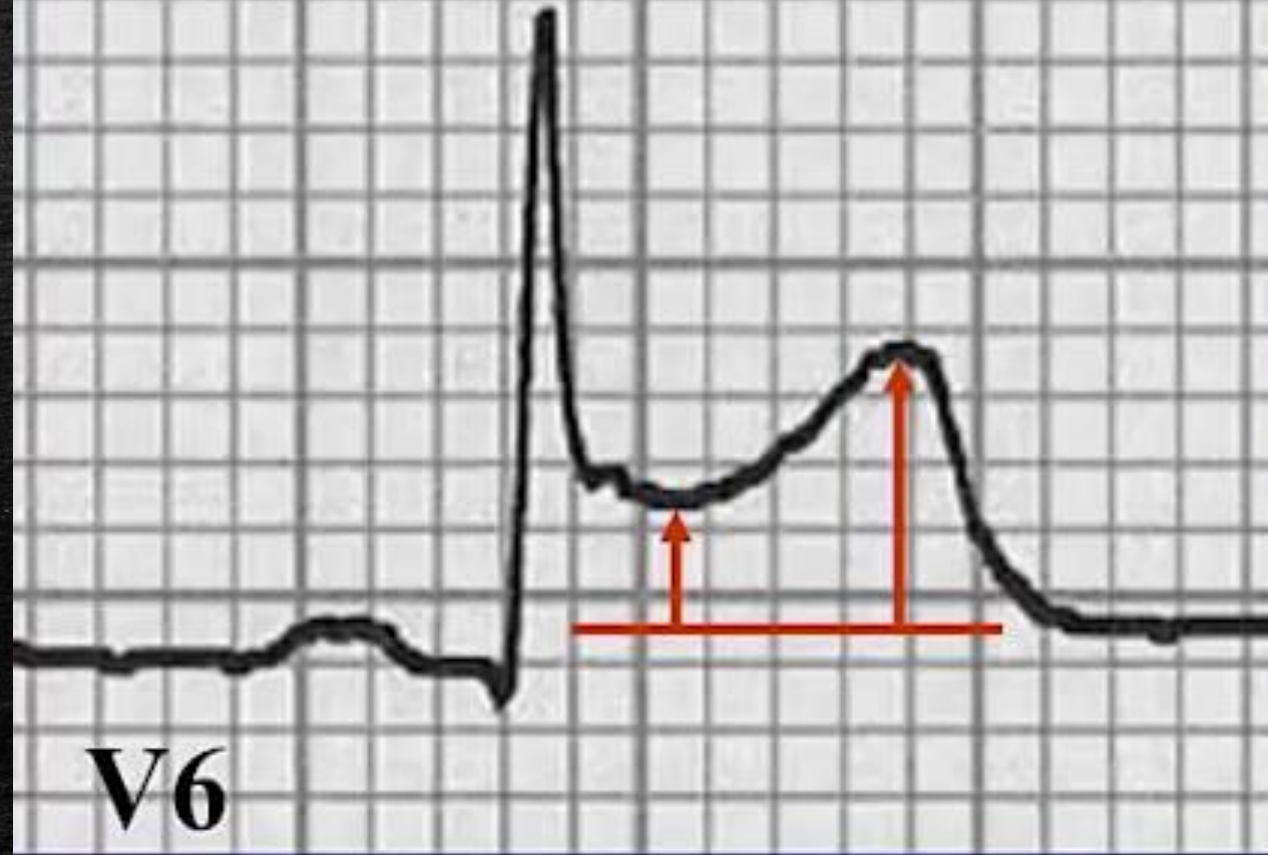
BER vs Perikardit

- ⌚ V6 ST/T
- ⌚ Eski EKG

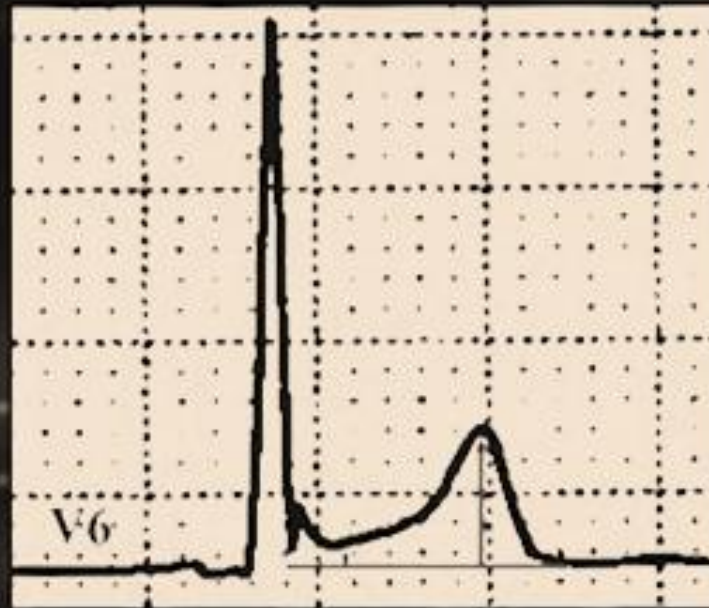


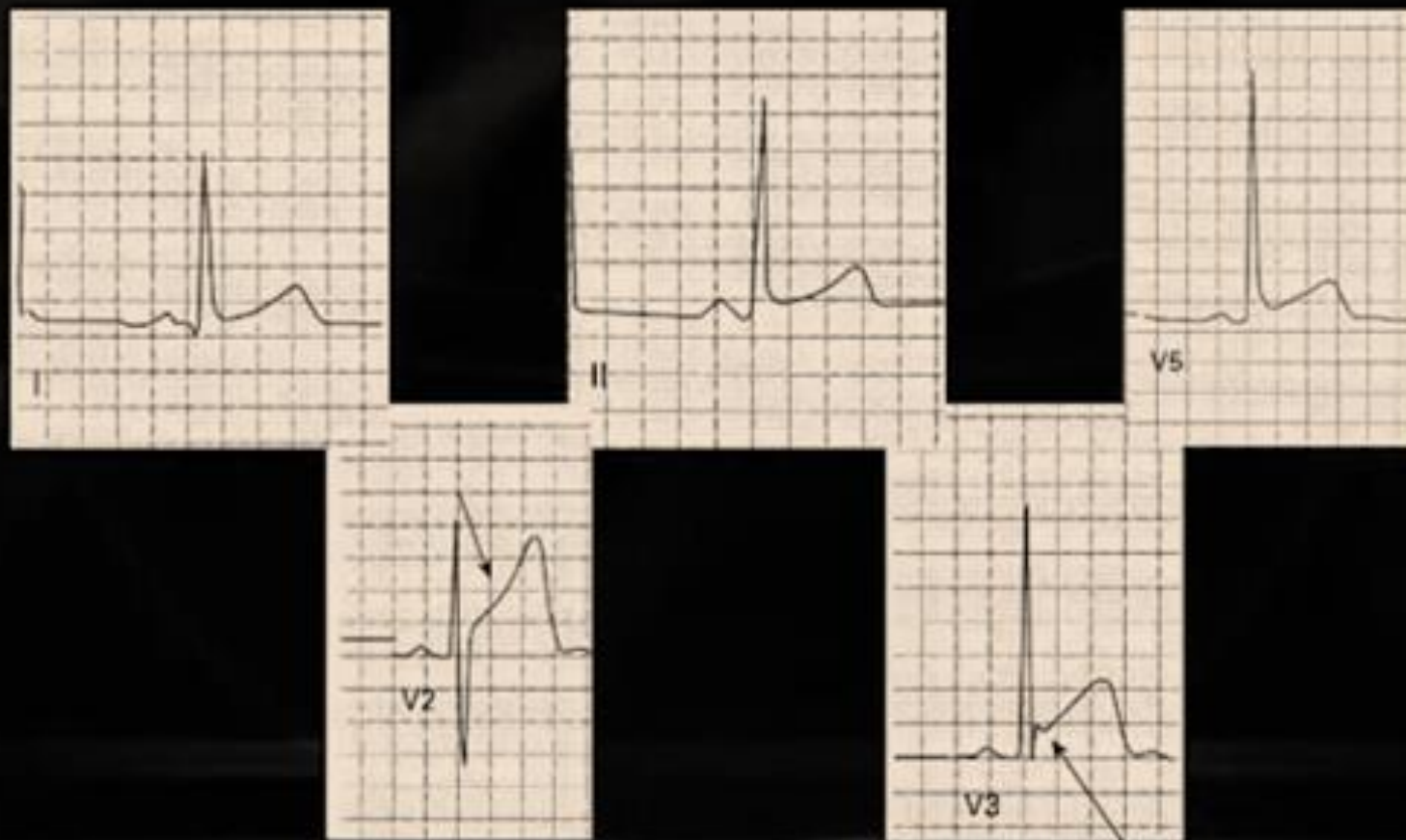


STE:T DALGA > 0.25



Akut MI ve perikardit

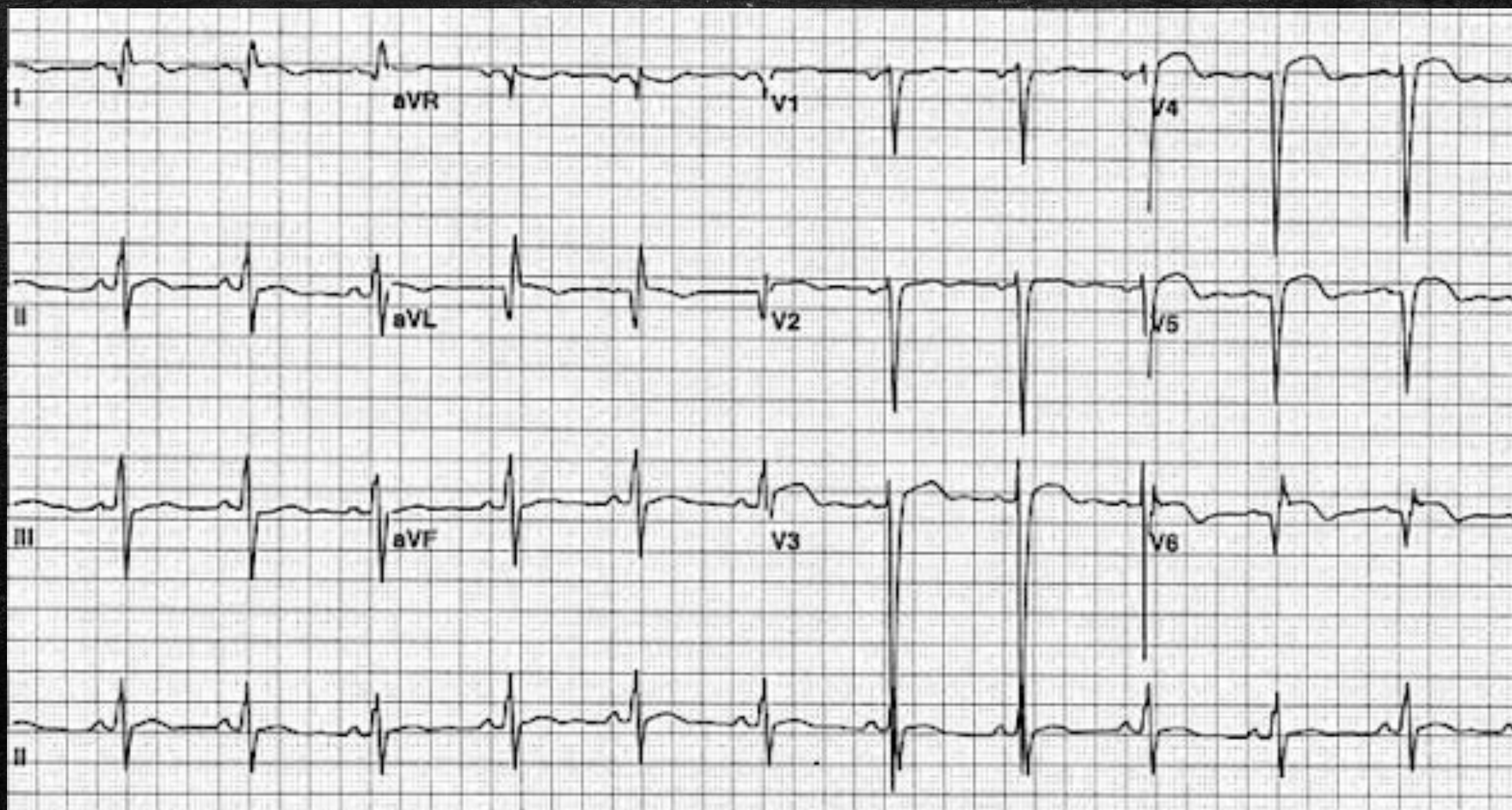


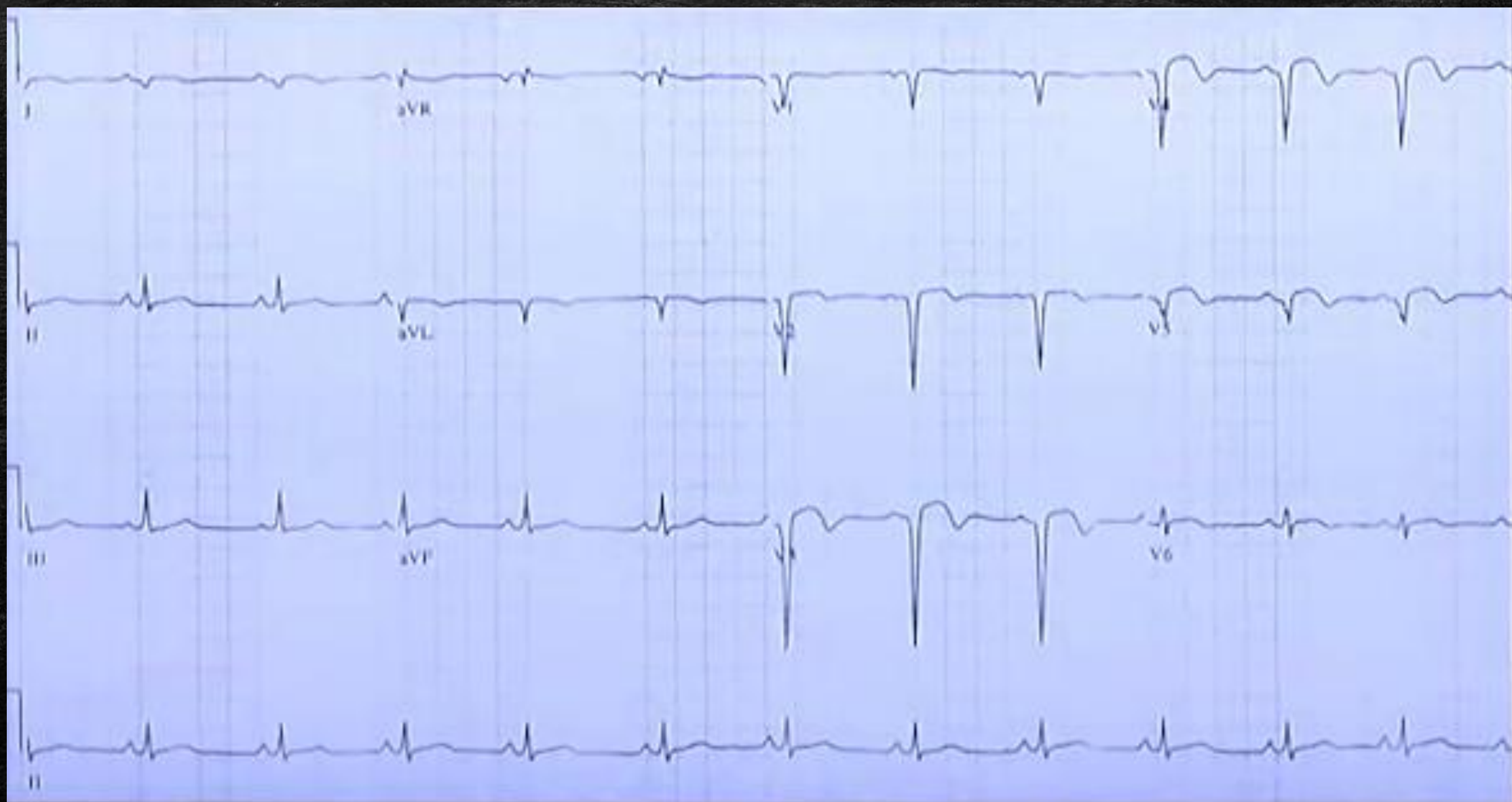


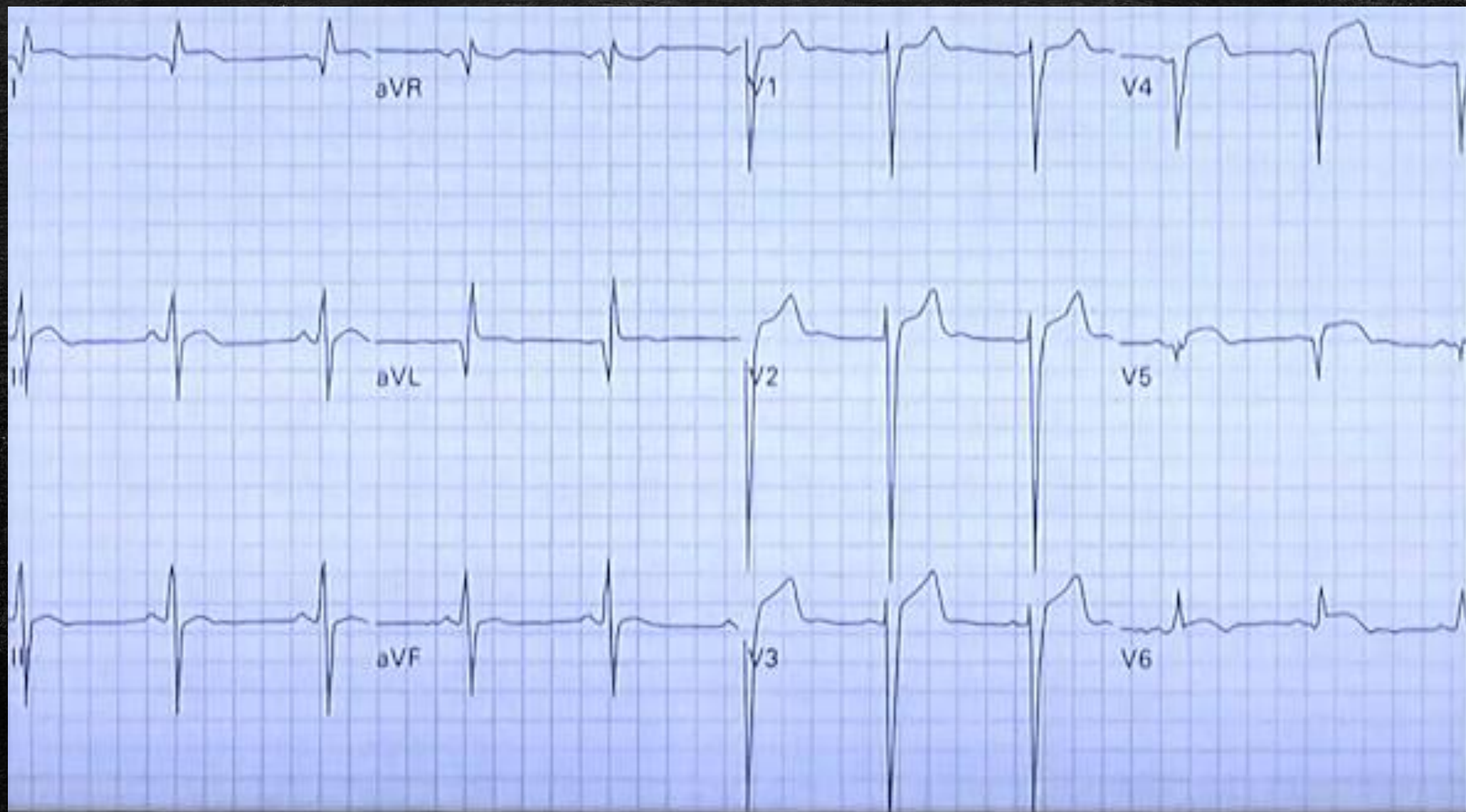
	AMI	Perikardit ve BER
STE,STD	Diffüz veya lokalize STE,resiprok STD	Genellikle diffüz STE,resiprok STD yok /aVR ve V ₁ hariç
ST segment morfoloji	Düz,horizontal, konveks veya konkav	Konkav
II ve III de STE varsa	STE III>STE II	STE II>STE III
İlerleyen değişiklikler	ST segment ve T dalga değişikliği	Genelde Acilde gözlenmez

