Myocardial InfRactions: Don’t Miss the Big One

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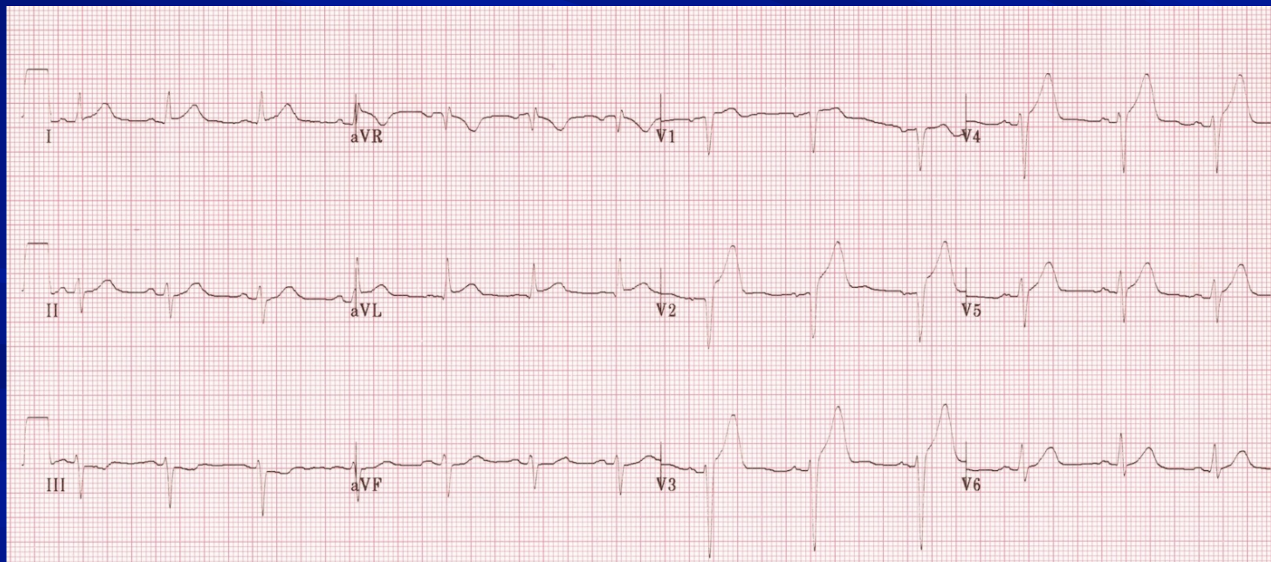
Prehospital 12 leads

- Too often limited to "Chest Pain/Pressure"
- EDs & EMS learned to add the obvious:
  - Epigastric pain
  - "Molestia"
  - "Indigestion"
  - Post ROSC
- But if anyone's protocols are still limited, consider 12 leads in lots more "atypicals"

83 yr old man with syncope

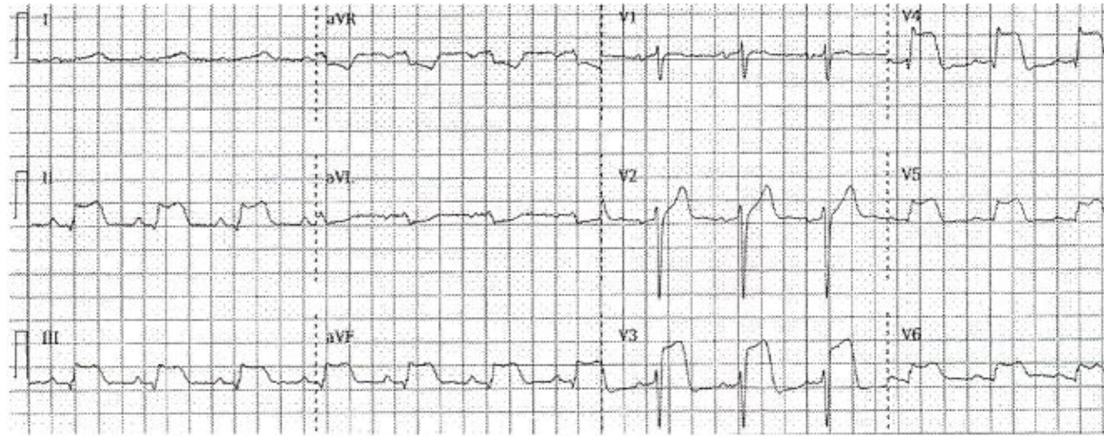
- Awake & alert, BP & P ok but looked pale
- No chest pain or SOB
- 3 lead NSR
- Did the 12 lead:



“Anxiety reaction”

- Middle aged _______ with sticking chest pain, very anxious. RR28. Hx anxiety on xanax.
- Does it matter how I fill in the blank?
- YES, DO THE 12 LEAD AND TREAT THE PATIENT per CP protocol.

76 yr old woman with syncope



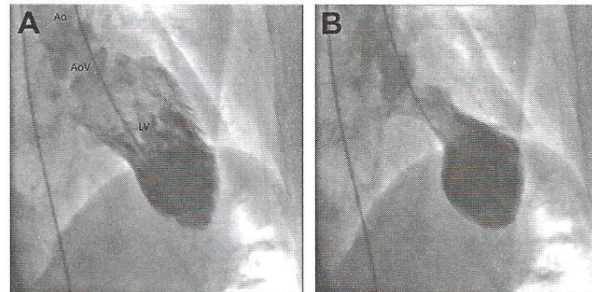


Figure 3. Left ventriculogram, apical-midwall akinesia during diastole (*A*) and systole (*B*). *AoV*, Aortic valve, *Ao*, aorta.

