

BETTER MIND YOUR P'S AND Q'S CARDIAC EFFECTS OF DRUGS OF ABUSE

Christopher B. Colwell, M.D.

San Francisco General Hospital and Trauma Center

Department of Public Health, Division of EMS

City of San Francisco EMS

DISCLOSURES



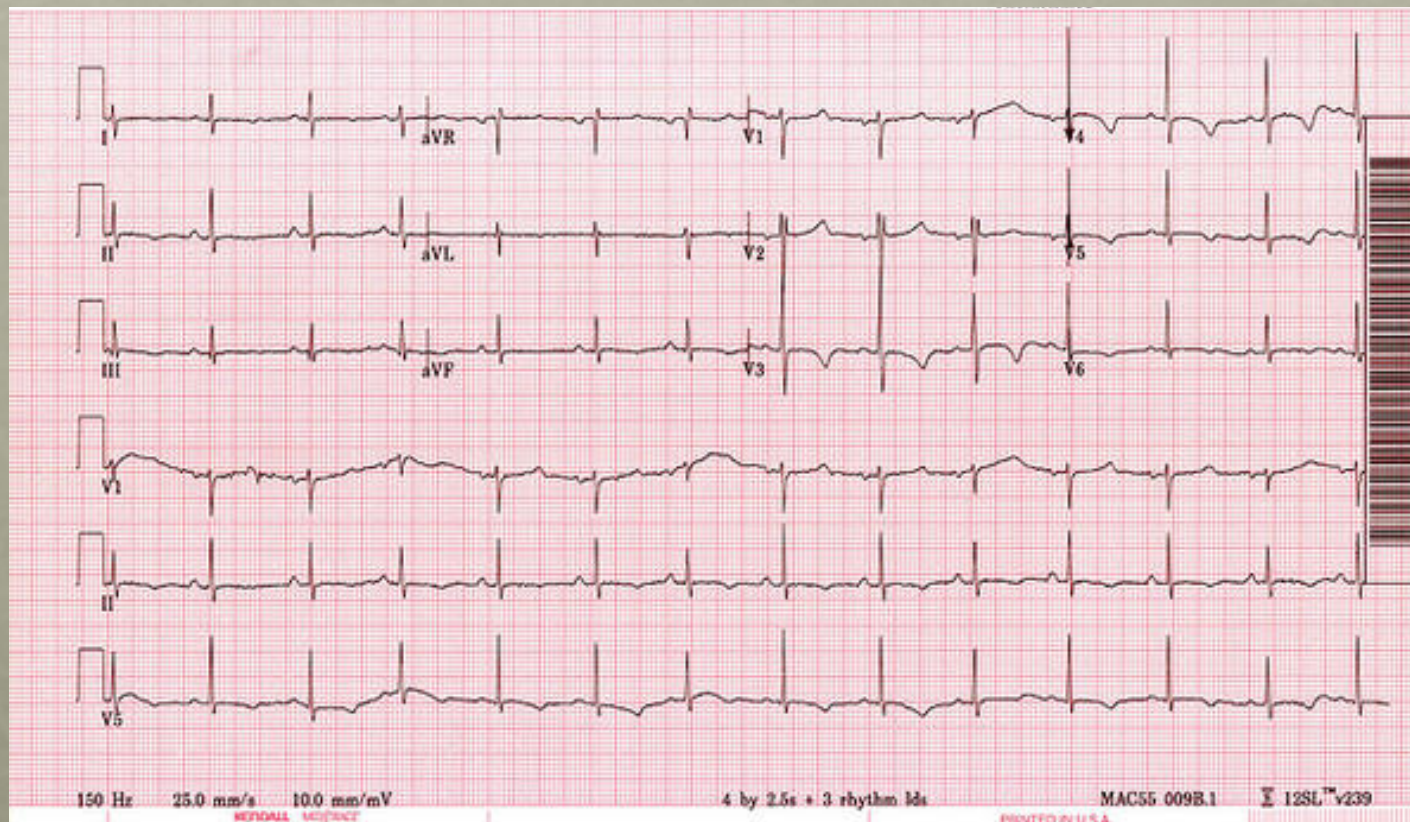
PILL PARTY



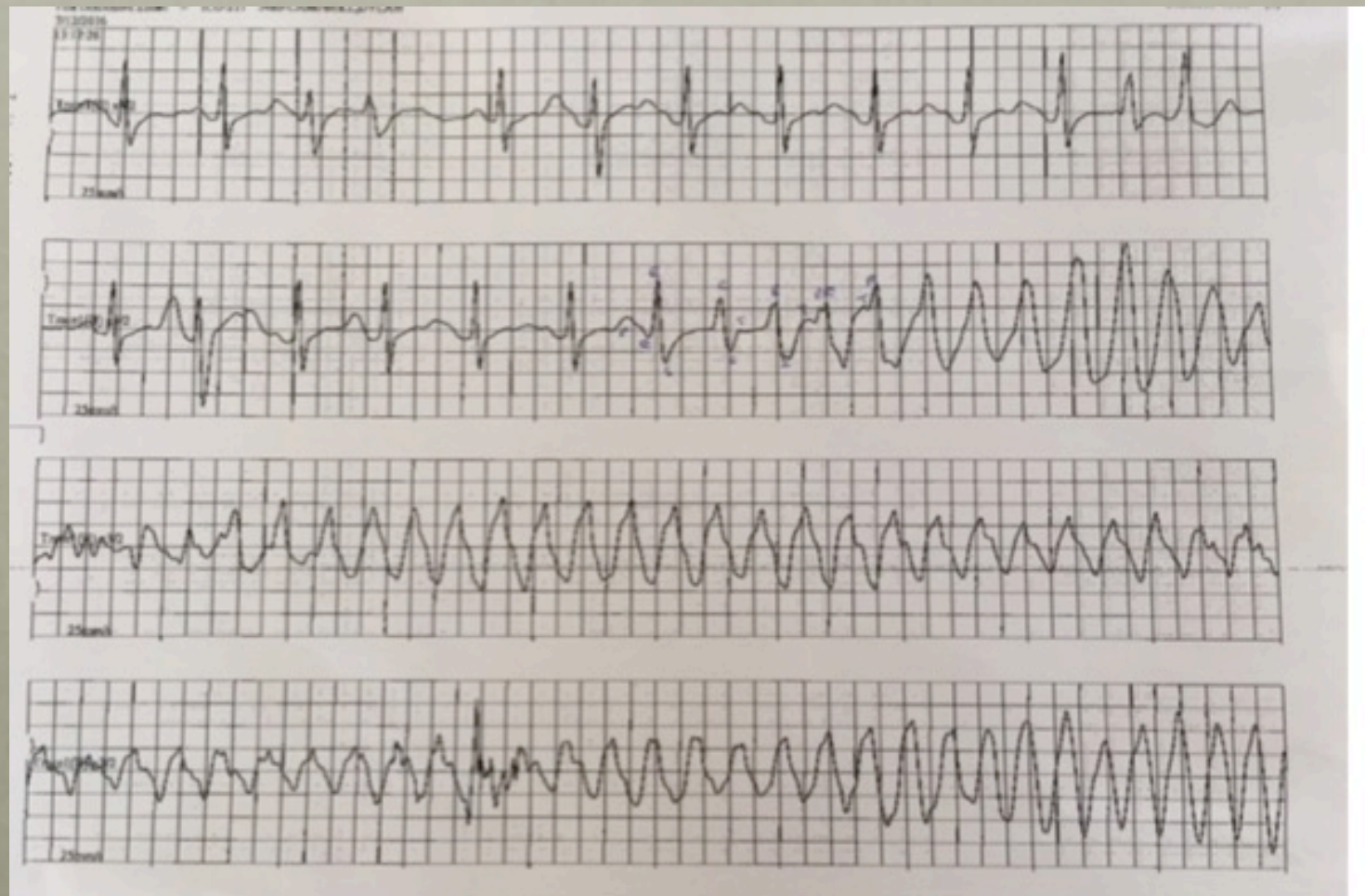
CASE # 1

- 37 year old male with PMHx sig for opiate abuse presents with cc of syncope x 2
- 138/72, 118, 22, 36.8 98% RA
- Exam is unremarkable
- EKG