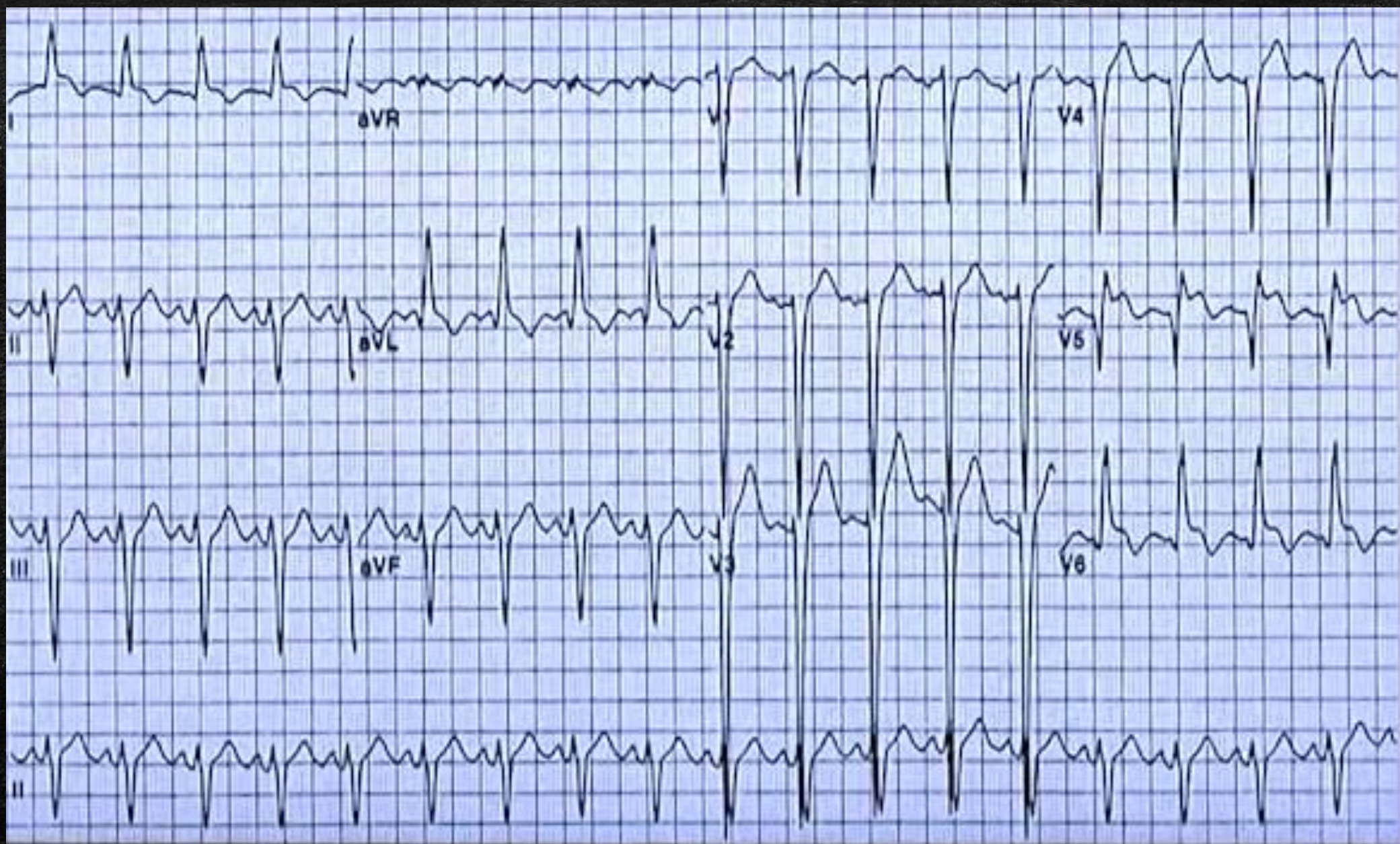
Ventriküler Anevrizma

- ⌚ Hikaye, geçirilmiş MI
- ⌚ Anevrizmada hemen her zaman Qs dalgası var
- ⌚ Varsa eski EKG
- ⌚ Seri EKG
- ⌚ Kardiyak enzimler
- ⌚ EKo









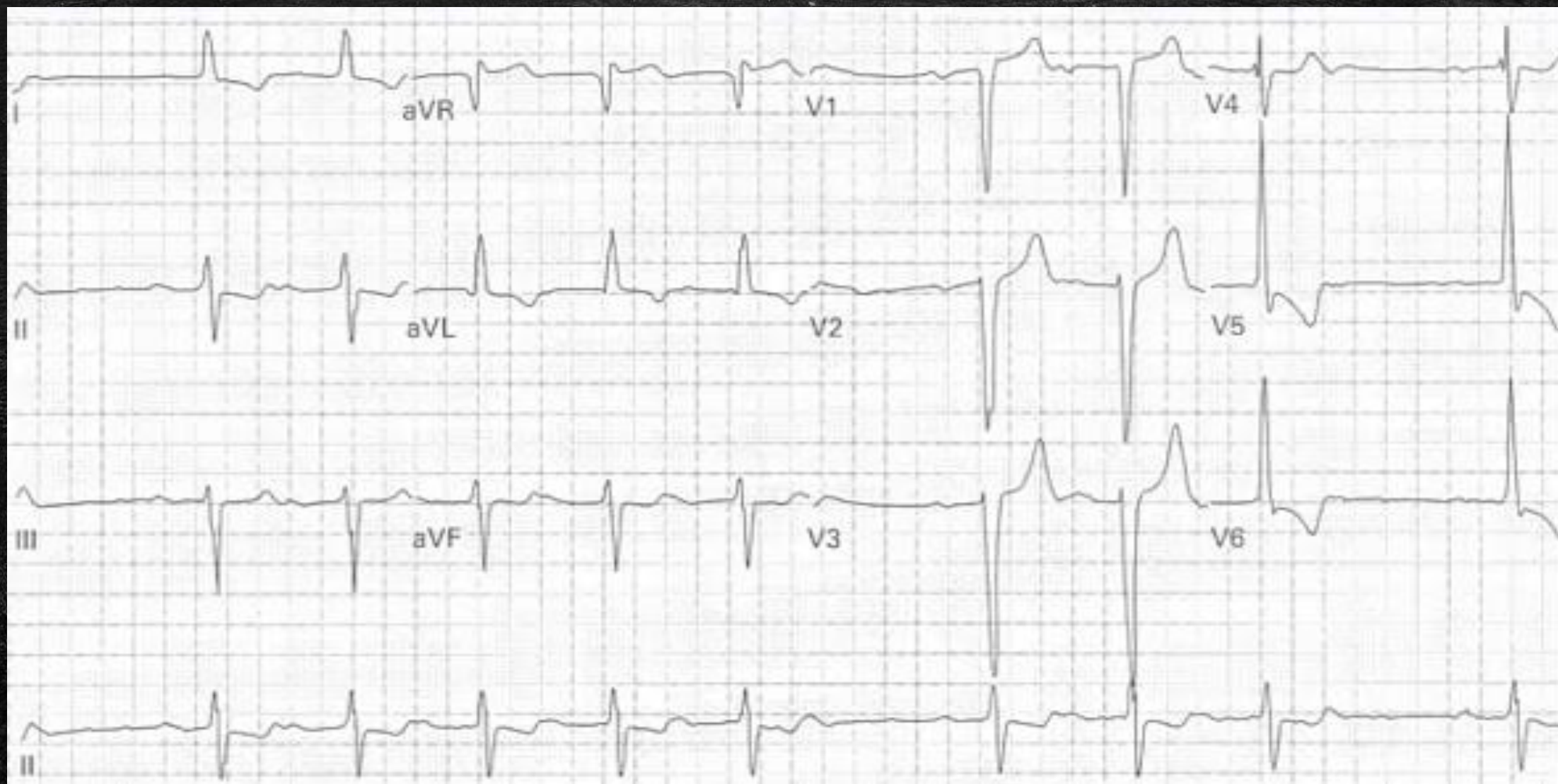
Sol Ventrikül Hipertrofisi ile Repolarizasyon Anormalliği (Strain)

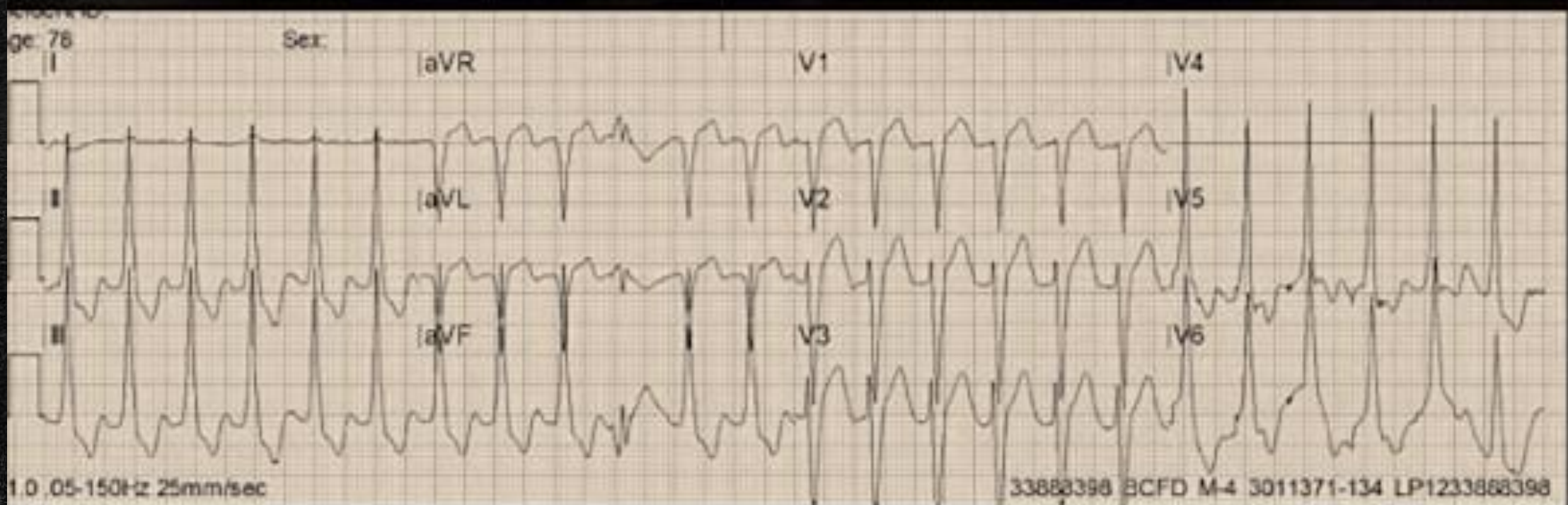
Sol ventrikül hipertrofisi

- ⌚ $V_1 S + V_5$ yada $V_6 R > 35\text{mm}$
- ⌚ $\text{Max R} + \text{max S}$ (prekordiyal derivasyonlarda) $> 45\text{mm}$
- ⌚ aVL'de $R > 11\text{mm}$

Repolarizasyon anormalliği

- ⌚ I, aVL, $V_4 - V_6 \pm II$ ve aVF
- ⌚ Aynı derivasyonlarda T inversiyonu (asimetrik)
- ⌚ V1-V3 STE (aVR)
- ⌚ QRS genişlemesi (interventriküler ileti gecikmesi)

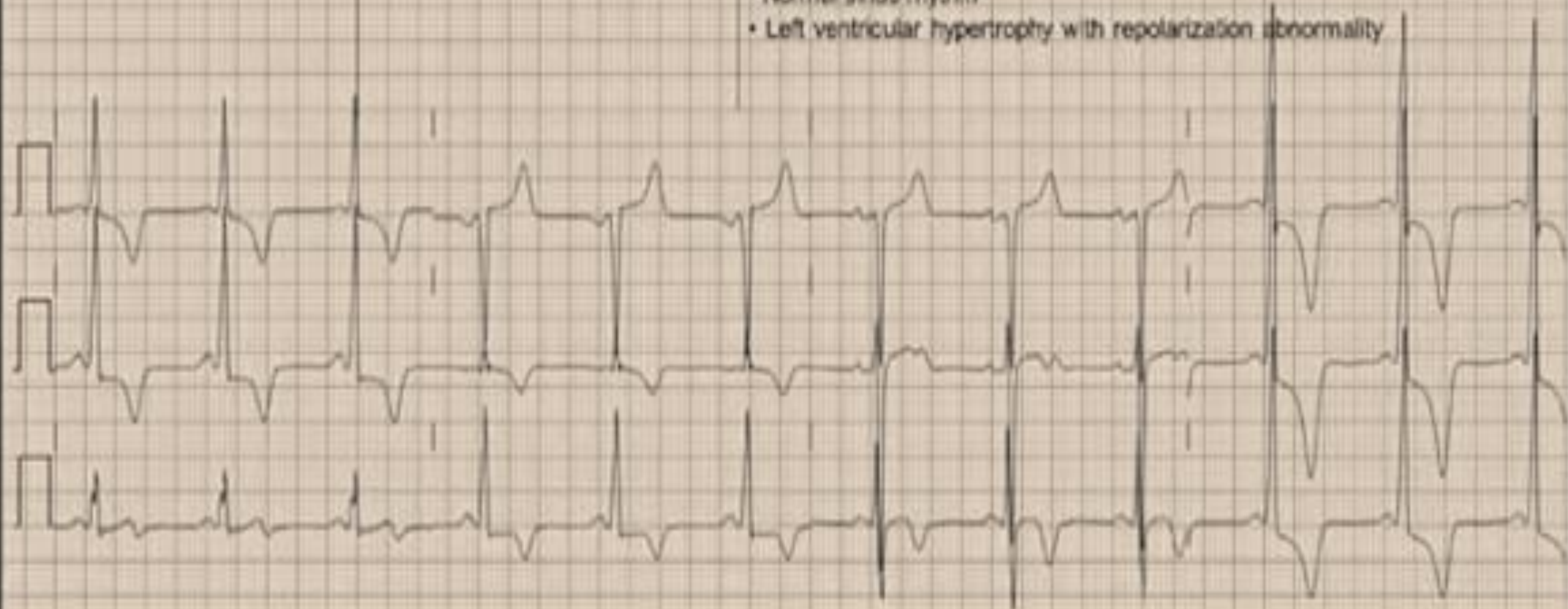




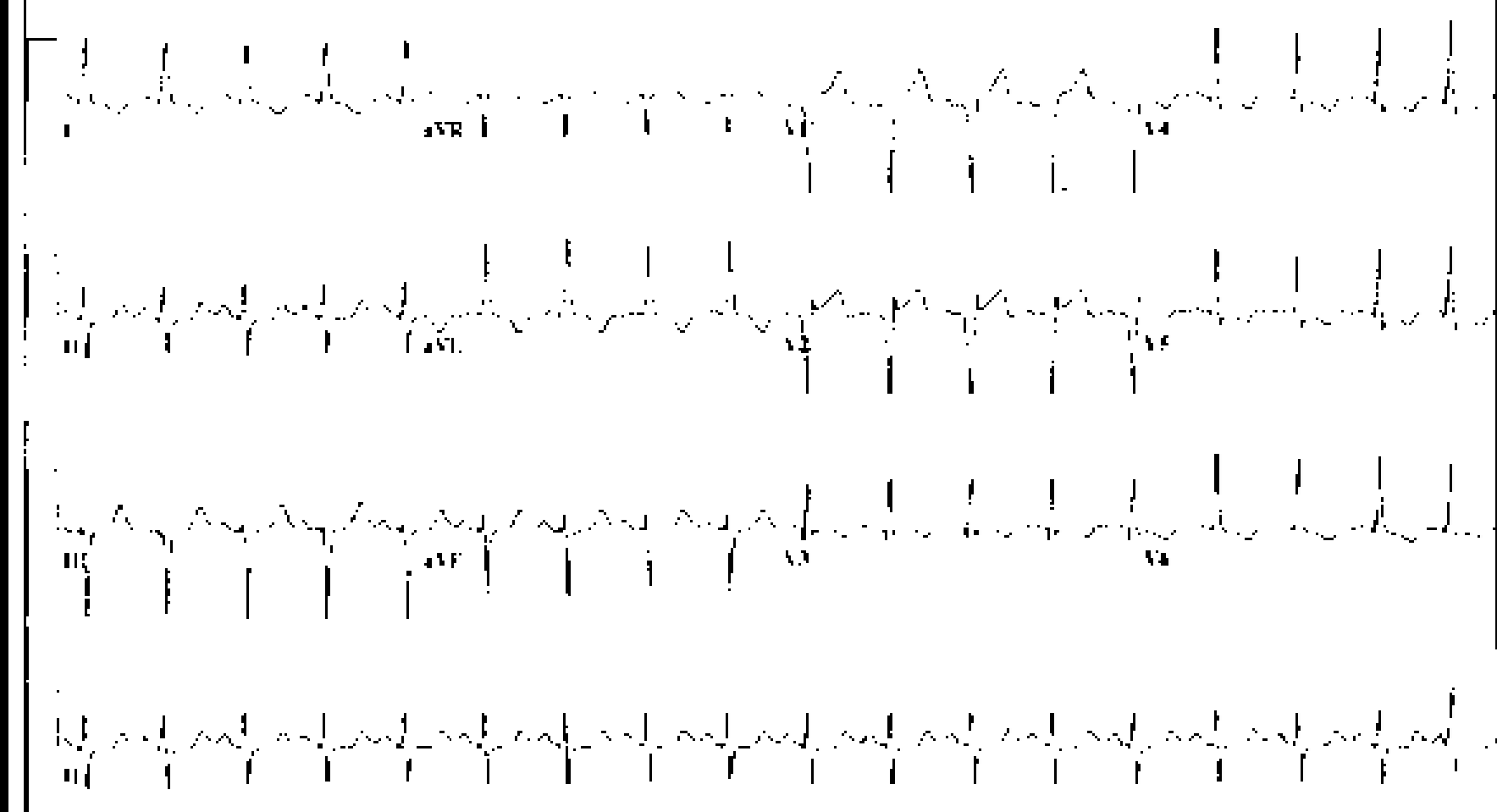
• Abnormal ECG ****Unconfirmed****

• Normal sinus rhythm

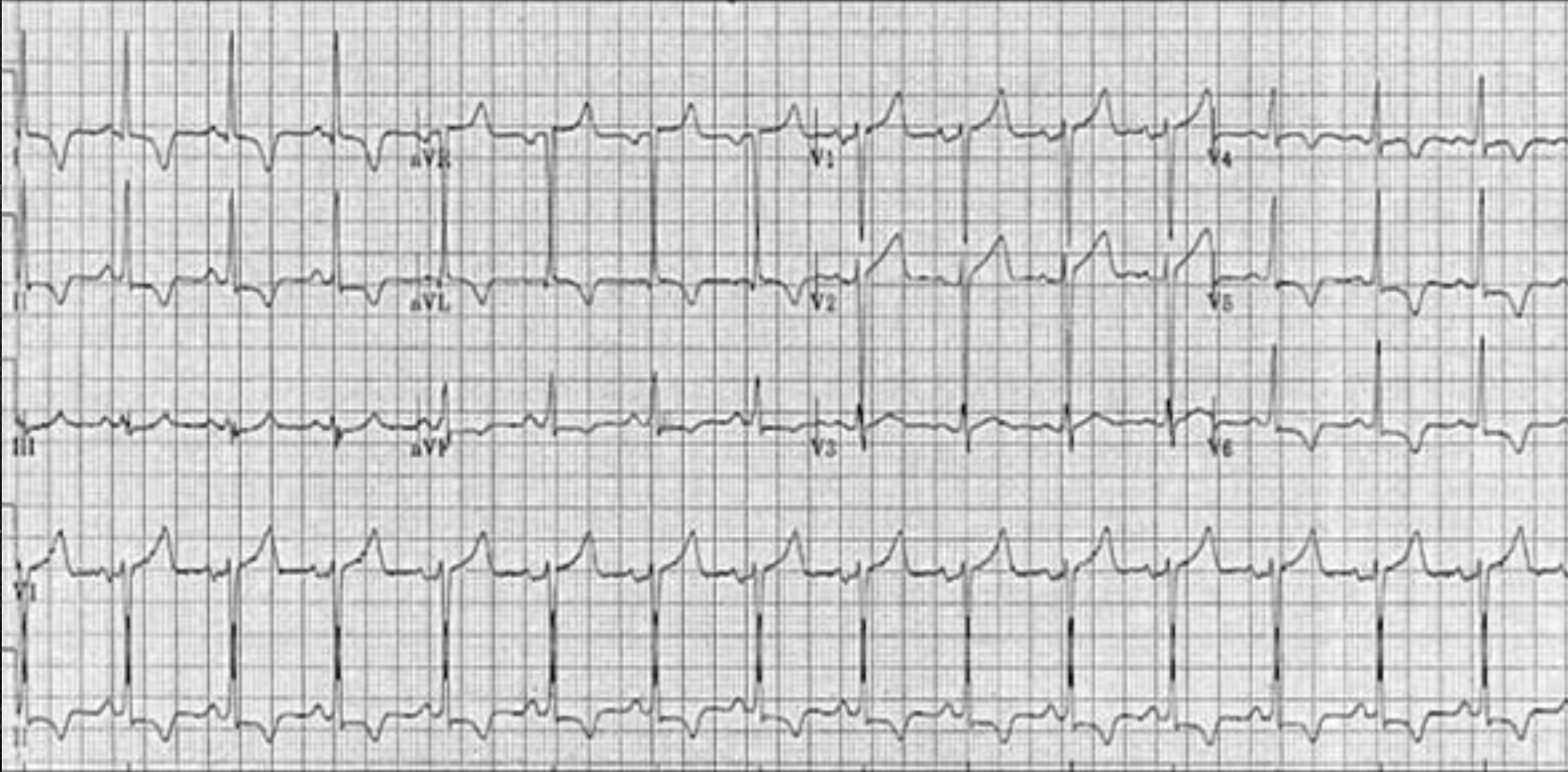
• Left ventricular hypertrophy with repolarization abnormality