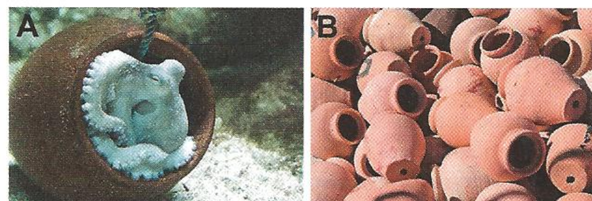


Figure 4. Octopus pot.

Takotsubo
Stress-induced cardiomyopathy

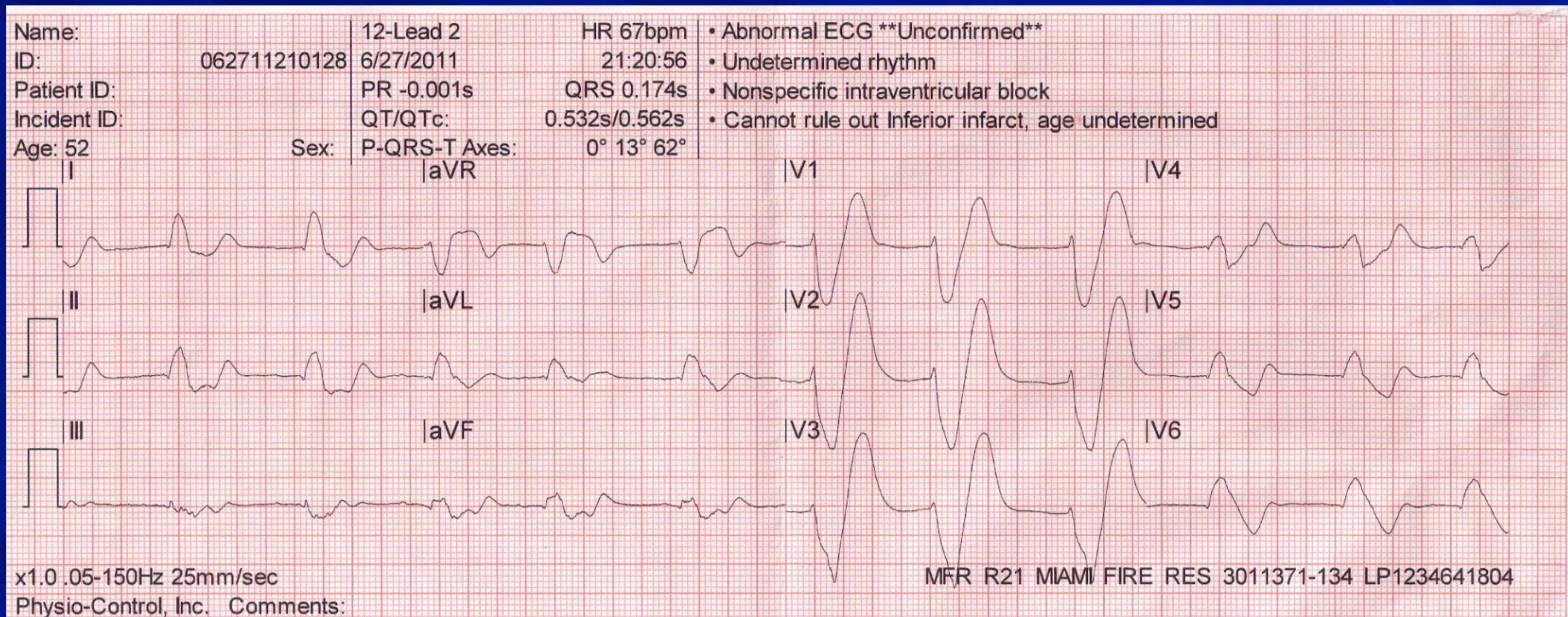
52 yr old man with "feels bad"

- Hx HTN, no taking meds for "a few days"
- Progressive "feeling bad" over 2-3 days, now feels like he's going to die
- No CP or SOB but looks crappy

Sometimes you find a different "Big One"