EKG

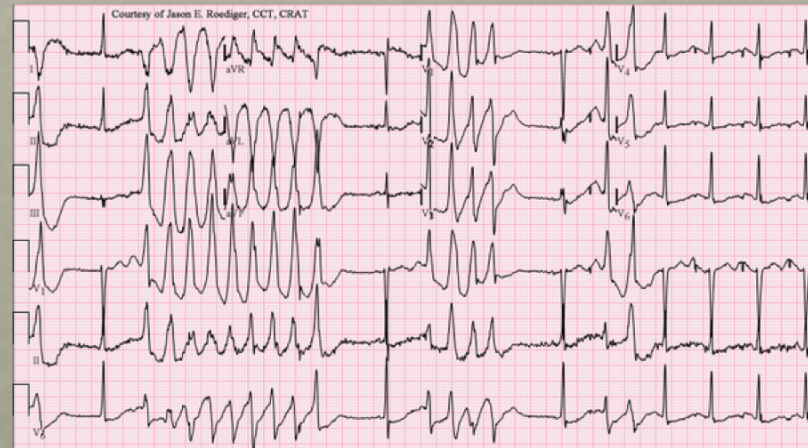


EKG # 2



TORSADE

- Loperamide
 - Imodium
- Methadone
- Methamphetamines
- Bath salts

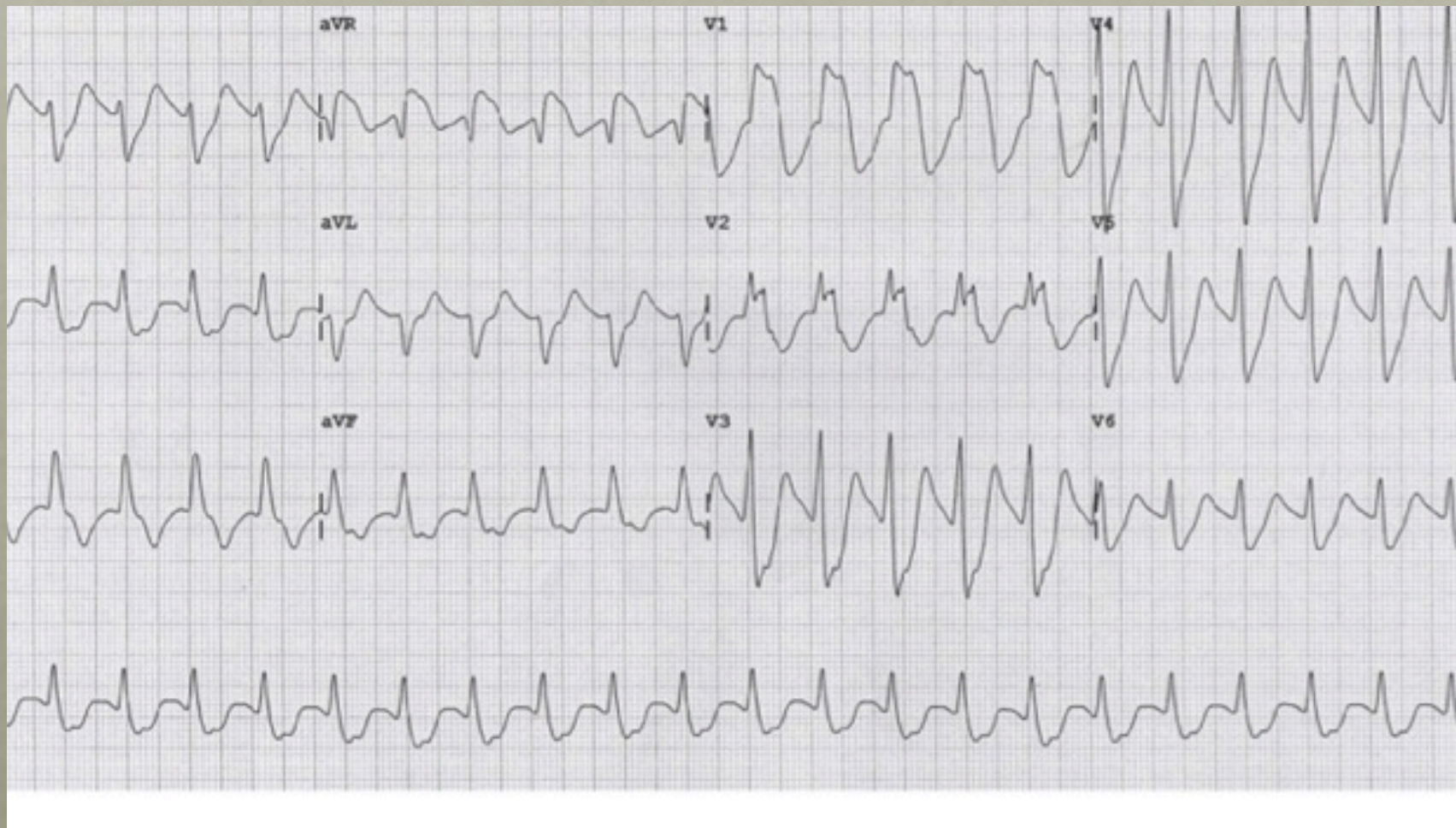


CASE # 2

- 40 year old female presents with agitation
- Visiting from out of town
 - Went to a party
 - Took every marijuana product she could find
- 168/110, 132, 22