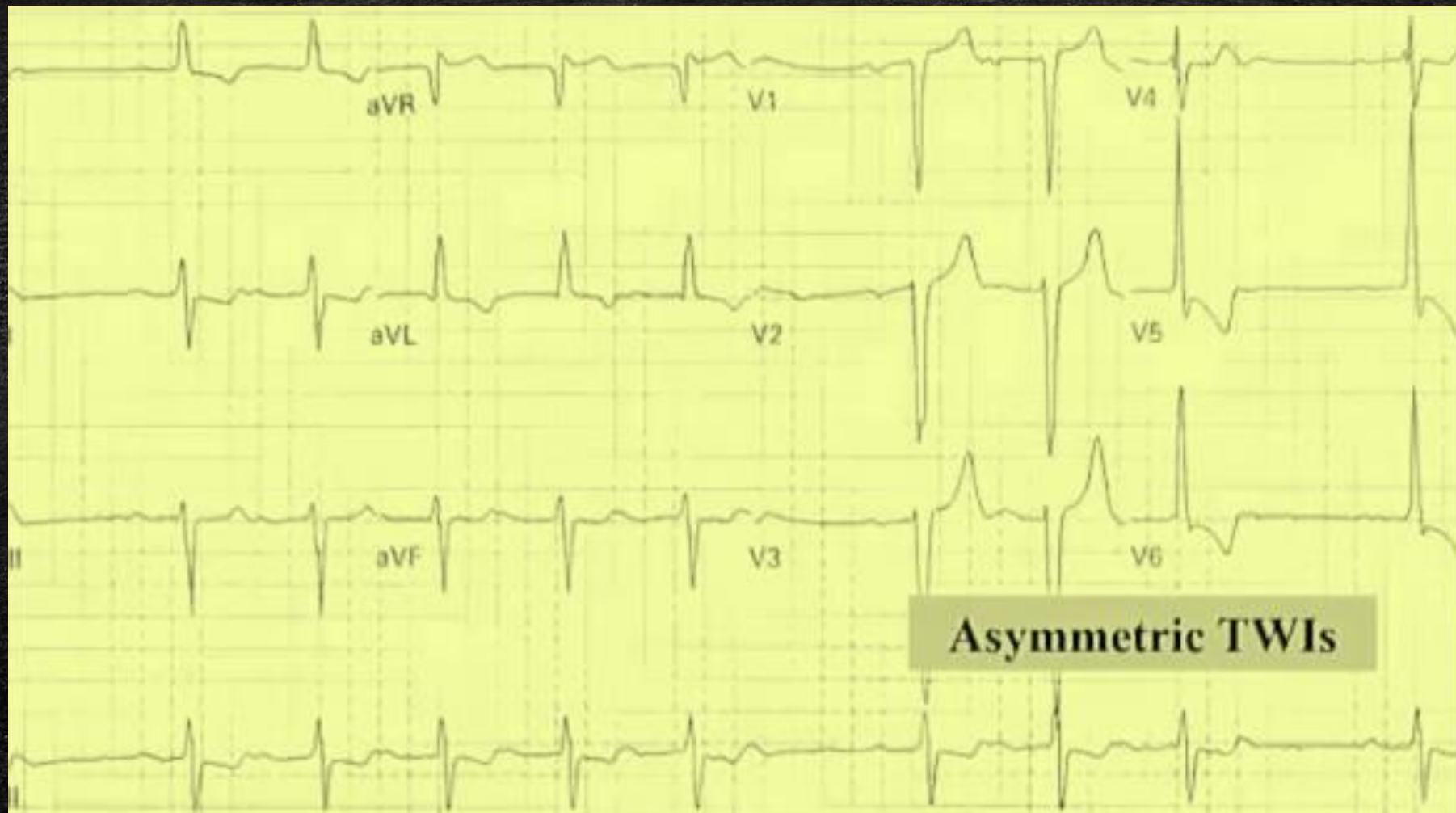
61 yaşında kadın hasta göğüste ağırlık hissi ve bulantı



42 yaşında erkek hasta atipik göğüs
ağrısı



Simetrik T dalgaları varİskemi....





Horizontal STD varİskemi....

Hipertrofik Kardiyomiyopati

- ⌚ IHSS,HOCM
- ⌚ Karakteristik anatomik özellikleri
- ⌚ Hipertrofik,dilate olmayan sol ventrikül (X ray –normal)
- ⌚ Genellikle septumda kalınlaşma
- ⌚ Ailesel insidans % 55
- ⌚ 30-40 yaşlarında tanı konur.

Hipertrofik Kardiyomiyopati

⌚ Patofizyoloji

- ⌚ Adrenerjik stimülasyona myocardın uygunsuz cevabı
- ⌚ Diastolik dolum bozukluğu
- ⌚ Kardiyak çıkışta subaortik obstrüksiyon
- ⌚ Sol ventrikül çıkışında obstrüksiyon

Hipertrofik Kardiyomiyopati

⌚ Klinik:

- ⌚ Senkop,göğüs ağrısı,çarpıntı,dispne,ani ölüm
- ⌚ Genellikle efor sırasında
- ⌚ Disritmilere ve kardiyak outputtaki ani azalmalara bağlı
- ⌚ Apekte sistolik üfürüm (valsalva ile artan,trendelenburg ile azalan

Hipertrofik Kardiyomiyopati

- ⌚ %85-93 hastada EKG değişikliği mevcut
- ⌚ Tanı dopler eko ile
- ⌚ Tedavide;
- ⌚ Beta ve kalsiyum kanal blokerleri
- ⌚ Ventriküler disritmilerde amiodaron

Hipertrofik Kardiyomiyopati

⌚ EKG

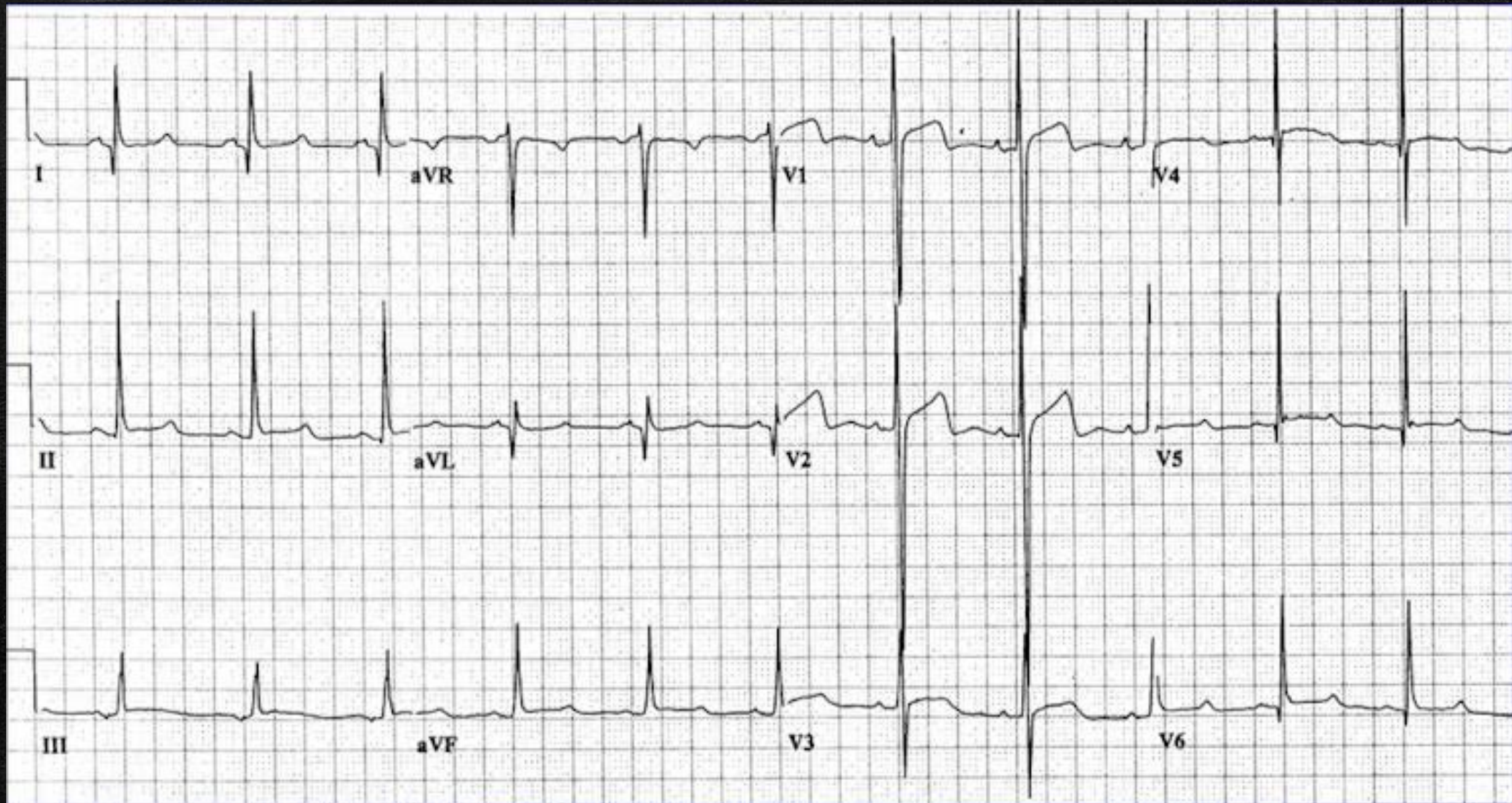
⌚ Yüksek voltajlı sol ventrikül (dev QRS kompleksleri)

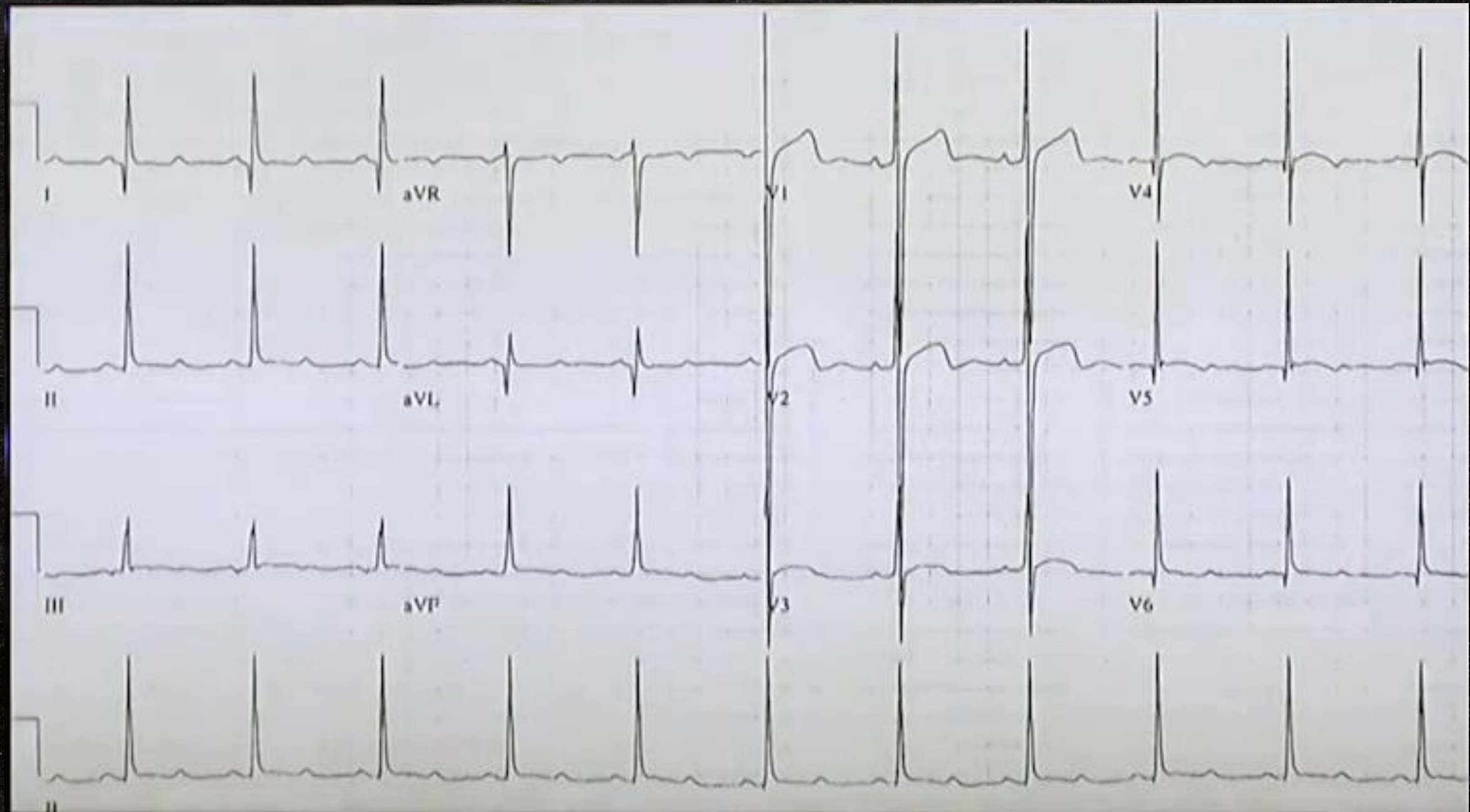
⌚ Sol atrial büyüme

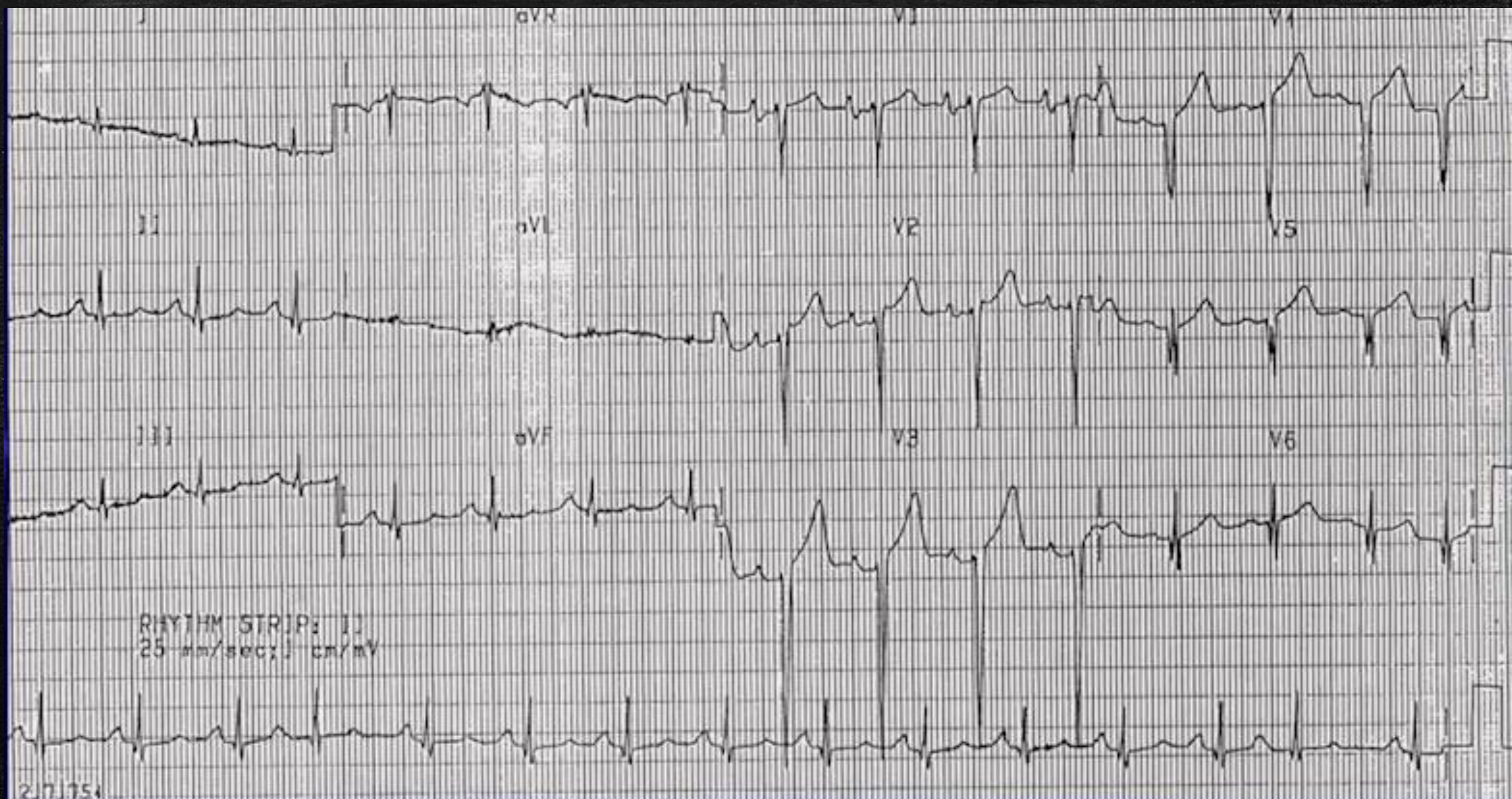
⌚ V₁ de büyük R

⌚ İnferior ve lateral derivasyonlarda derin dar Q dalgaları









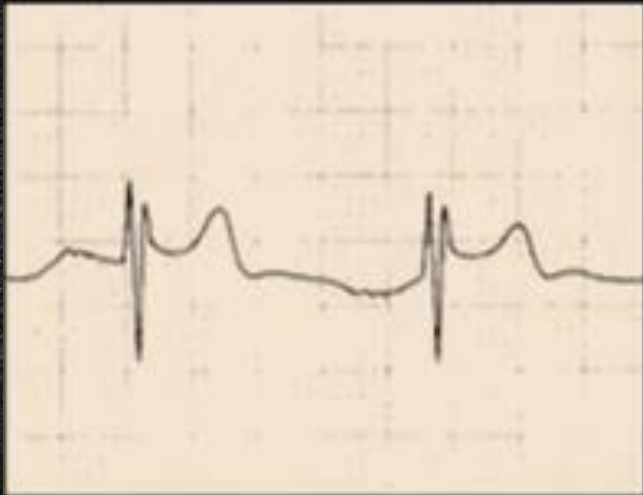
Brugada Sendromu

- ⌚ 1992 de Brugada tarafından tanımlanmış
- ⌚ Yapısal kalp hastalığı olmayan kişilerde ani kardiyak ölüm ile karakterli
- ⌚ Tüm ani kardiyak ölümlerin %4-5 ini kapsar
- ⌚ Sıklıkla genç erkek
- ⌚ Semptomların (senkop,bayılayazma,ani ölüm) görülmesi 40 lı yaşlarda
- ⌚ Tedavi edilmezse mortalite %10/yıl
- ⌚ Antidisritmik ilaçlar etkisiz
- ⌚ ICD (internal cardioverter defibrilatör)