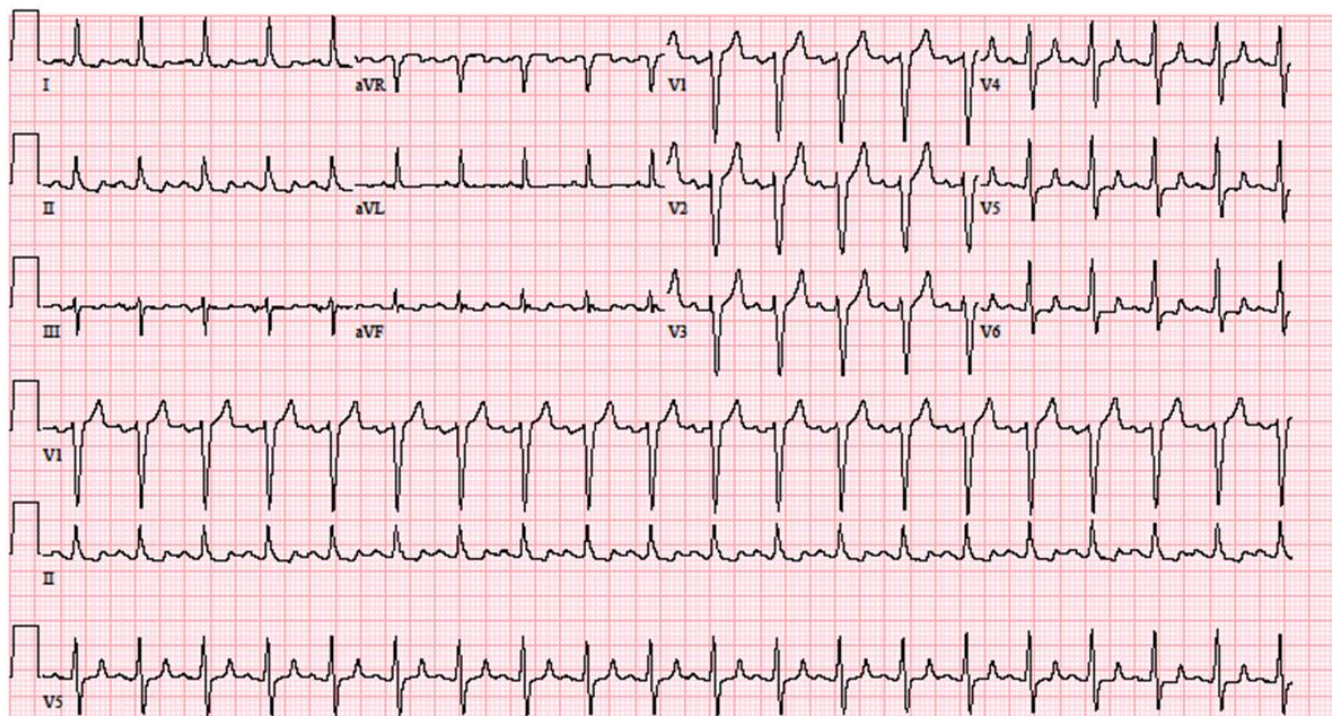
One of those OMG moments...

- "Umm, Doc, we're sending you a 12 lead as a Cardiac Consult:"

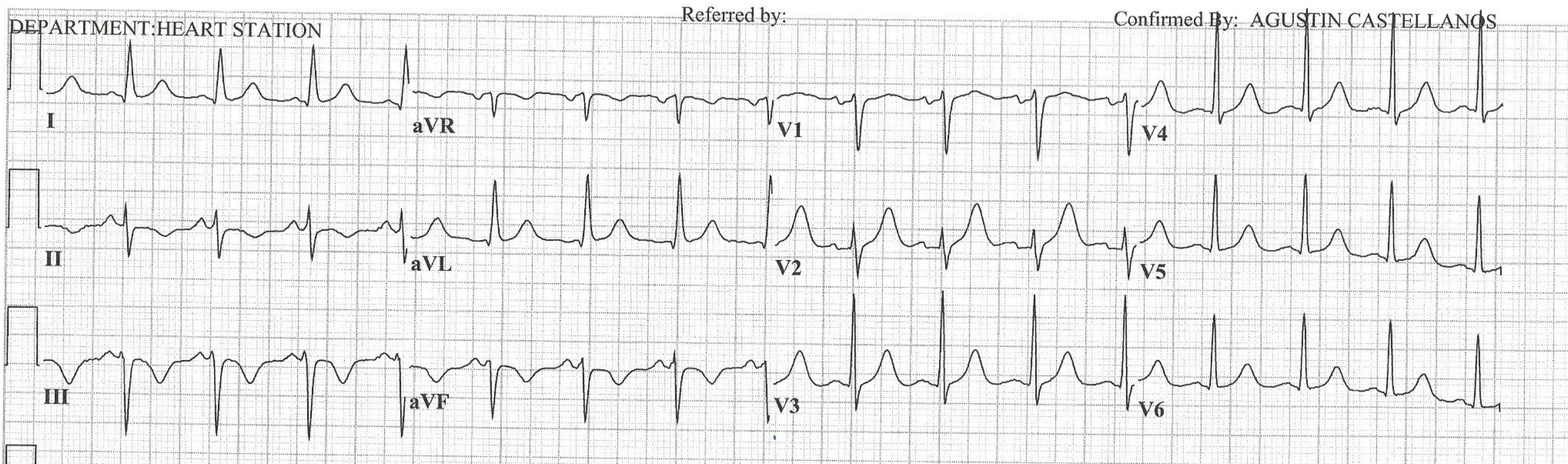


I love being able to transmit 12 leads!!

Calcium, bicarb given



49 yr old woman with Hiccups



American Journal of Emergency Medicine (2012) **30**, 266.e1–266.e2

Case Report

Hiccups as the only symptom of non–ST-segment elevation myocardial infarction

J Emerg Med. 2014 Jan 25. pii: S0736-4679(13)01397-8. doi: 10.1016/j.jemermed.2013.11.071. [Epub ahead of print]

The Tooth, the Whole Tooth, and Nothing But the Tooth: Can Dental Pain Ever Be the Sole Presenting Symptom of a Myocardial Infarction? A Systematic Review.