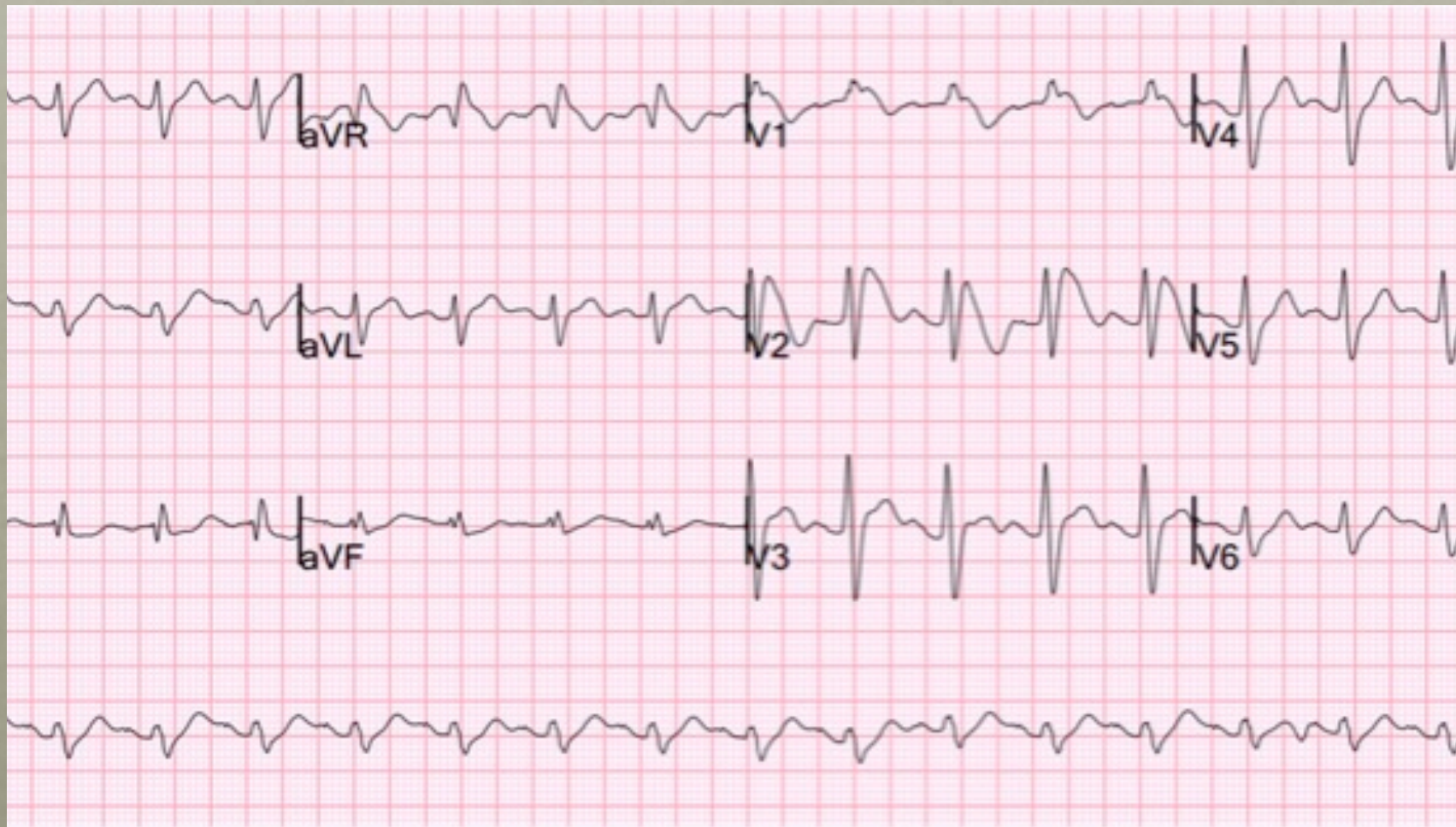
EKG



BICARB GIVES ME GAS!