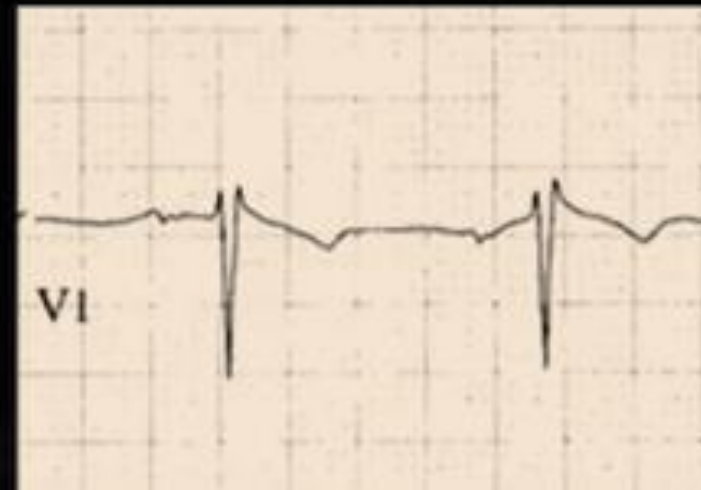
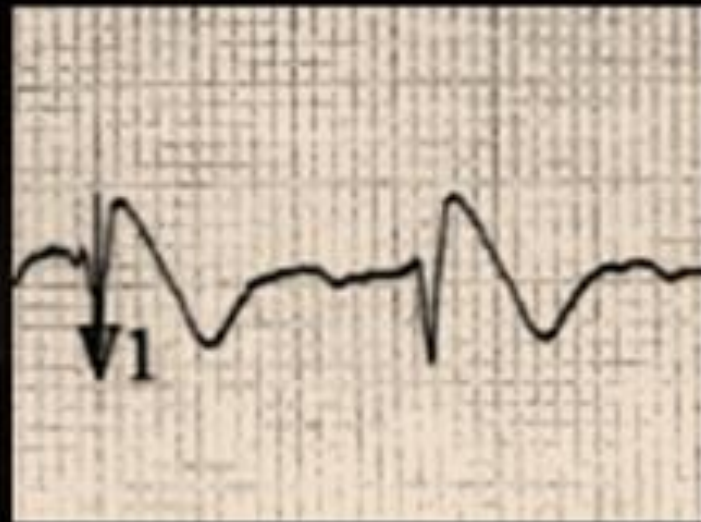
Brugada Sendromu

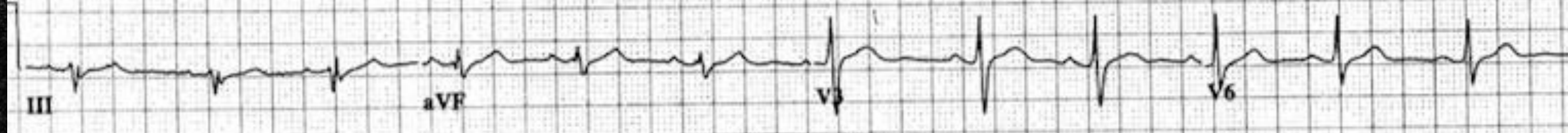
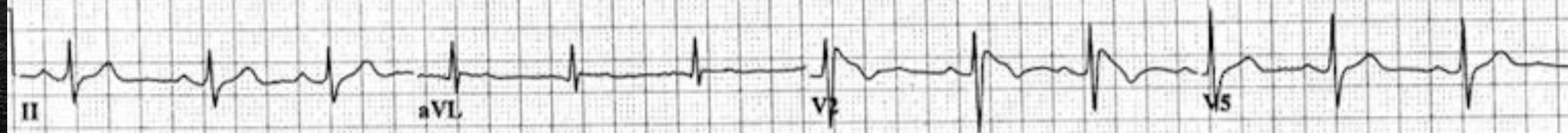
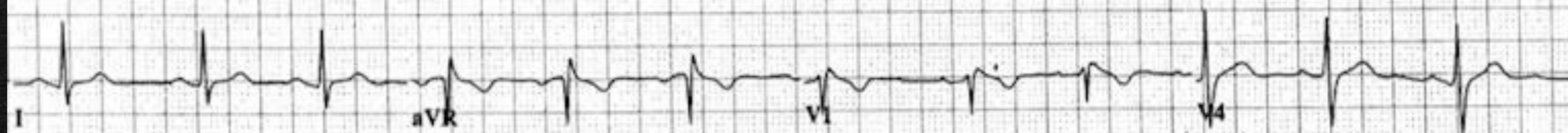
- ⌚ EKG anormallikleri V₁-V₃ derivasyonlarında
- ⌚ RBBB yada IRBBB
- ⌚ STE – coved (kemerli) yada saddle (eyer)
- ⌚ Monomorfik yada polimorfik VT
- ⌚ Hastaların yaklaşık yarısında ailesel geçiş bulunur
- ⌚ Na kanal blokajı yapan ajanlarla semptomlar belirginleşir (antikolinerjik,antidepresanlar)
- ⌚ Ateş de semptomları kötüleştirir
- ⌚ Tanı:EPS

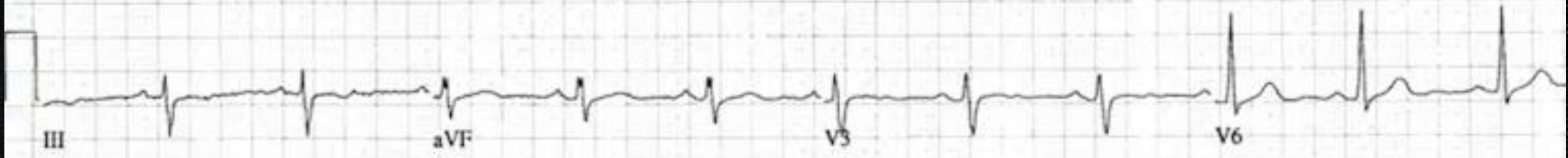
Saddle Type



Coved Type







Referred by:

Unconfirmed

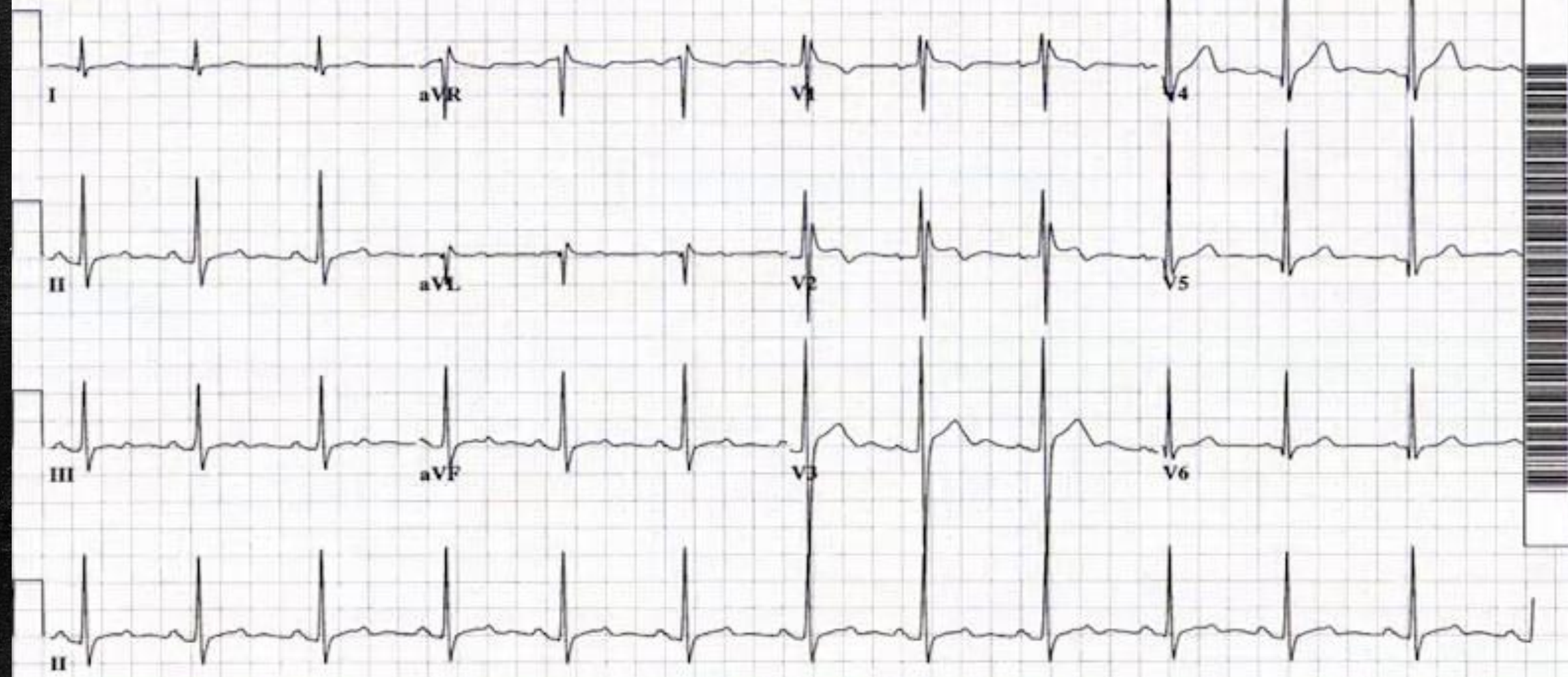


Technician: S.WILLIAMS

COMMENT:

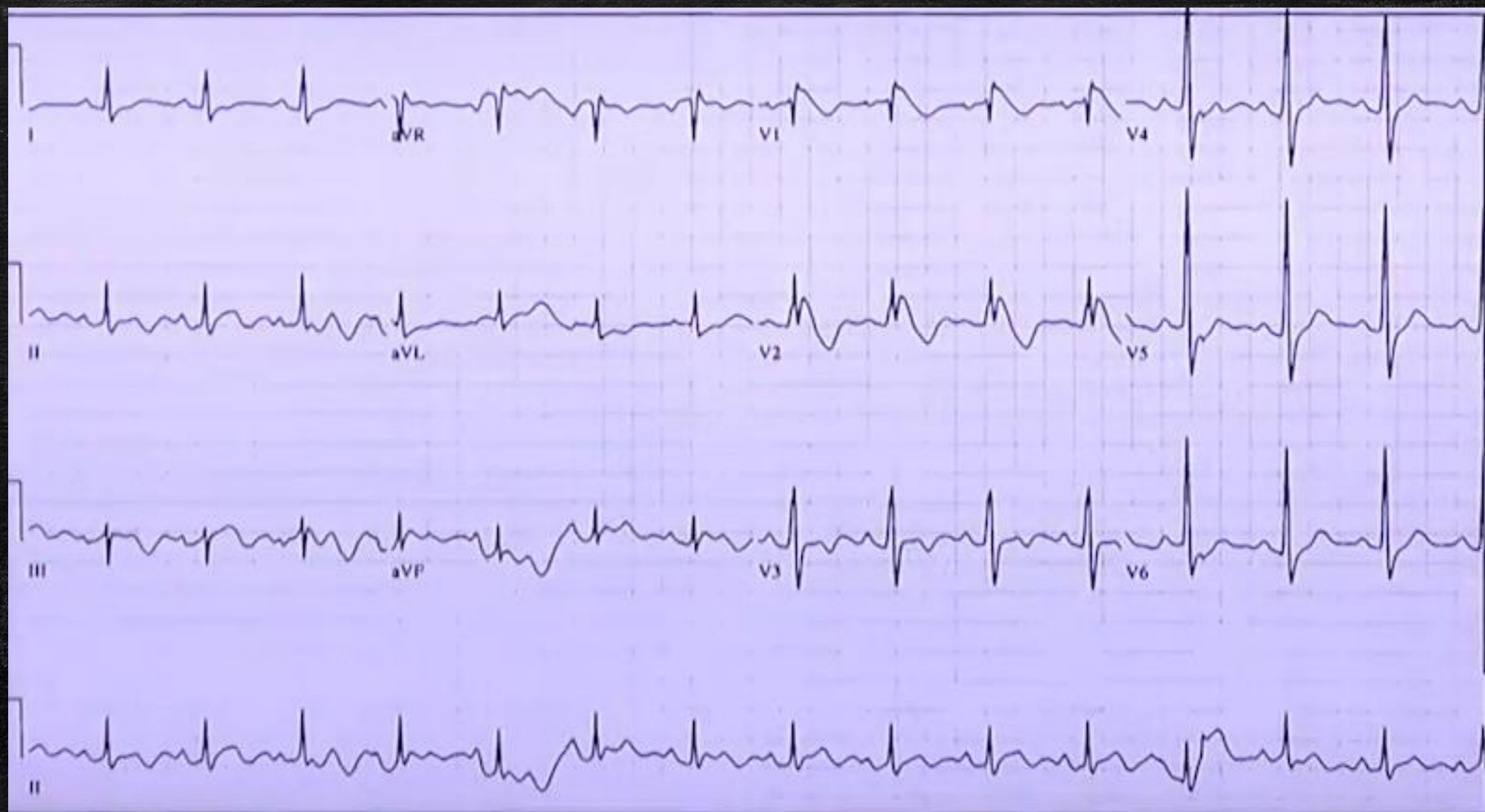
Referred by:

Confirmed By:





From *Electrocardiography in Emergency Medicine*



Courtesy Chris Touzeau

d1

HR 86 bpm

• ***** ACUTE MI SUSPECTED *****

| acute infarct

08:28:03

• **Abnormal ECG **Unconfirmed****

QRS 0.182s

• Normal sinus rhythm

QT/QTc

• Incomplete right bundle branch block

0.348s/0.416s

• ST elevation consider lateral injury or

Sex:

P-QRS-T Axes

aVR

I V1

I V4

I I

I II

I aVL

I V2

I V5

I III

I aVF

I V3

I V6

1.0 05-40Hz 25mm/sec

P/N 805319

MONTGOMERY CO EMS 1 3811371-138 2866MDM I GNG67J LP1233515687

REVIEW RECORD

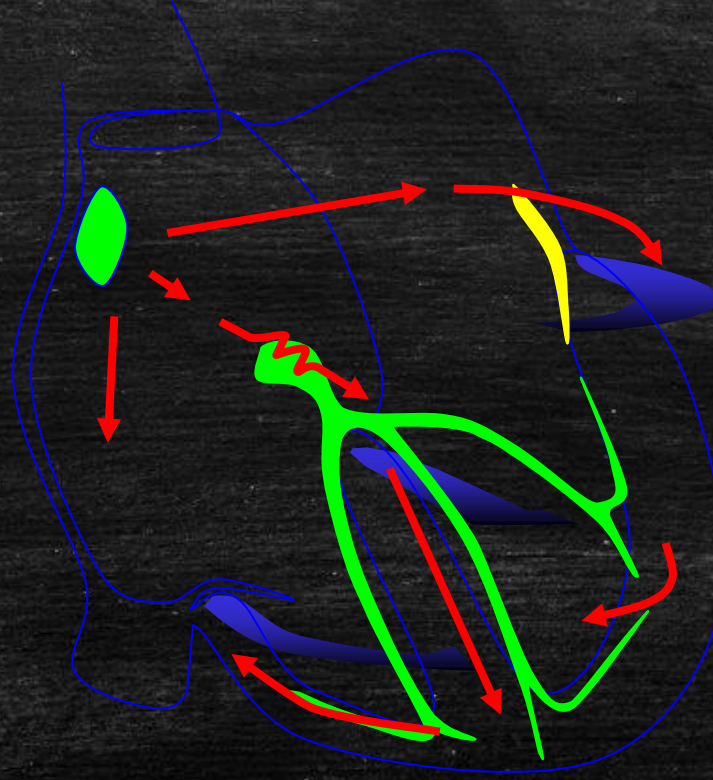
PRINTED

Aksesuar yol varlığında ventrikül uyarılması (Preeksitasyon)

Wolf Parkinson White Sendromu

- ⌚ Atriyal bir uyarının ventriküllerin bir bölümünü ya da tümünü AV düğüm yoluyla ulaşımından daha önce depolarize etmesidir
- ⌚ Bu durum yüzey EKG de delta dalgalarını oluşturur

Aksesuar yol varlığında ventrikül uyarılması (Preeksitasyon) Wolf Parkinson White Sendromu

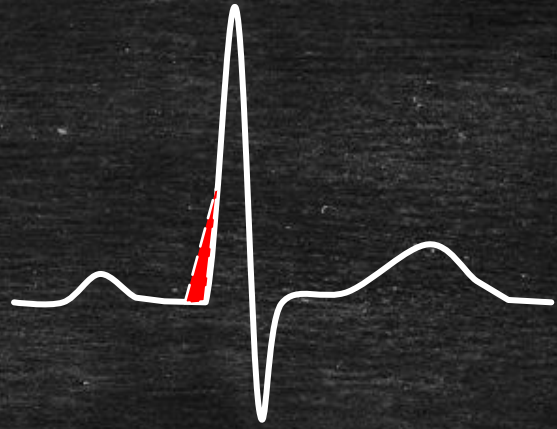
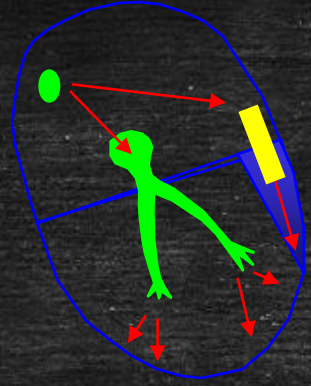


Aksesuar yol varlığında ventrikül uyarılması (Preeksitasyon) Wolf Parkinson White Sendromu

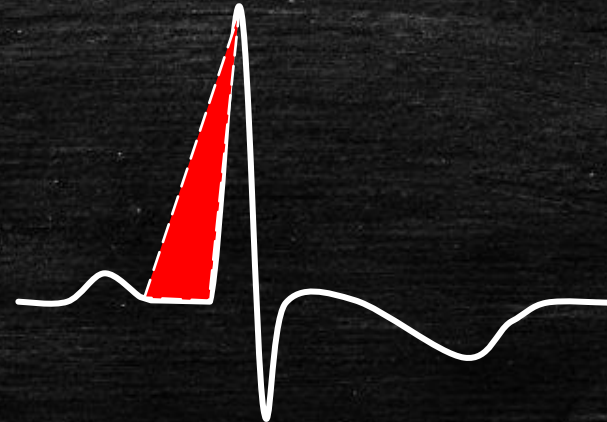
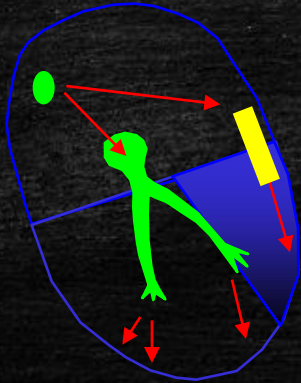
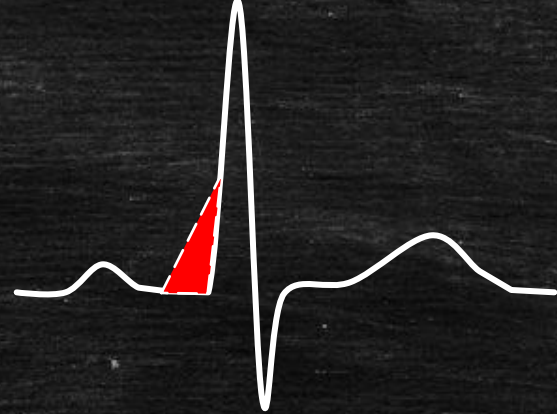
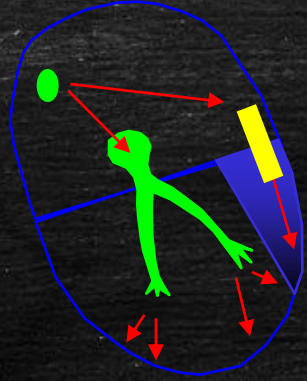
⌚ Kısa PR