Jalali N[1], Vilke GM[2], Korenevsky M[1], Castillo EM[2], Wilson MP[2]

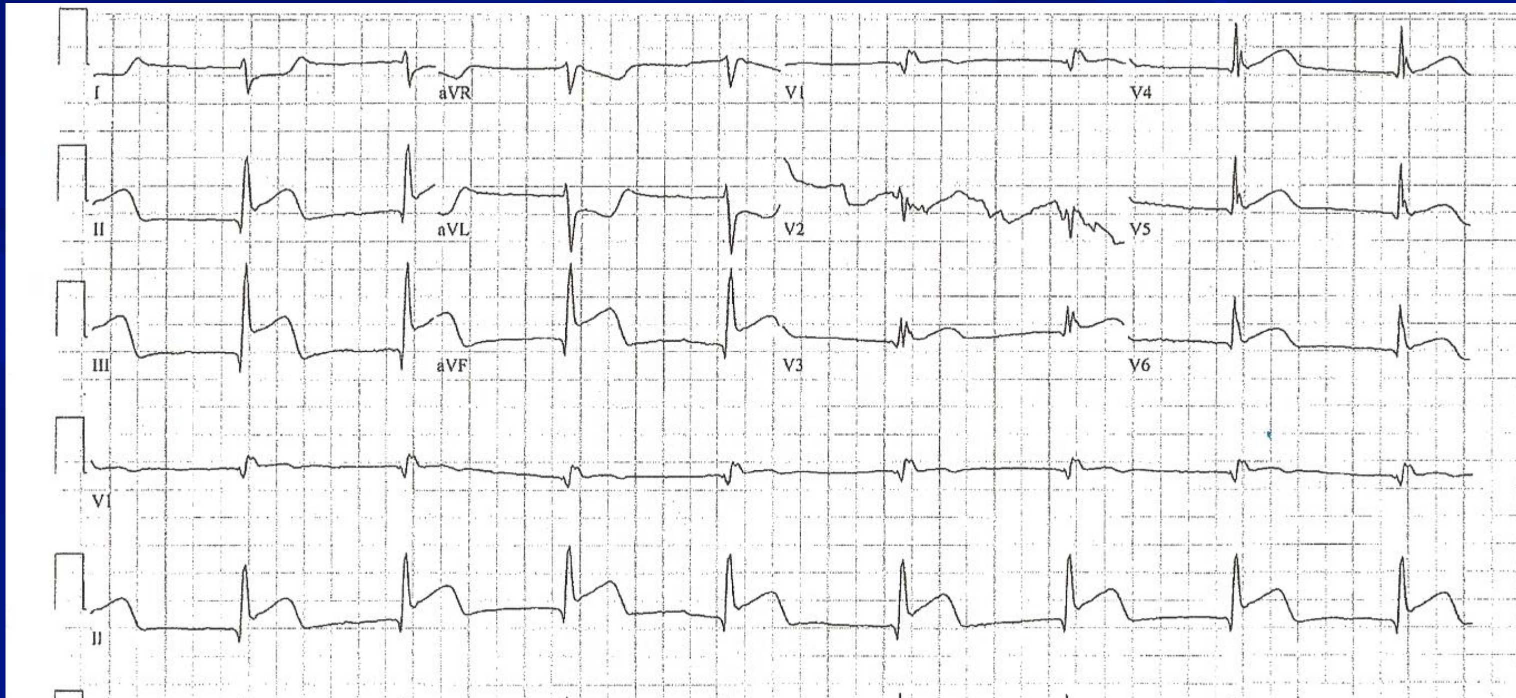
Elderly, women, diabetics…

57 yr old woman called 911 for vomiting several times, not feeling well today. No CP, SOB, or epig pain

- PHx HTN on med, no DM, no CAD
- VS OK, actively vomiting, not diaphoretic
- Transported to ED

Oops

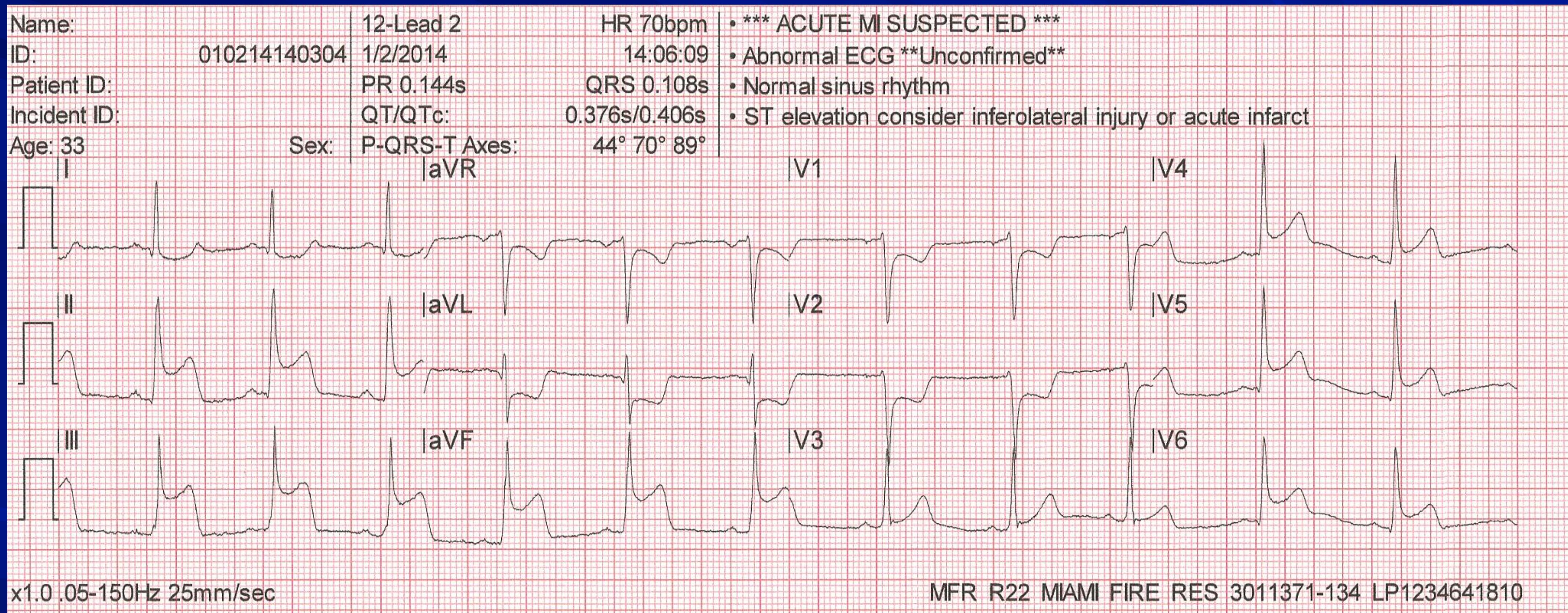
ED EKG:



But even our EMS protocols didn't call for 12 ld in the field

CP in Age < 35

- 33 yr old male with CP



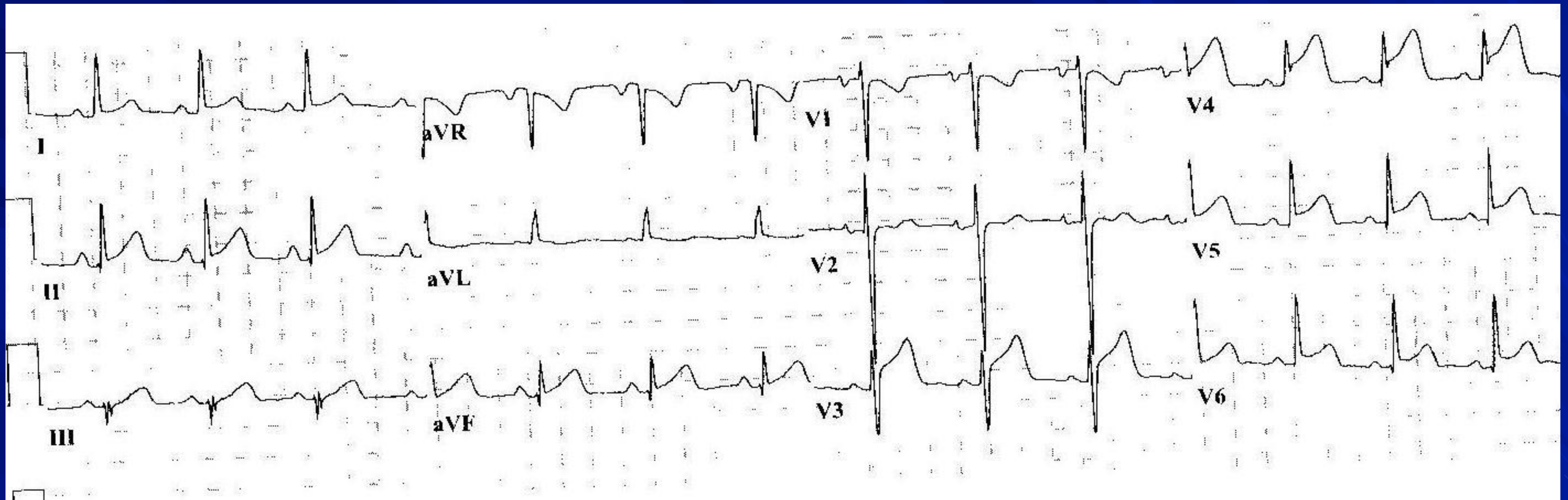
- Cath Lab: Active coronary spasm

CP in young ♀

38 yr old Haitian woman:

- 2 weeks post partum after 8th child
- Severe "pain all over," mostly chest and epigastric
- Anxious, histrionic, language barrier
- Tachypneic, tachycardic, clear lungs

Peripartum Cardiac Disease



BUT WHY??
ZERO cardiac risk factors for atherosclerosis
Peripartum women are at ↑ risk of ACS and MI and…

Coronary Artery Dissection !!