REPEAT EKG

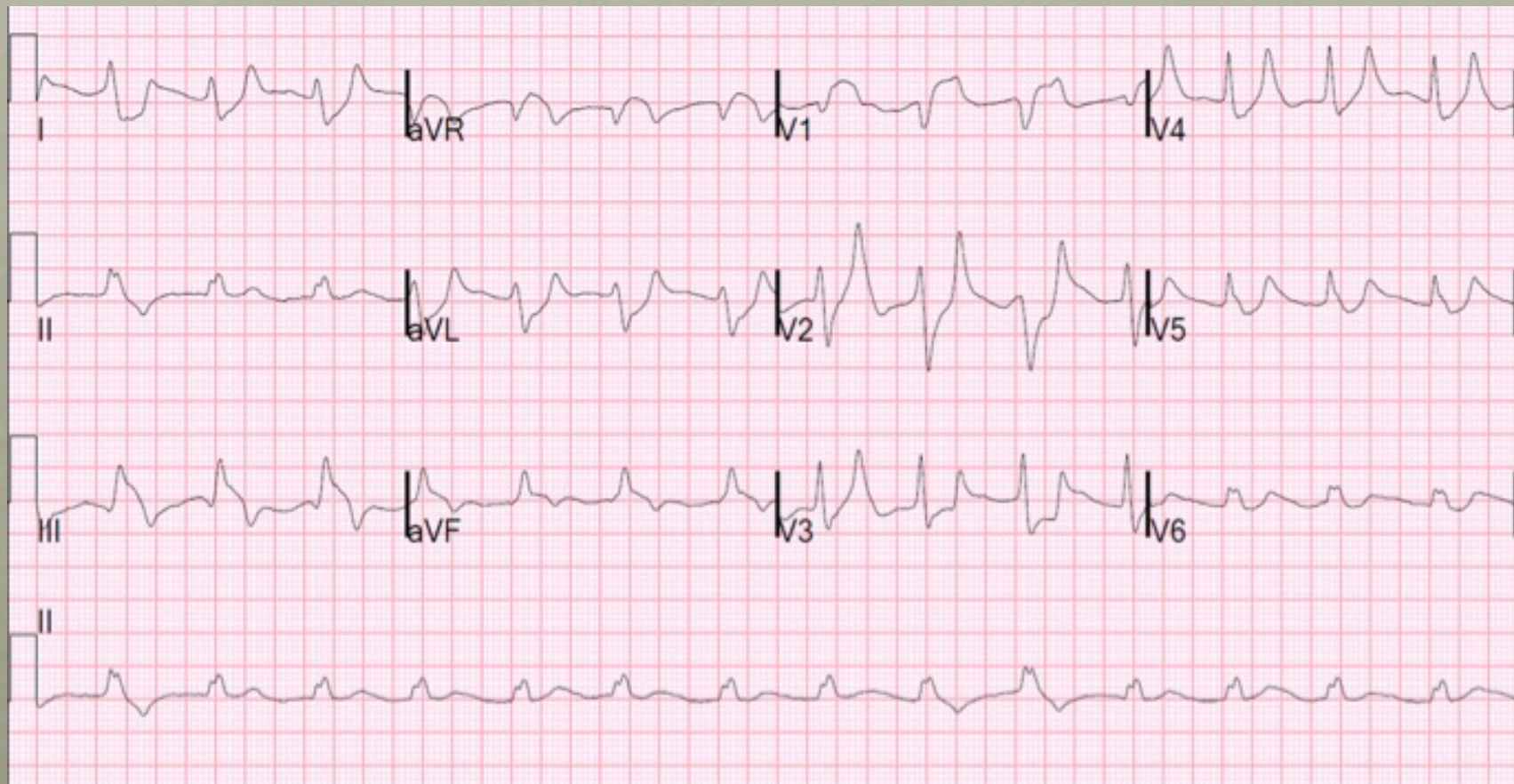


CASE # 3

- 23 year old male with altered mental status after bath salt ingestion
- 163/101, 128, 24, 100%
- On exam
 - Bruising