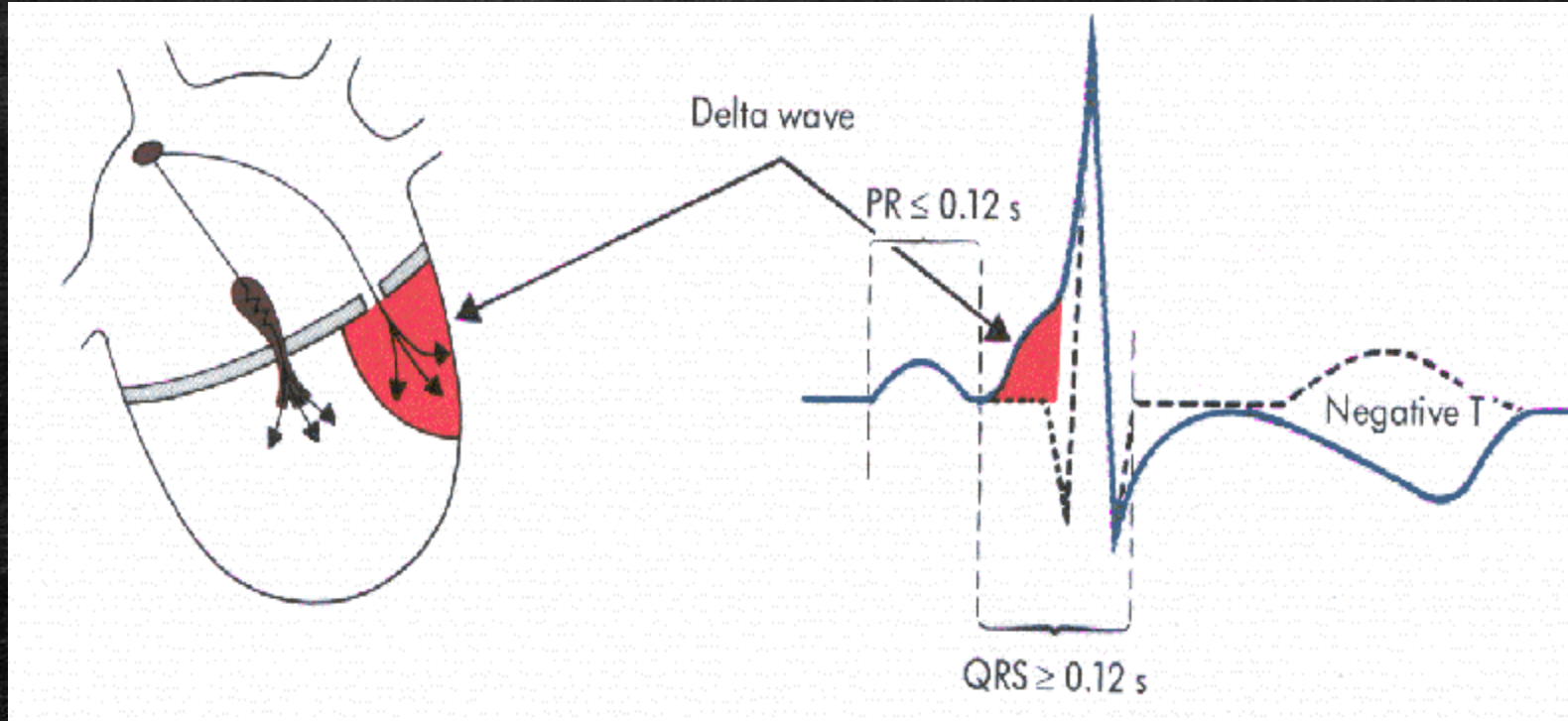
⌚ Geniş QRS

⌚ Delta dalgaları

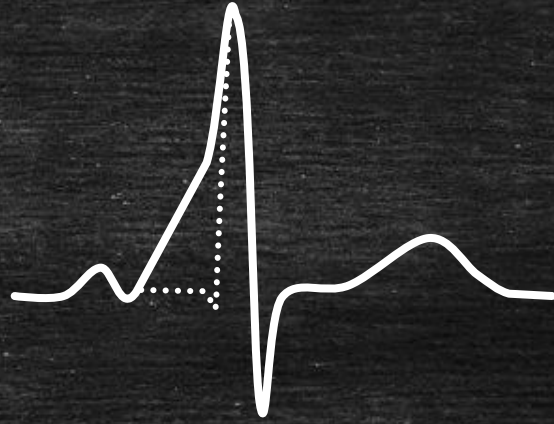


Uyarı aksesuar yoldan antegrad iletilebiliyorsa delta dalgası oluşur





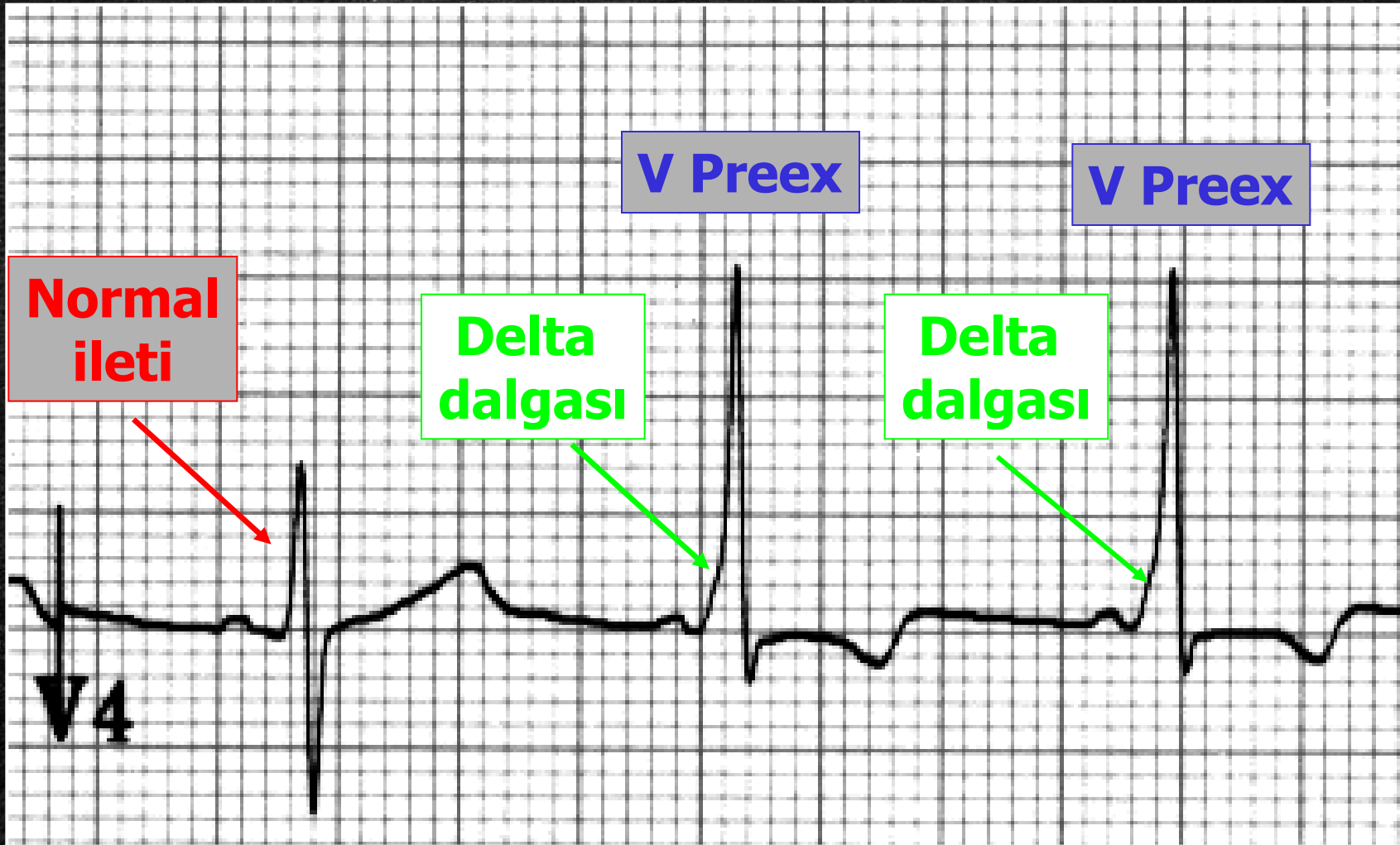
Uyarı aksesuar yoldan antegrad iletilebiliyorsa delta dalgası oluşur



Delta dalgası

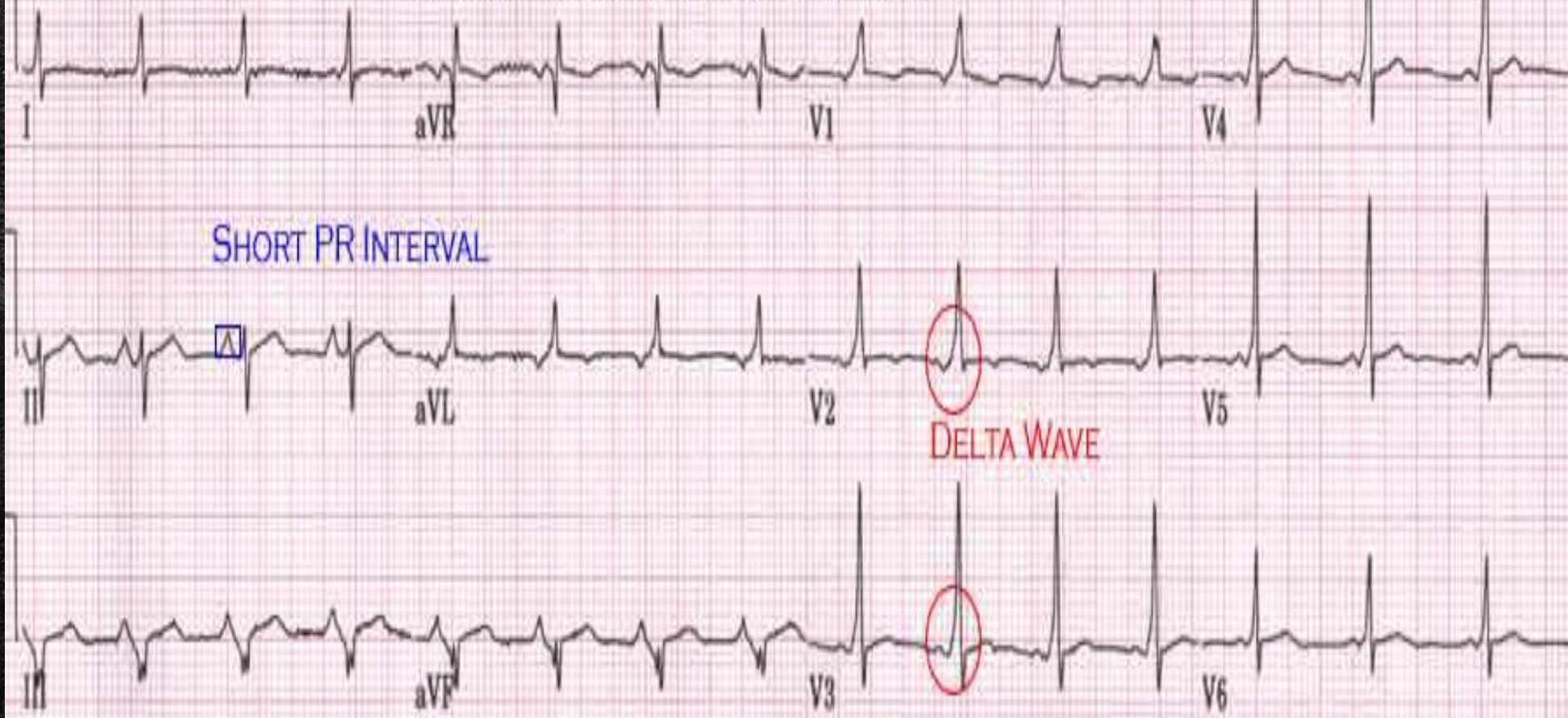


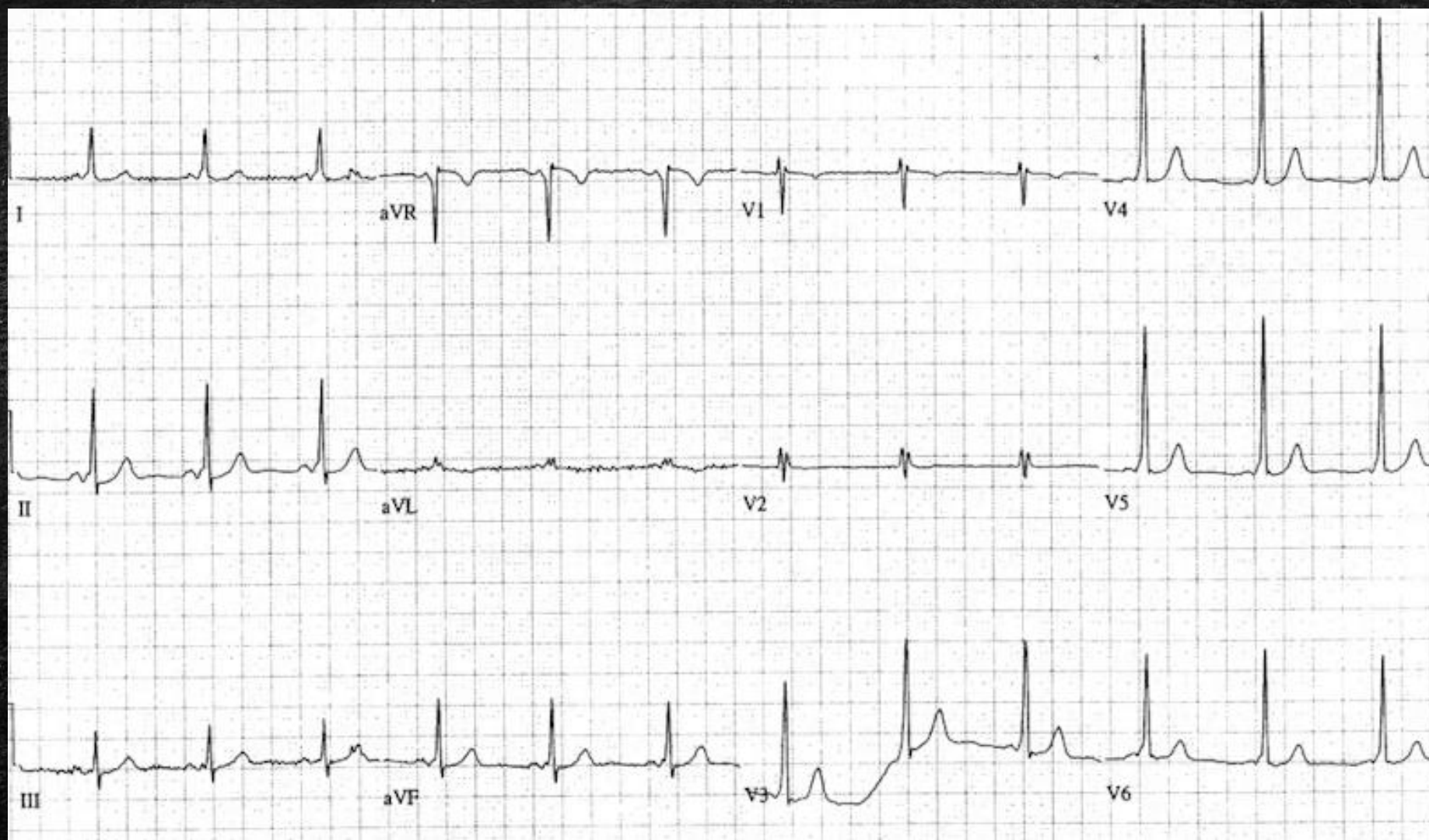
Gerçek kısa PR



EMEDU

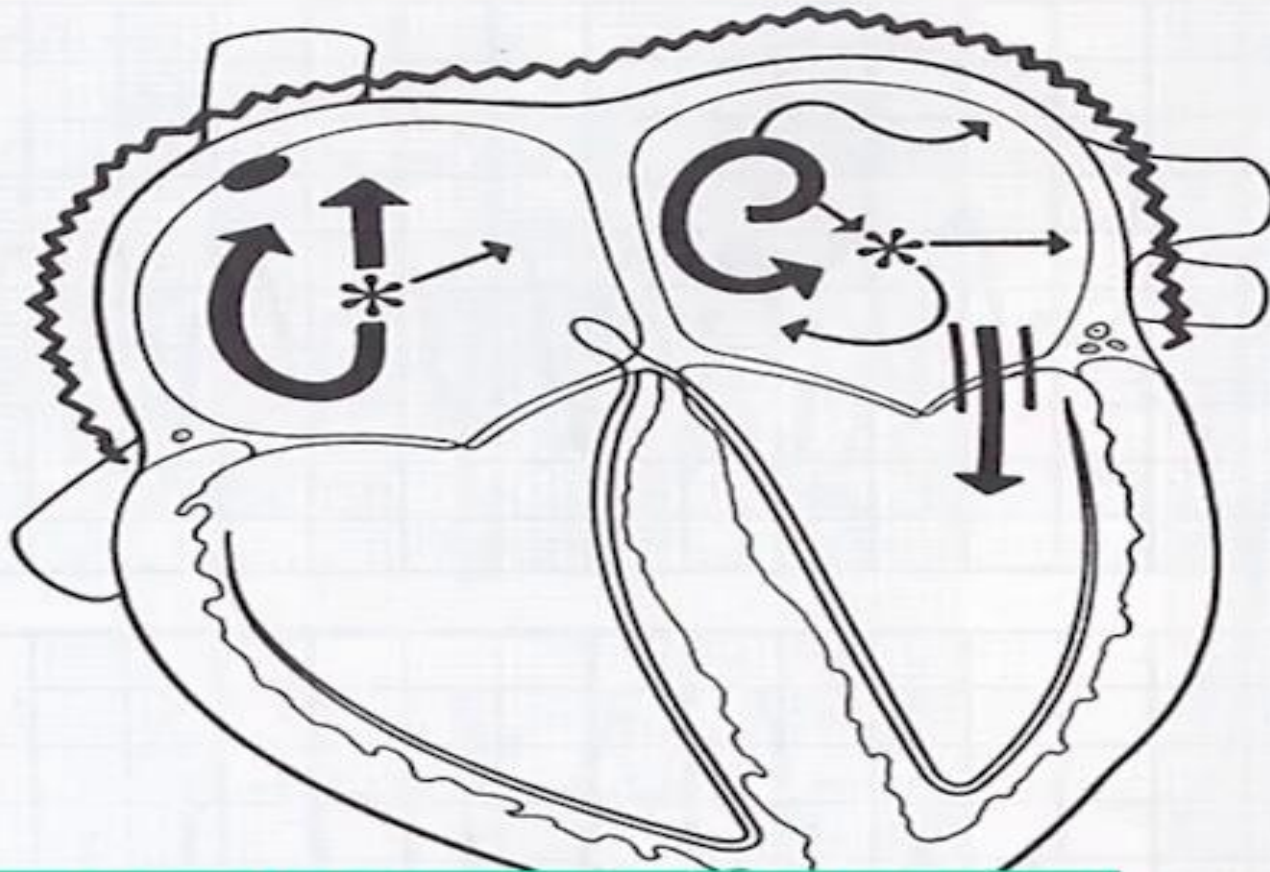
SINUS RHYTHM WITH SHORT PR INTERVAL AND VENTRICULAR PRE-EXCITATION
POSSIBLE WOLFF-PARKINSON-WHITE





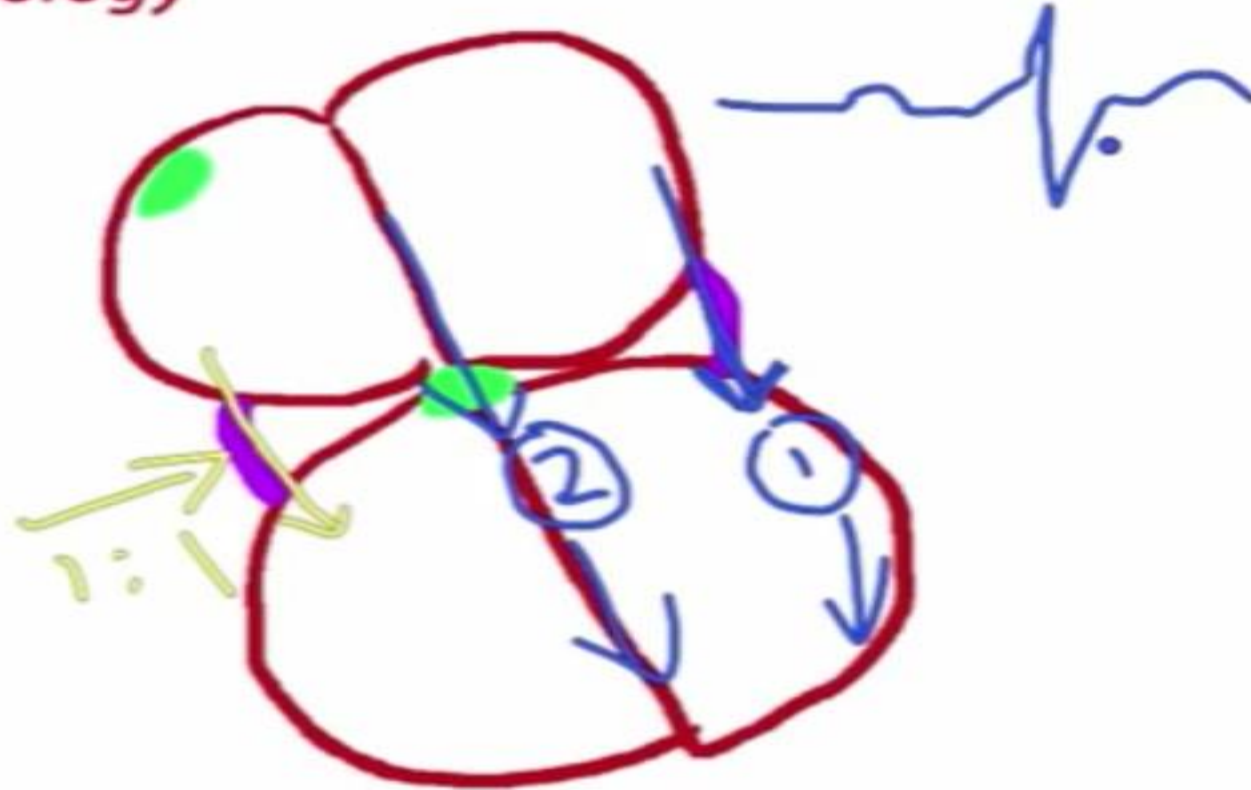
WPW+ Atrial Fibrilasyon

EKG özellikleri



From Marriott, Advanced Concepts in Arrhythmias, Mosby 1998.