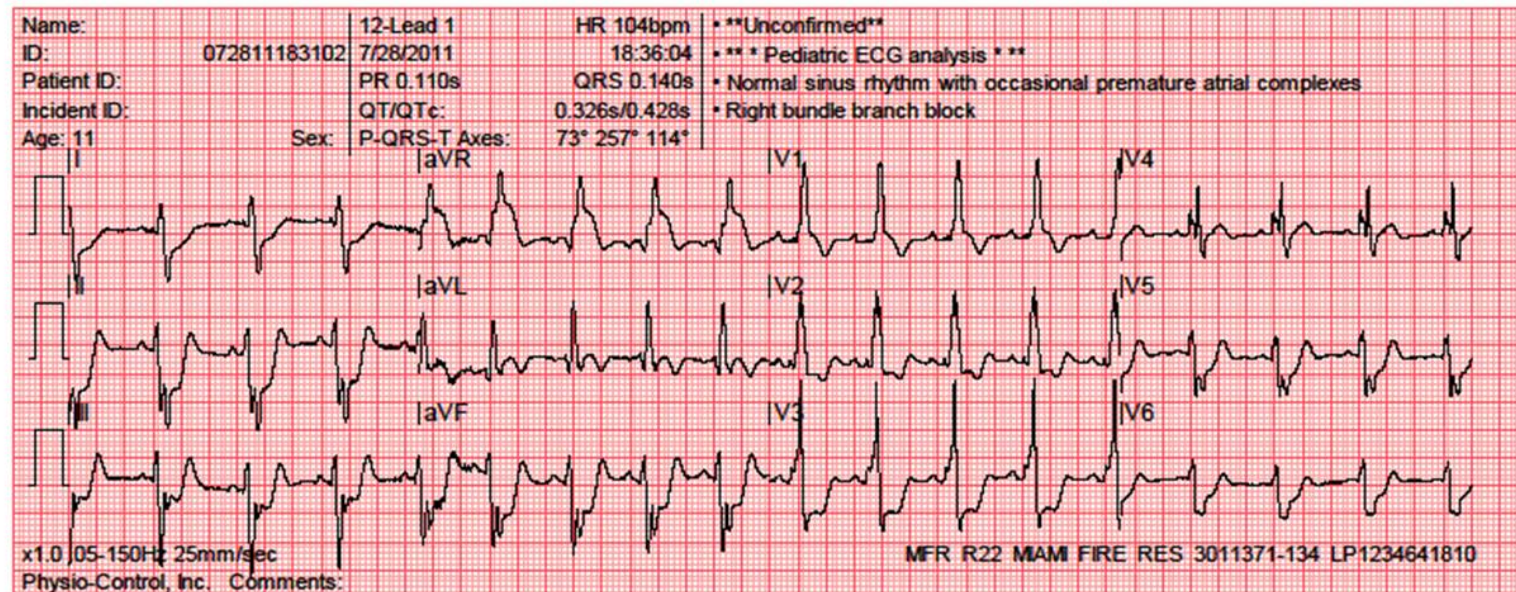
- Spontaneous CA Dissection:
  - Arterial wall layers can separate
  - Occludes lumen so no distal flow, but NOT CAD
- Pathophysiology ???
  - <u>Hormonal changes in connective tissue</u>
  - Hemodynamic changes vs. hypercoagulable vs. autoimmune response
- Prehospital care same as any STEMI
- Outcomes:
  - May heal spontaneously, cause MI or sudden death; high mortality without Rx (cath, stents)

But age 11?

11 year old boy collapses at football practice :

- Lying on the ground, awake but agitated, cool and sweaty skin
- BP 82/palp, P 106, RR 24, O2 sat 97% RA
- Monitor: sinus tach
- Airway, lungs normal
- Treatment?

Surprise



Transmitted 12 lead to ED, Pedi Cardiologist in ED w echo
No STE but + troponin, cardiogenic shock with low EF
Cath: Congenital absence of part of prox LCA, CABG done

Reproducible CP

22 yr old man, severe left chest pain for one day, hurts to take a deep breath. Athletic, lifts weights

- Exam and VS normal except for
- Point tenderness at 4th rib to left of sternum
- Dx by MD: Costochondritis
- Rx Local anesthetic injection into rib
- Pain gone, went home, plan ibuprofen

But…

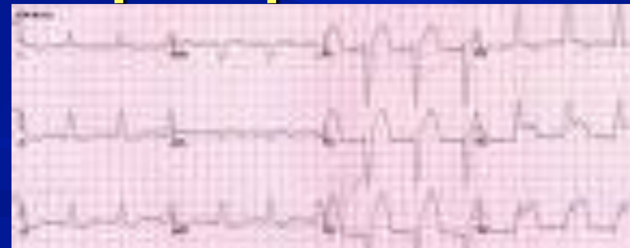
- Cardiac arrest a few hrs later
- Autopsy: 3 cm long total LAD occlusion

- Diagnosis: Coronary Vasculitis

- Main medical error: No 12 lead done (should've done one thinking pericarditis)

Young patients with CP: MIs

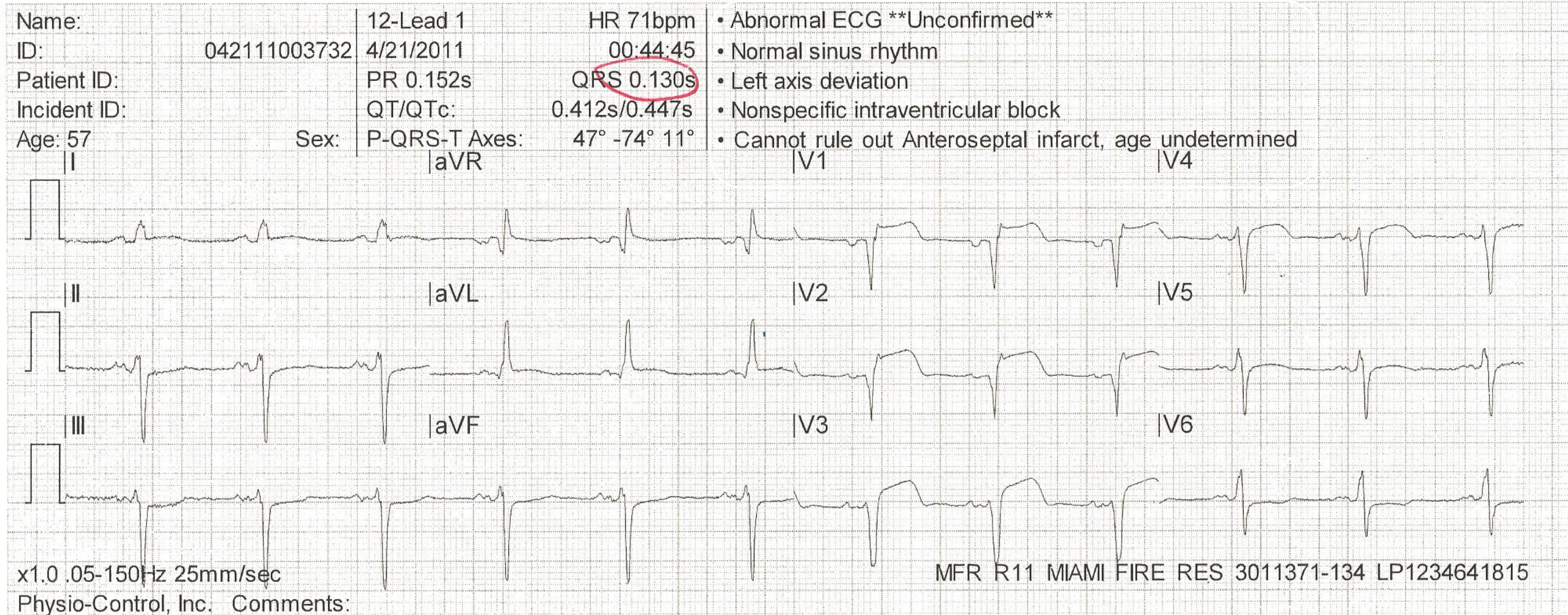
- Obesity, hypertension, diabetes
- Cocaine, amphetamines
- Coronary bridging (cardiac muscle on top on an artery)
- Congenital abnormalities of coronary arteries
- Genetic/familial hyperlipidemia
- Chest trauma, myocardial contusions
- Late pregnancy to 2 months post partum
- Vasculitis, arteritis
- Sickle cell disease