EKG

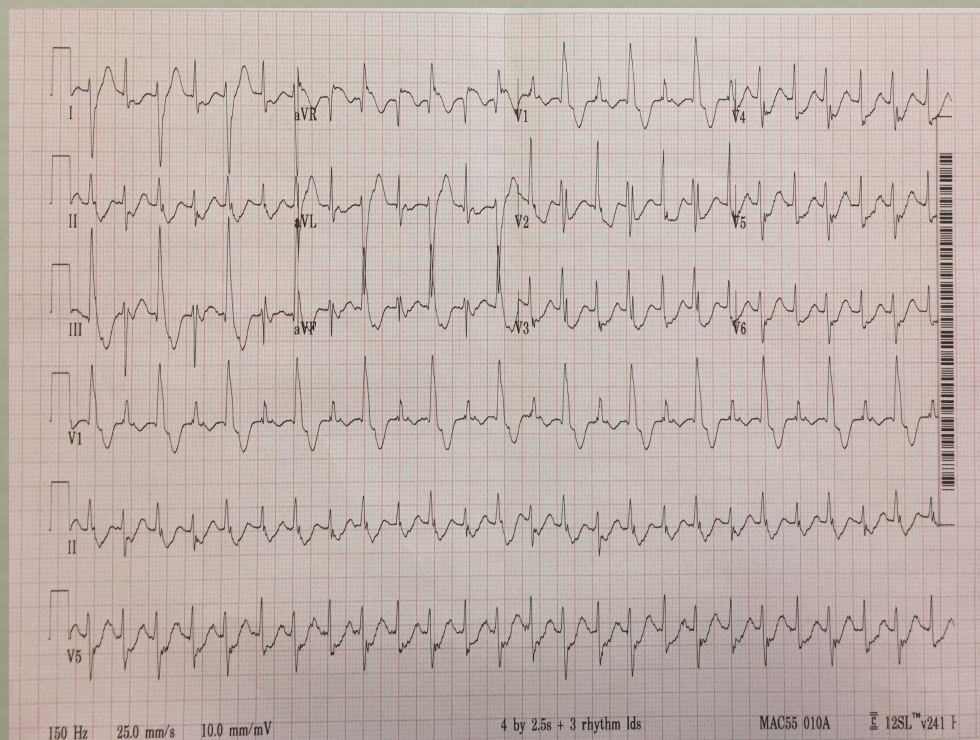


CASE(S) # 4

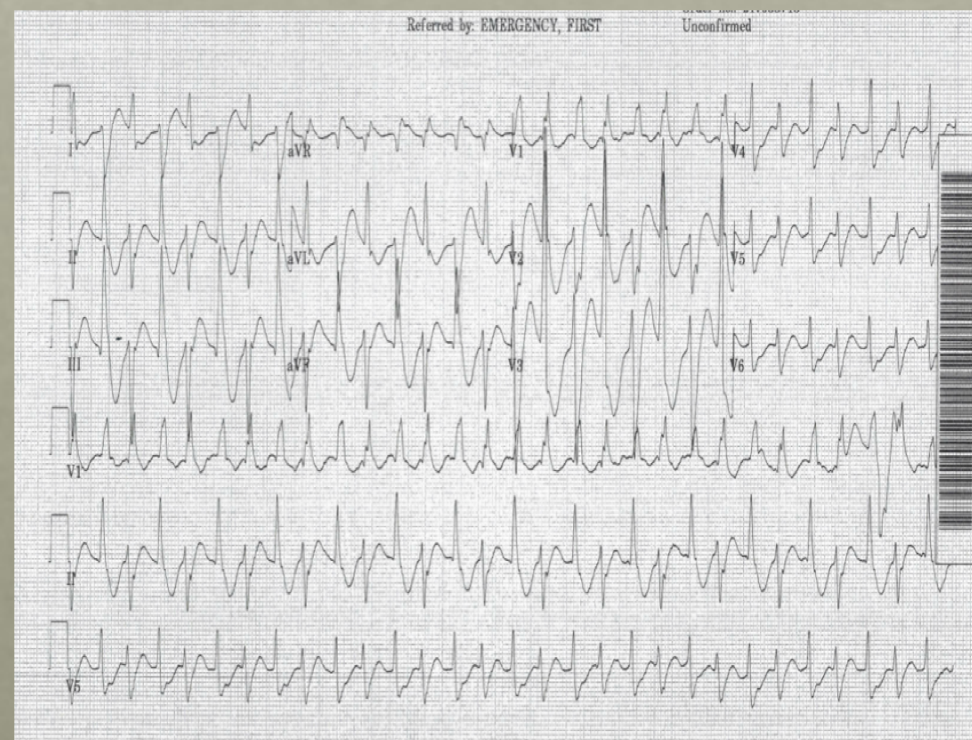
- Patient #1
 - A 36 year-old female presents with dizziness, palpitations, difficulty breathing and total body tingling, one hour after smoking synthetic “marijuana”
- Patient #2
 - A 26 year old male presents with a complaint of paresthesias and syncope, one hour after ingesting marijuana brownies

EKGs

Patient #1



Patient #2



SELECTED ECG'S FOR BOTH PATIENTS

Patient #1

Patient #2



CASE(S) # 4 CONTINUED

- Patient #1
 - Developed rapidly evolving tachydysrhythmias
 - Treated with adenosine, diltiazem, cardioversion, amiodarone, and lidocaine
 - ECMO
 - Died after one month of hospitalization
 - **Serum Aconitine = 5.4 ng/mL (4 hours)**
- Patient #2
 - Developed rapidly evolving tachycysrhythmias
 - Treated with calcium, sodium bicarbonate, mag, cardioversion and amiodarone.
 - Discharged on HD 2 in good condition
 - **Serum Aconitine = 1.8 ng/mL (3.5 hours)**

ACONITE



- Also known as Monkshood, Wolfsbane, Devil's helmet)
- Used in traditional Chinese medicine
- Voltage sensitive sodium channel opener
 - Increased intracellular sodium and calcium
- Arrhythmia's secondary to delayed after-depolarizations and early after depolarizations.
- Similar to cardiac glycosides but without hyperkalemia (Na/K ATPase unaffected)

SYNTHETIC MARIJUANA

- Not marijuana!
 - Not regulated
 - Highly variable



SUMMARY

- Drugs of abuse can have cardiac implications
 - We are still learning
- We still don't know all that synthetic marijuana does
- Be ready to match the creativity of our patients!