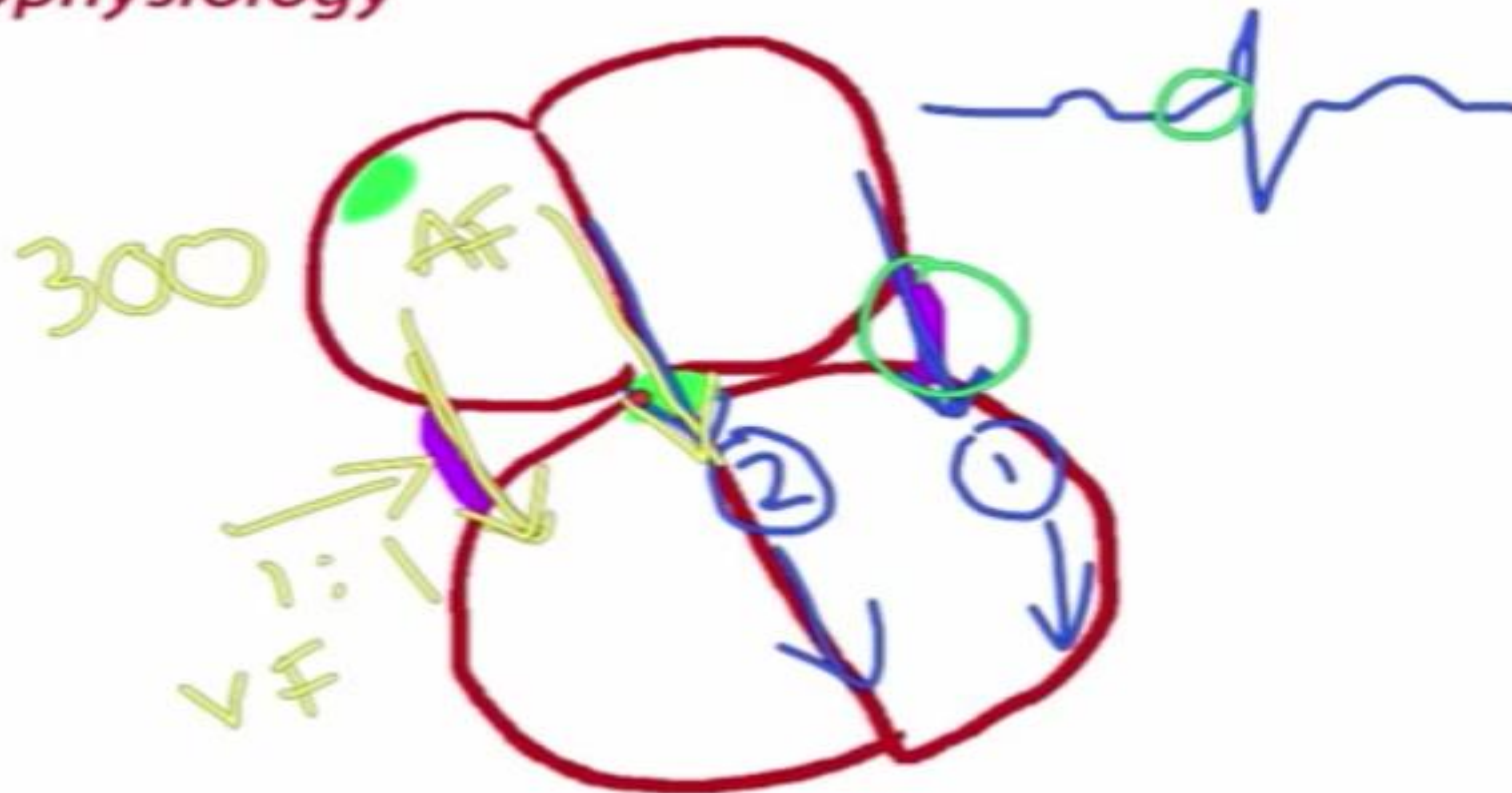
WPW & AF: Pathophysiology



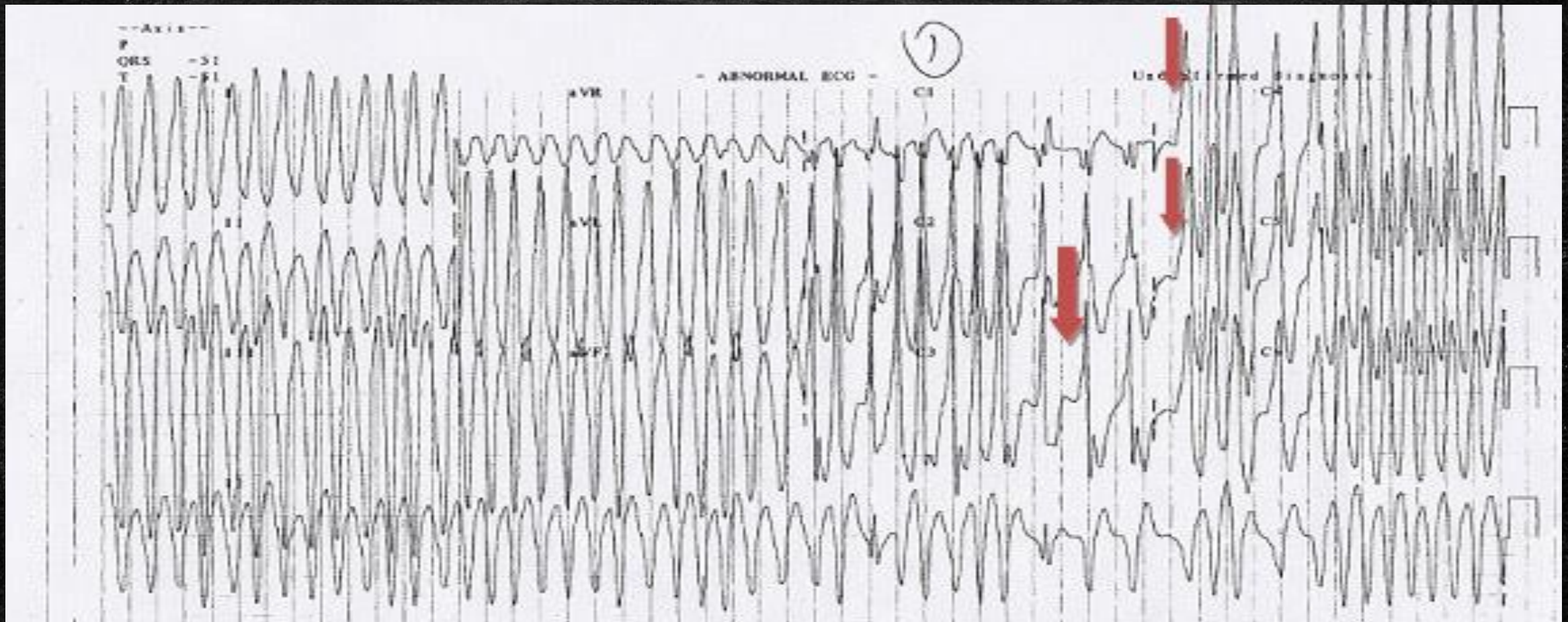
WPW + Atrial Fibrilasyon EKG özellikleri:

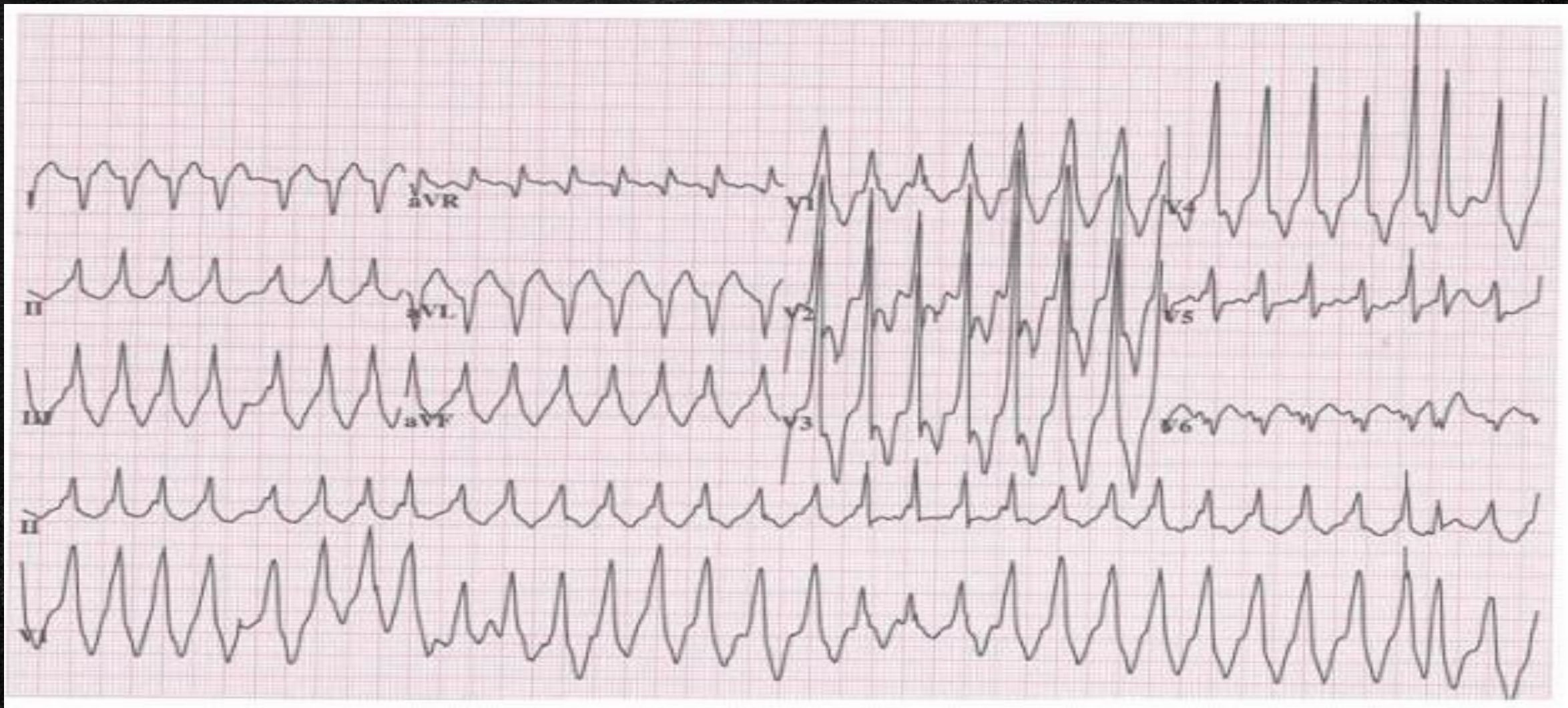
- ⌚ Atrial uyarıların bir kısmı AV noddan iletilir-dar QRS
- ⌚ Atrial uyarıların bir kısmı AV nod tarafından bloke edilir.
- ⌚ Aksesuar yolak üzerinden geçen atrial uyarılar ventriküllerin anormal depolarizasyona yol açar bu yüzden geniş QRS kompleksleri.
- ⌚ Düzensiz ritm.
- ⌚ QRS kompleksleri biçim ve morfolojileri değişir.
- ⌚ Hız > 200 vuru/dakika.300'lere ulaşabilir....