No nitro unless abnormal 12 lead, but do the 12 lead

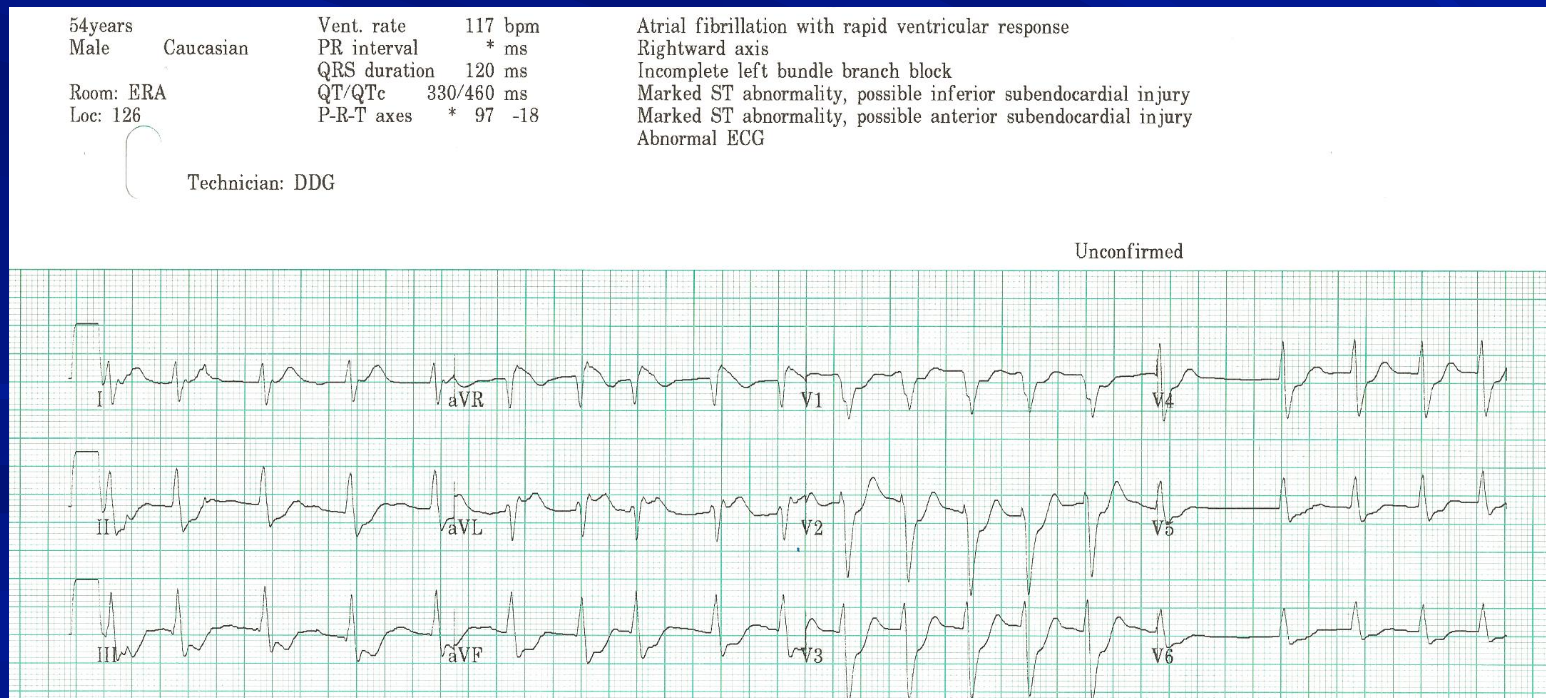
Computer Error

57 yr old man with crushing chest pain

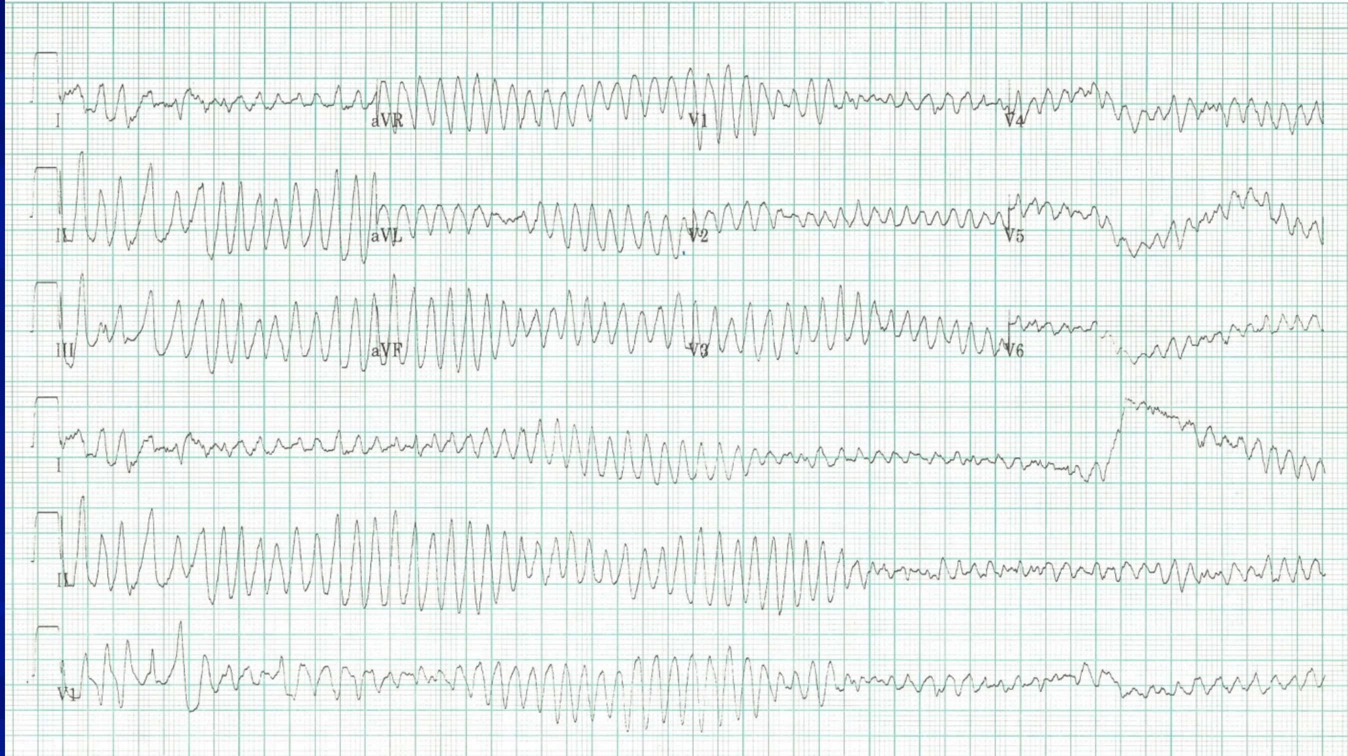


STEMI / ACS: Be Prepared

- Put the defib pads on!
- Keep the patient on the cardiac monitor, and monitor the monitor



1 min later, seizure

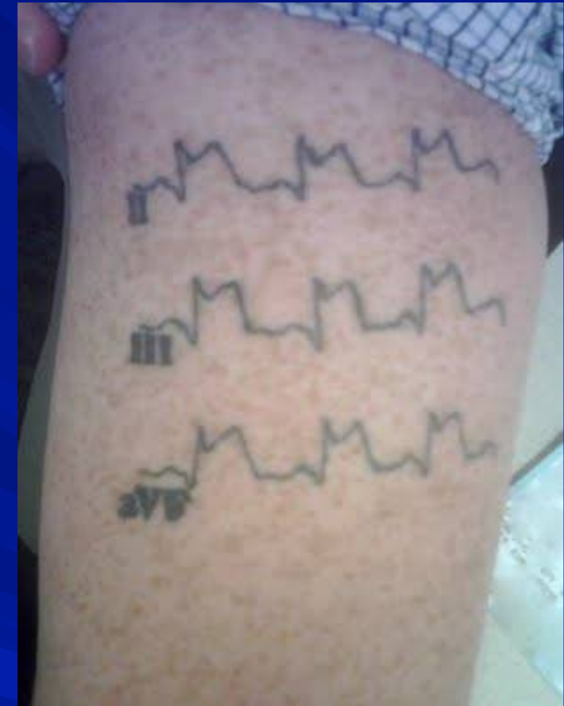


Did this 4 times in ED. Total L main. Did well

So…do 12 leads to look for ACS:

- Syncope (unless active bleeding)
  - May also find long QT, delta waves, other clues
- Acute onset SOB (without hx asthma/COPD)
  - May also find signs of pulm embolus
- Unexplained diaphoresis
- Sudden onset weak & dizzy
- Abd pain above navel in age >35 (or CAD risk)
- “Don’t feel well” and has “THE LOOK”

So feel free to do 12 leads!



- GIVE A COPY TO ED
  - Whether normal or not
  - Whether they want it or not
  - Put a name on it
- For STEMI / ACS patients
  - Transport with defib pads on!
  - If no CP or CHF, give the aspirin, hold the nitro