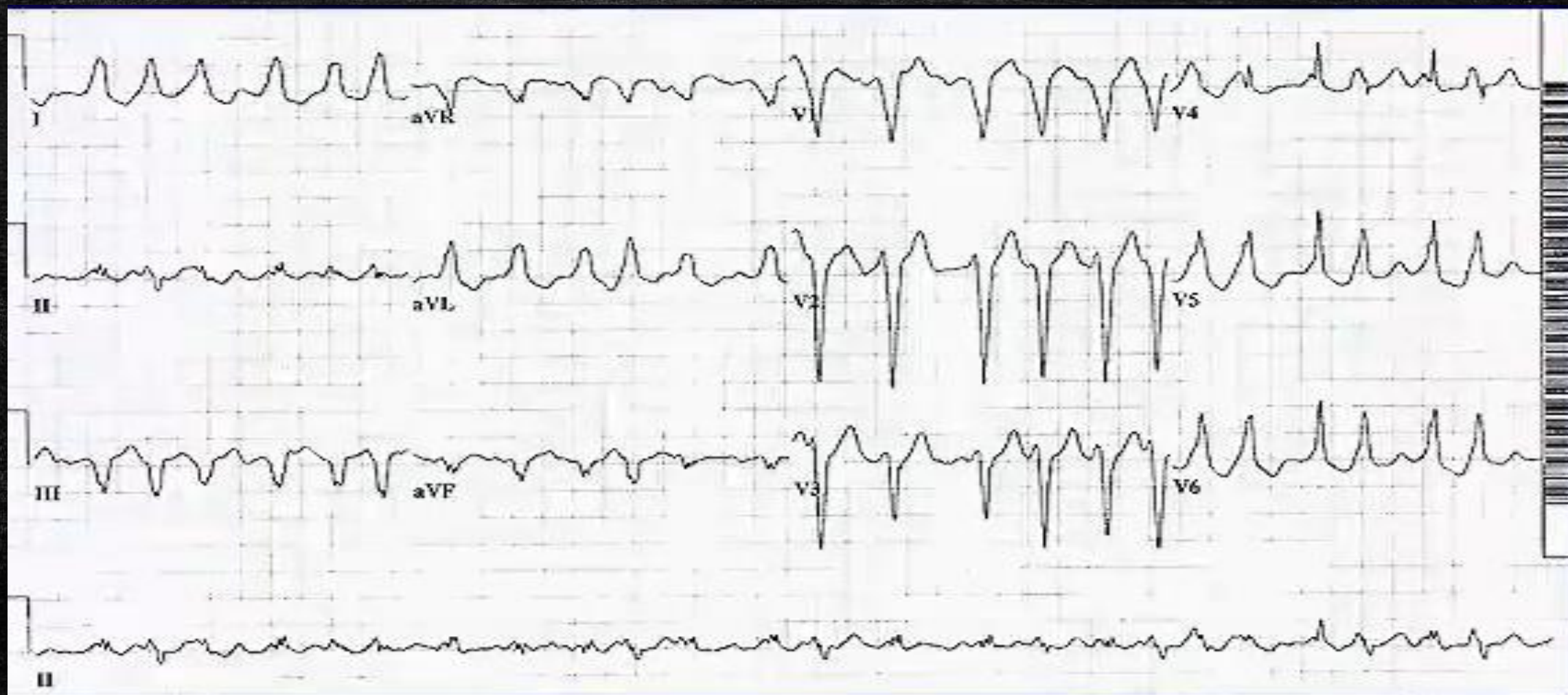
WPW & AF: Pathophysiology

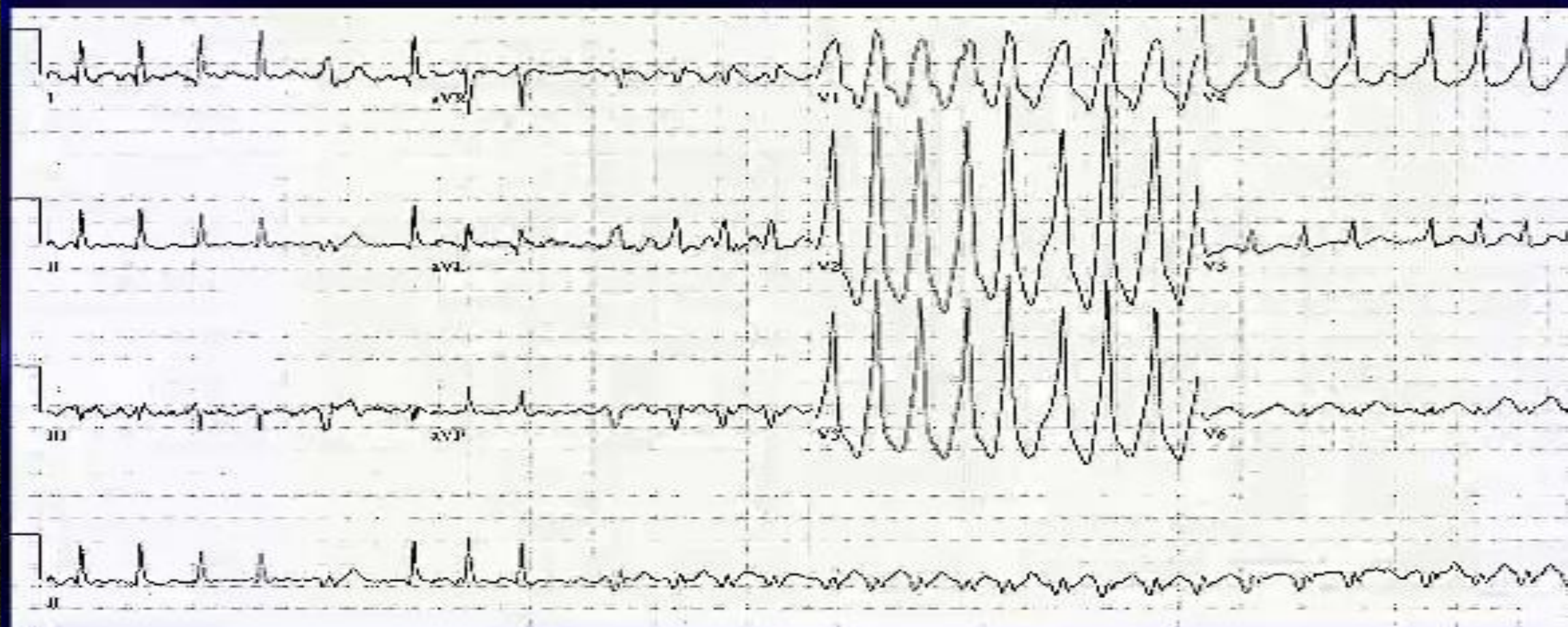


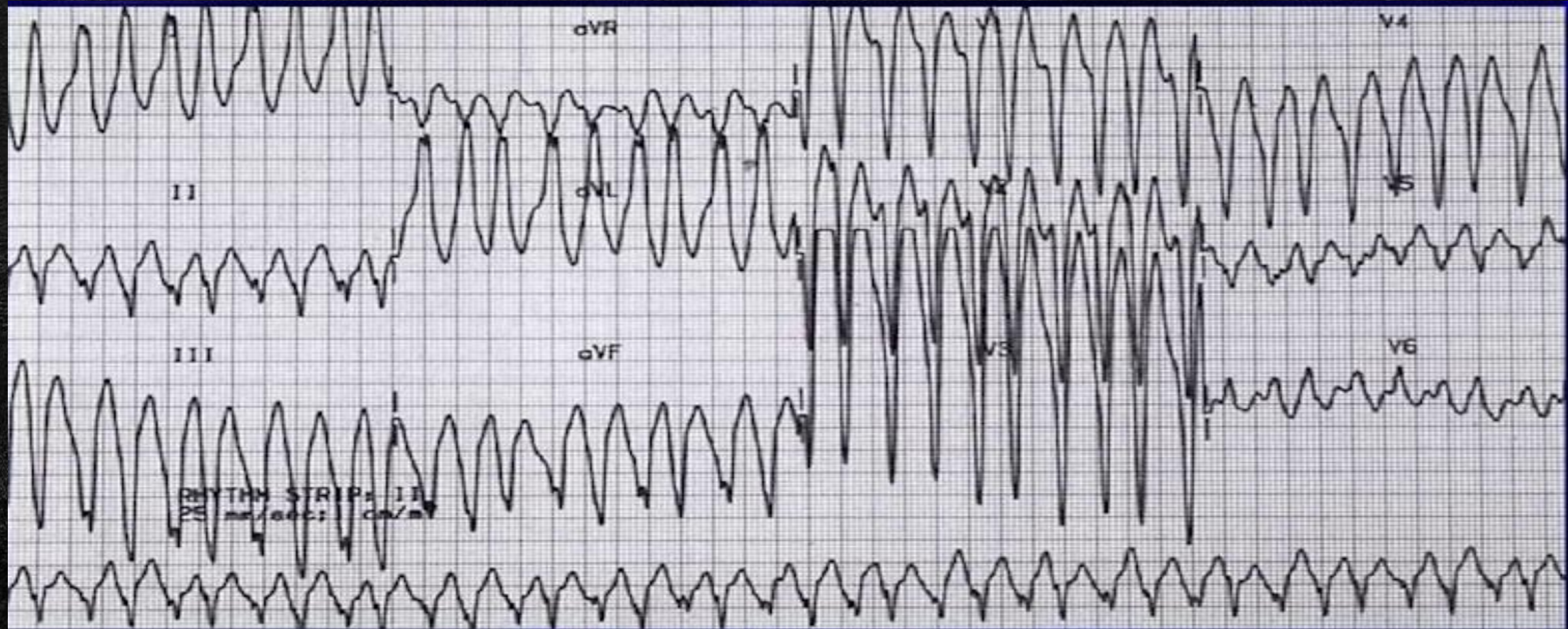
AF + Wolf-Parkinson-White Sendromu



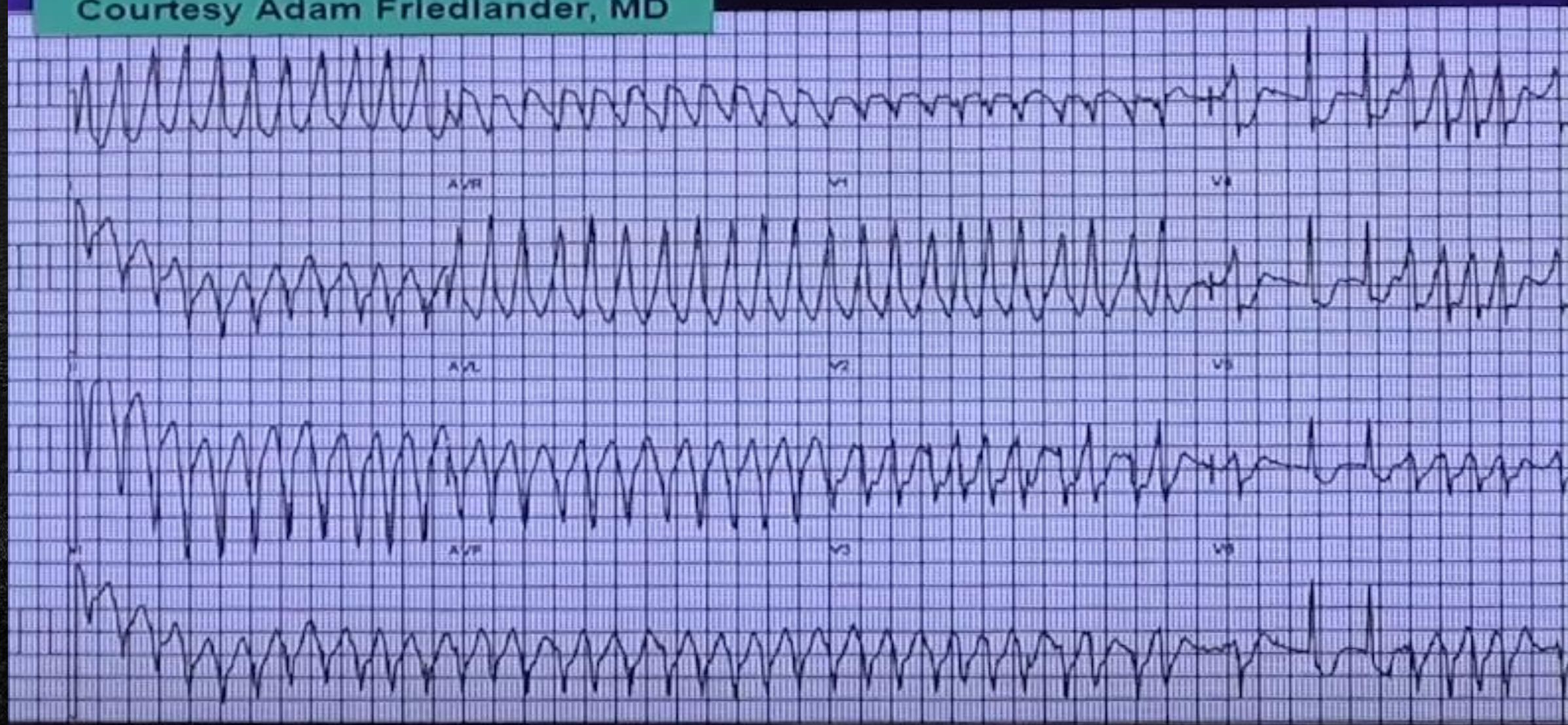








Courtesy Adam Friedlander, MD



Courtesy Rick Nunez, MD

Referred by:

Unconfirmed



WPW + AF tedavisi

- ⌚ Adenozin, kalsiyum kanal blokerleri, beta blokerler ile tedavi aksesuar yolak üzerinden iletimi arttırarak muhtemel VT veya VF'ye dönüşüm ile sonuçlanabilir.
- ⌚ Hemodinamik olarak anstabil hastada acil senkronize DC kardiyoversiyon gereklidir.
- ⌚ DC kardiyoversiyon tercih edilebilecek olmasına rağmen, stabil hastada medikal tedavi seçenekleri arasında prokainamid ya da ibutilid mevcuttur.

Uzun QT Sendromu

- ⌚ QT intervali kalp hızına bağlı değişiklik gösterir
- ⌚ Bazett formülüne göre düzeltilmiş QT intervali hesaplanır
- ⌚ $QT_c = QT / \sqrt{RR}$ → $QT_c > 500 \text{ ms}$ uzun (tehlike!!!!)
- ⌚ Tedavide;
 - Defibrilasyon
 - Mg bolus veya infüzyon
 - Overdrive pace
- ⌚ Amiodaron, prokainamid ve lidokain kullanma (Na kanal blokeri olduğu için kullanma)

Uzun QT Sendromu

⌚ Uzun QT nedenleri

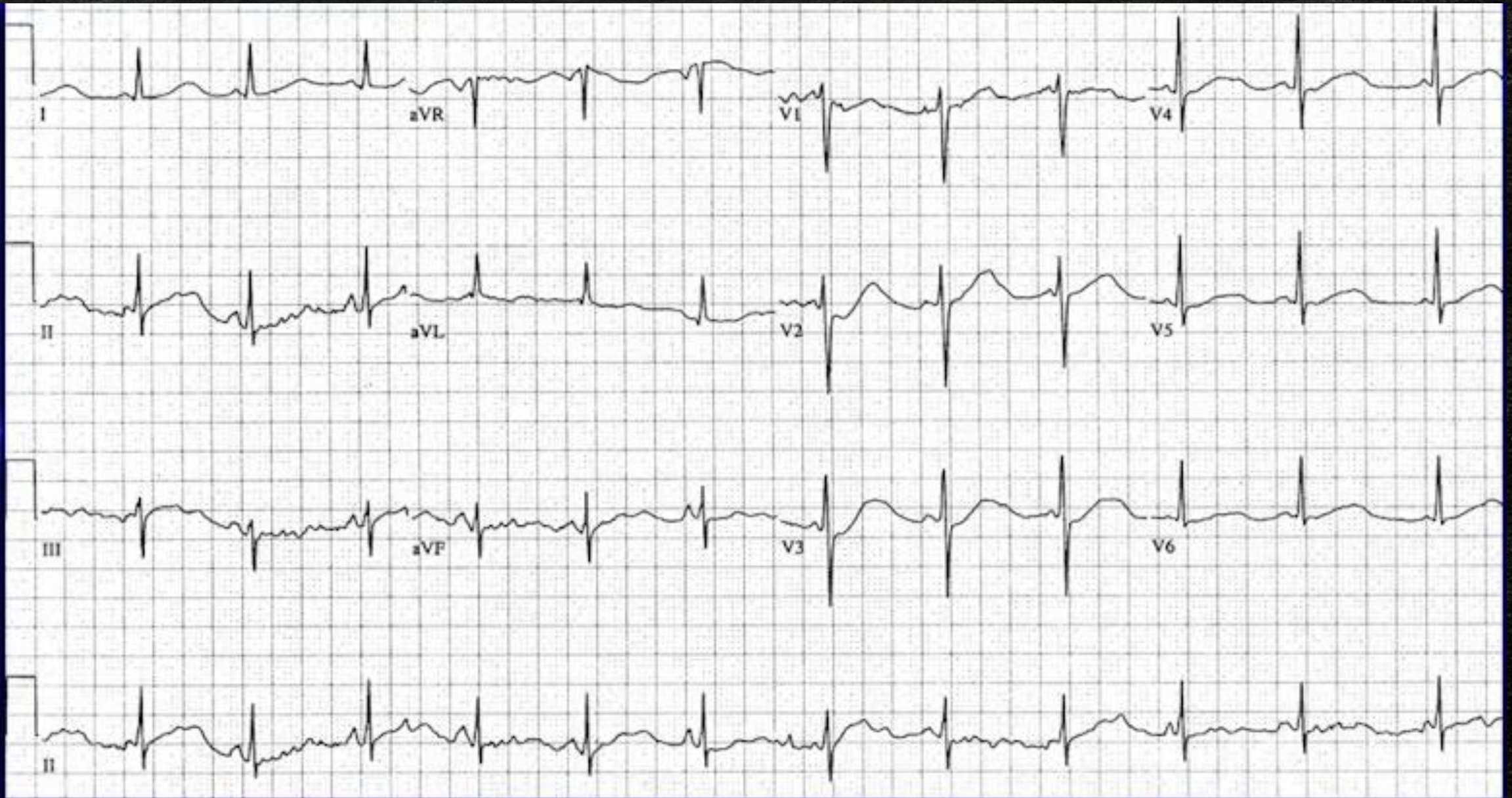
Hipokalemi

Hipomagnezemi

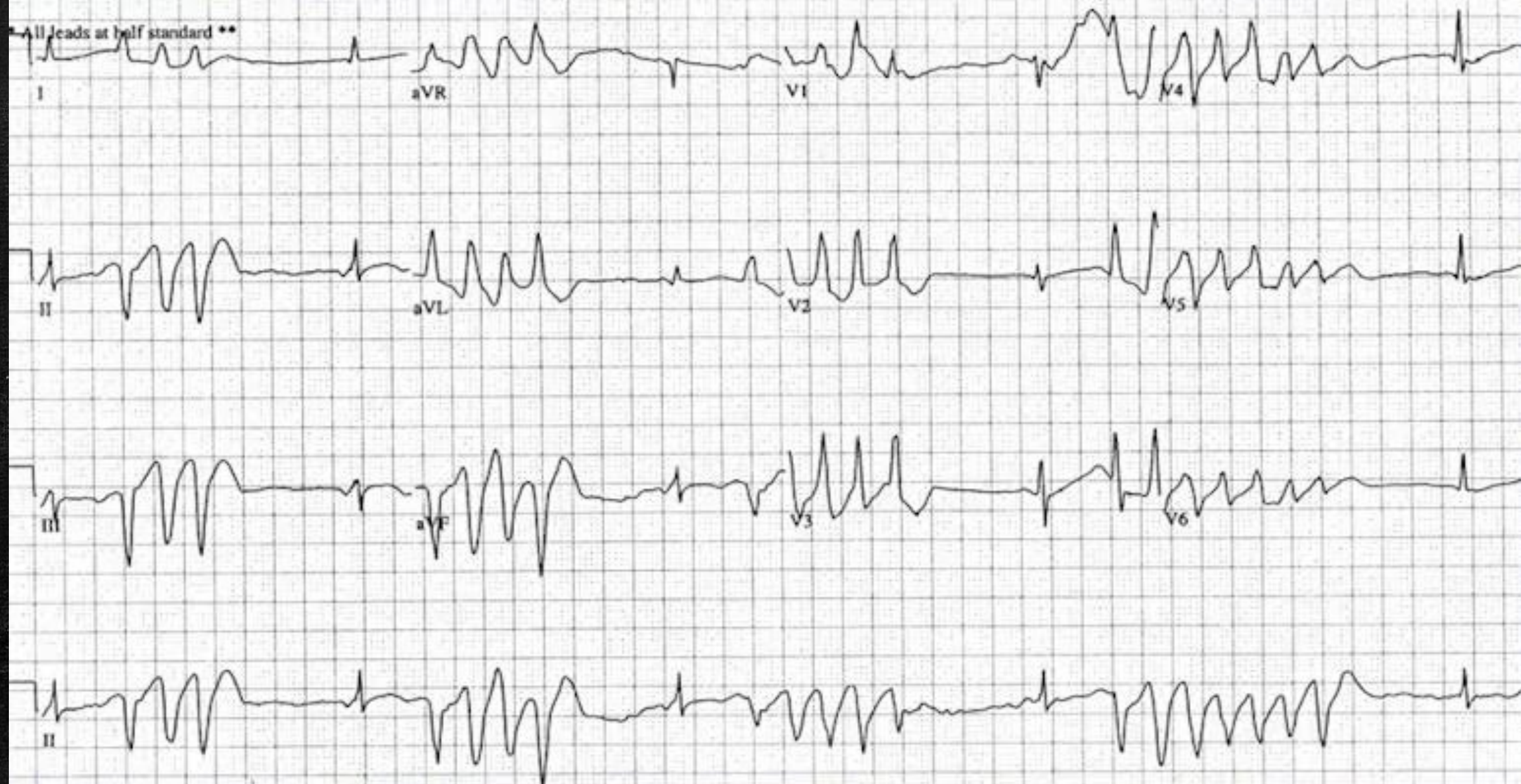
Hipokalsemi

Na kanal blokerleri

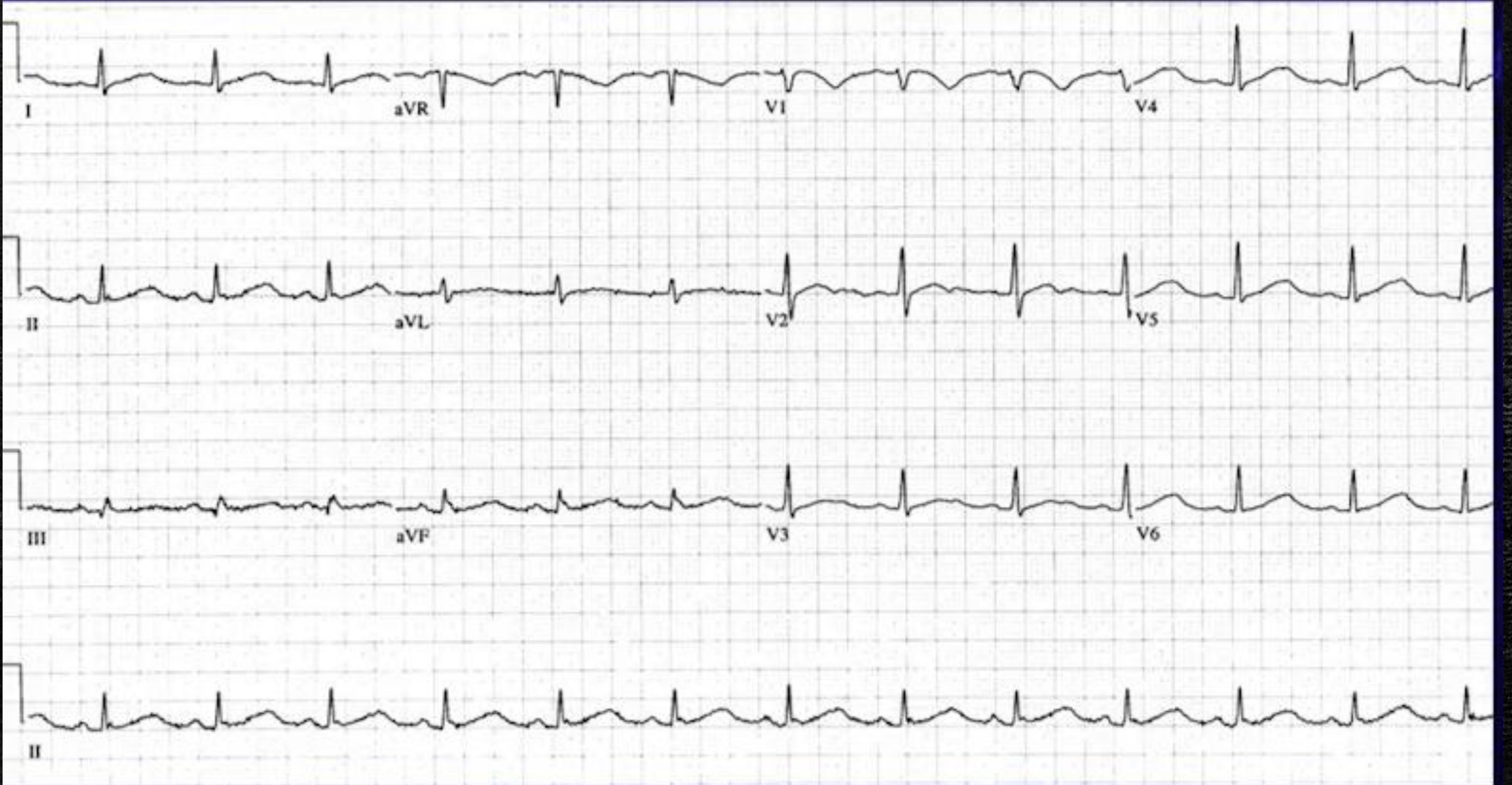
Diğer (Artmış ICP,AKS,hipotermi)

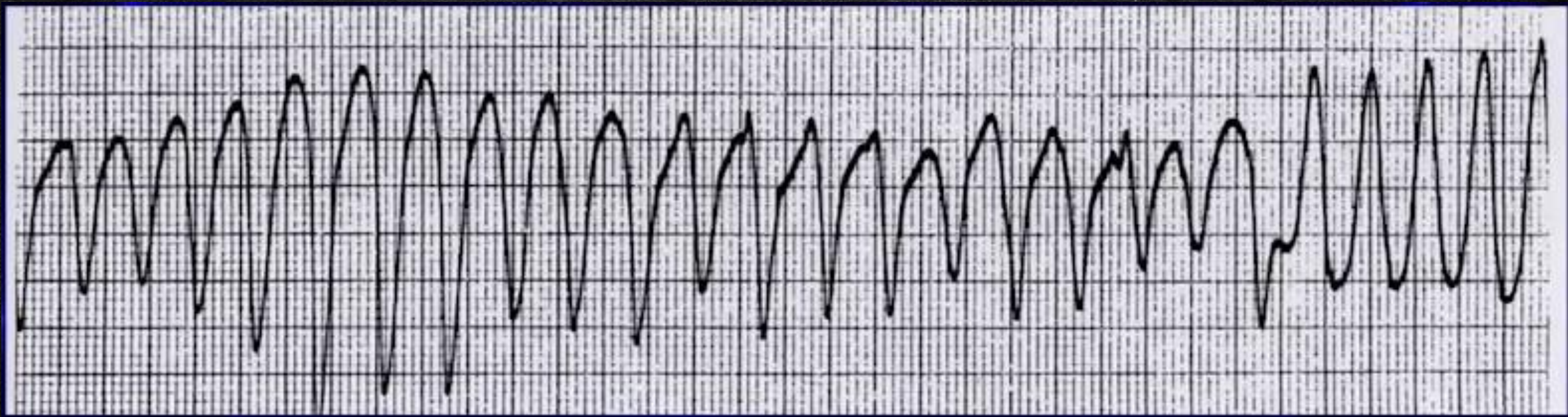


1-2 dakika sonra....



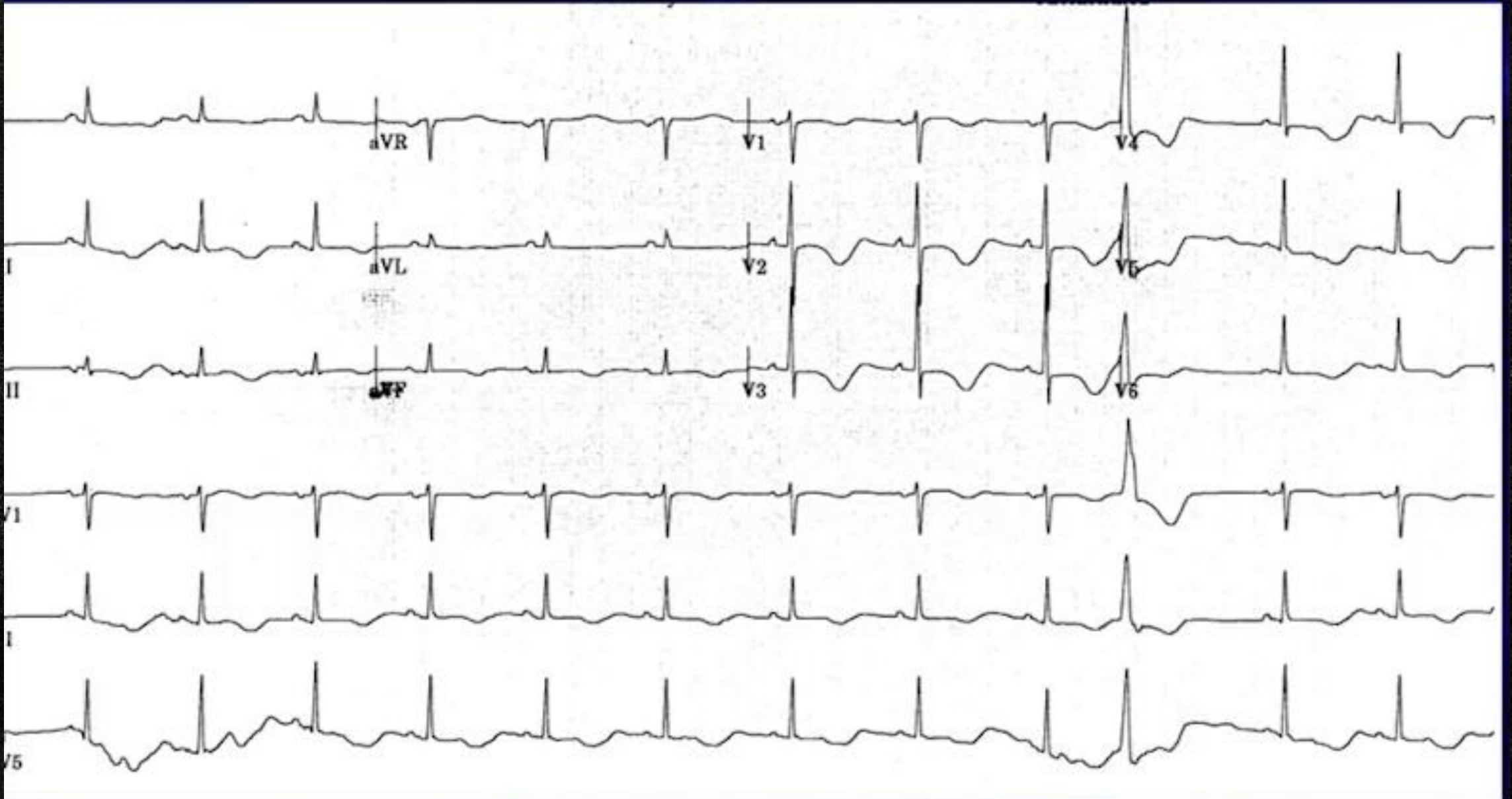
51 yaşında kadın hasta, akut gastroenterit, QTc 654msn





Torsades....

42 yaşında erkek hasta alkol çekilme semptomları ile başvuruyor. QTc=520msn

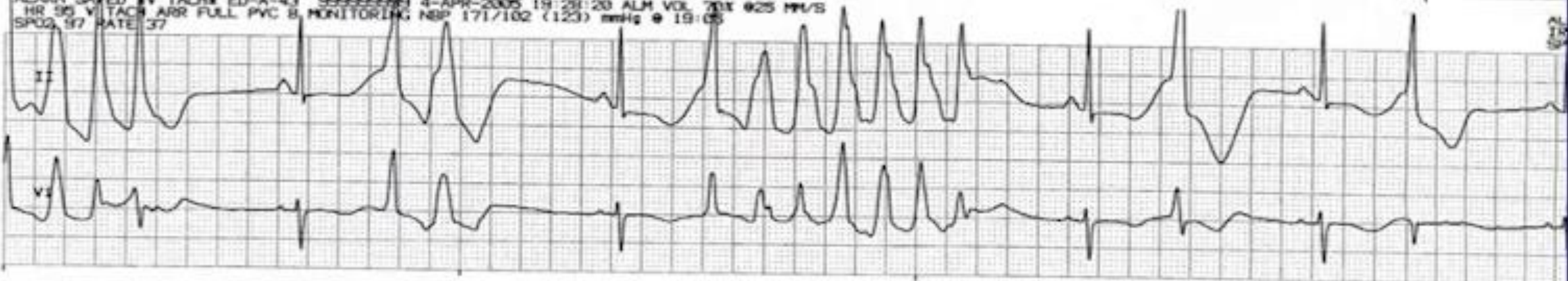


4-APR-2005 19:22:59 ALM VOL 70X 925 MM/S
MONITORING NBP 171/102 (123) mmHg @ 19:05

ALARM ED-A-43 999999999 4-APR-2005 19:23
ARR FULL PVC 20 MONITORING NBP 171/102 (123)



ALARM SAVED BY TACH ED-A-43 999999999 4-APR-2005 19:28:20 ALM VOL 70X 925 MM/S
HR 95 V TACH ARR FULL PVC 8 MONITORING NBP 171/102 (123) mmHg @ 19:05



4-APR-2005 19:28:39 ALM VOL 70X 925 MM/S
171/102 (123) mmHg @ 19:05

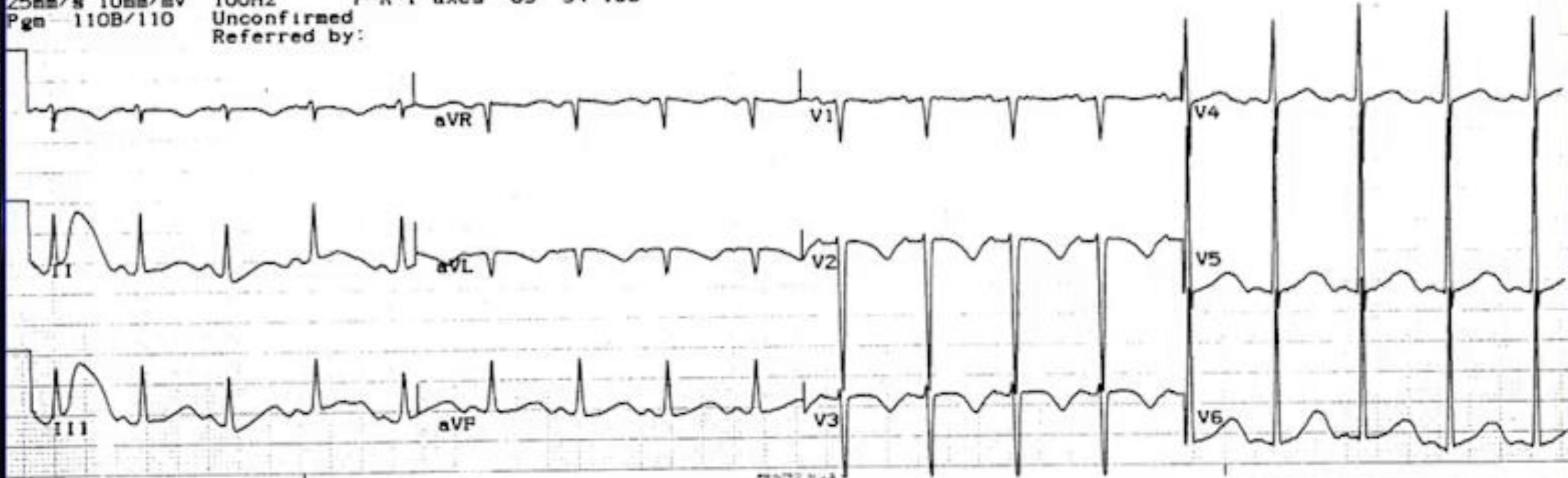
ALARM ED-A-43 999999999 4-APR-2005 19:28:48 ALM VOL 70X
IRREGULAR ARR FULL PVC 23 MONITORING NBP 171/102 (123) mmHg @ 19:05



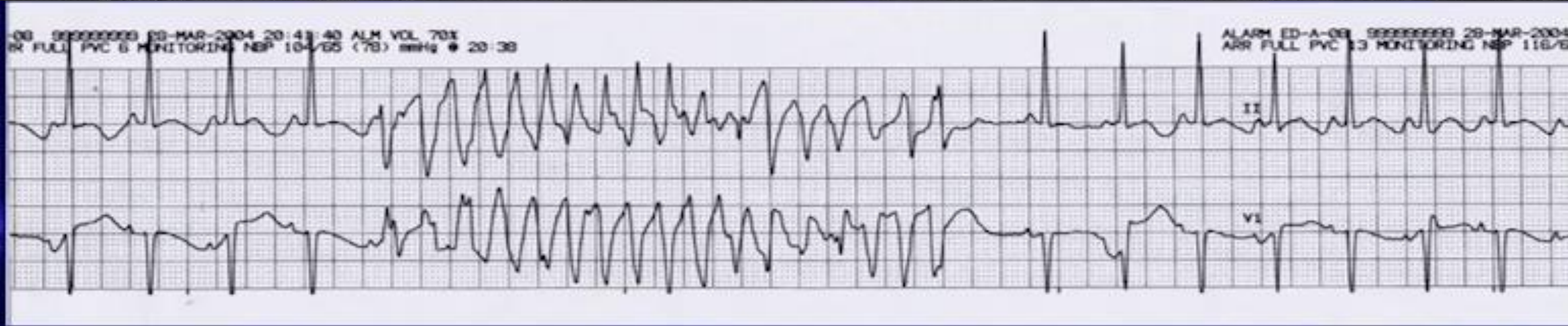
İlk kez epileptik nöbet ile gelen bir hasta....

39yr Ht: Ht: Med:
Sex: M Race: Blk Loc: 80 Room:
Cart: 1 Tech: Vent. rate 105 BPM
PR interval 132 ms
QRS duration 76 ms
QT/QTc 428/563 ms
P-R-T axes 69 94 106
25mm/s 10mm/mV 100Hz
Pgm 110B/110 Unconfirmed
Referred by:

SINUS TACHYCARDIA
RIGHTWARD AXIS
BIVENTRICULAR HYPERTROPHY
T WAVE ABNORMALITY. CONSIDER ANTERIOR ISCHEMIA
ABNORMAL ECG

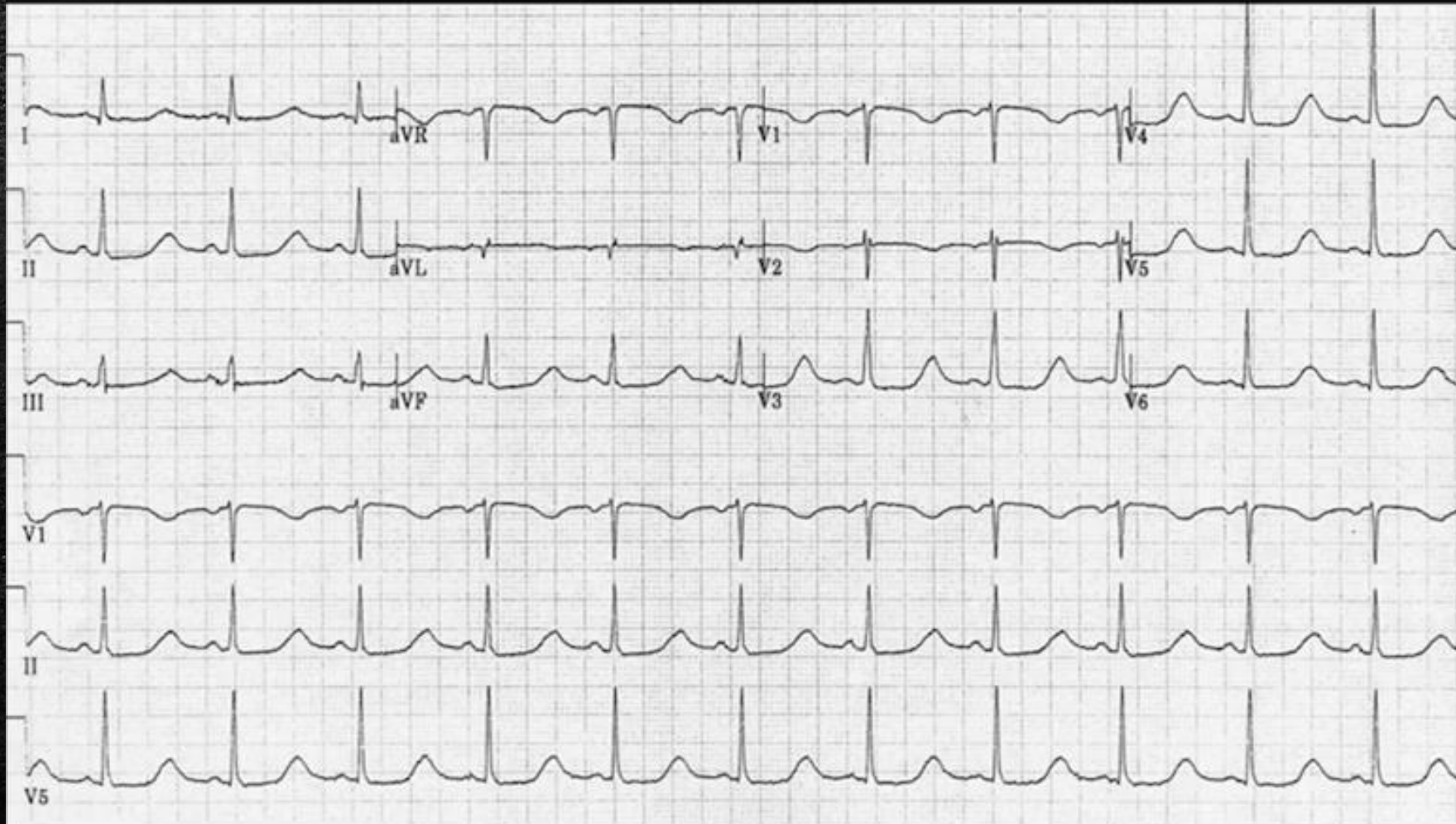


Monitörize iken bir kez daha nöbet geçiriyor....

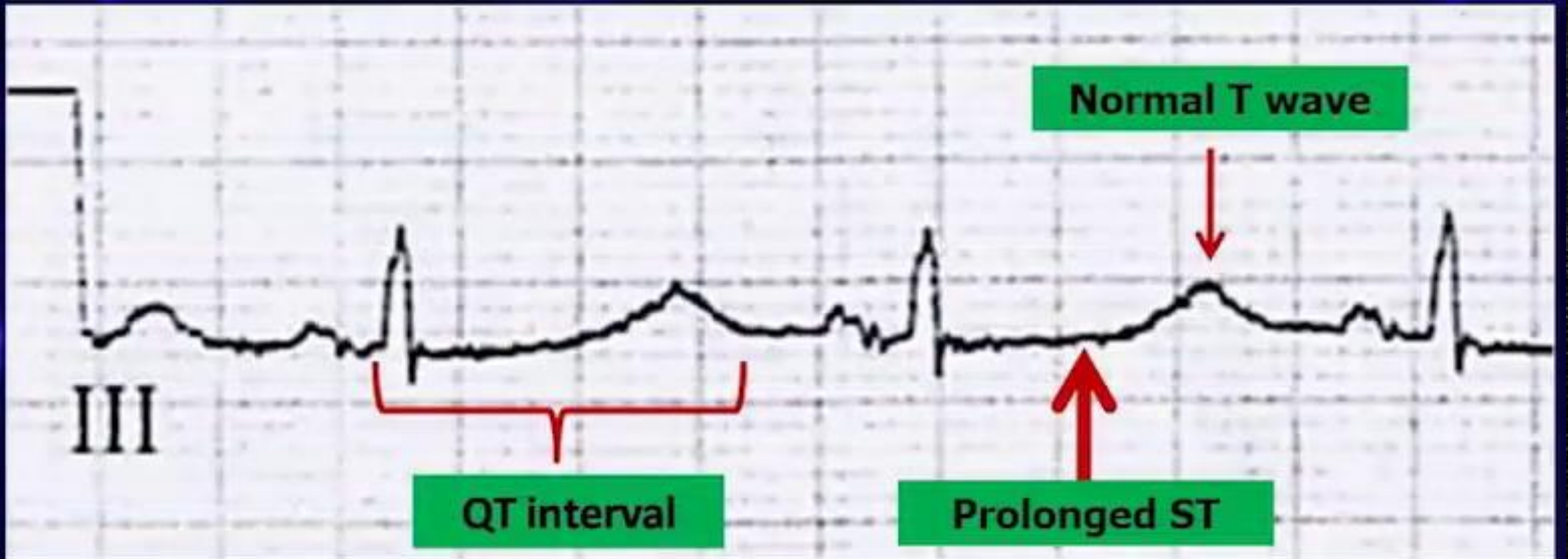


Hypocalcemia

(Ca 4.7 mg/dL, QTc 653 ms)



Hipokalsemide QT nin uzamasına yol açan ST segmentinin uzamasıdır



Senkop ile gelen hastada bakılacak EKG

- ⌚ Akut koroner sendrom
- ⌚ Taşidisritmi
- ⌚ Bradidisritmi-AV blok
- ⌚ Hipertrofik KMP (yüksek voltaj-dar Q dalgaları)
- ⌚ Brugada (inkomplet RBBB+V₁ ve V₂ de STE)
- ⌚ İntervaller

Kısa PR, geniş QRS, delta dalgaları WPW

Uzun QT → Torsades

- ⌚ Aritmojenik sağ ventrikül displazi

TEŞEKKÜRLER...
