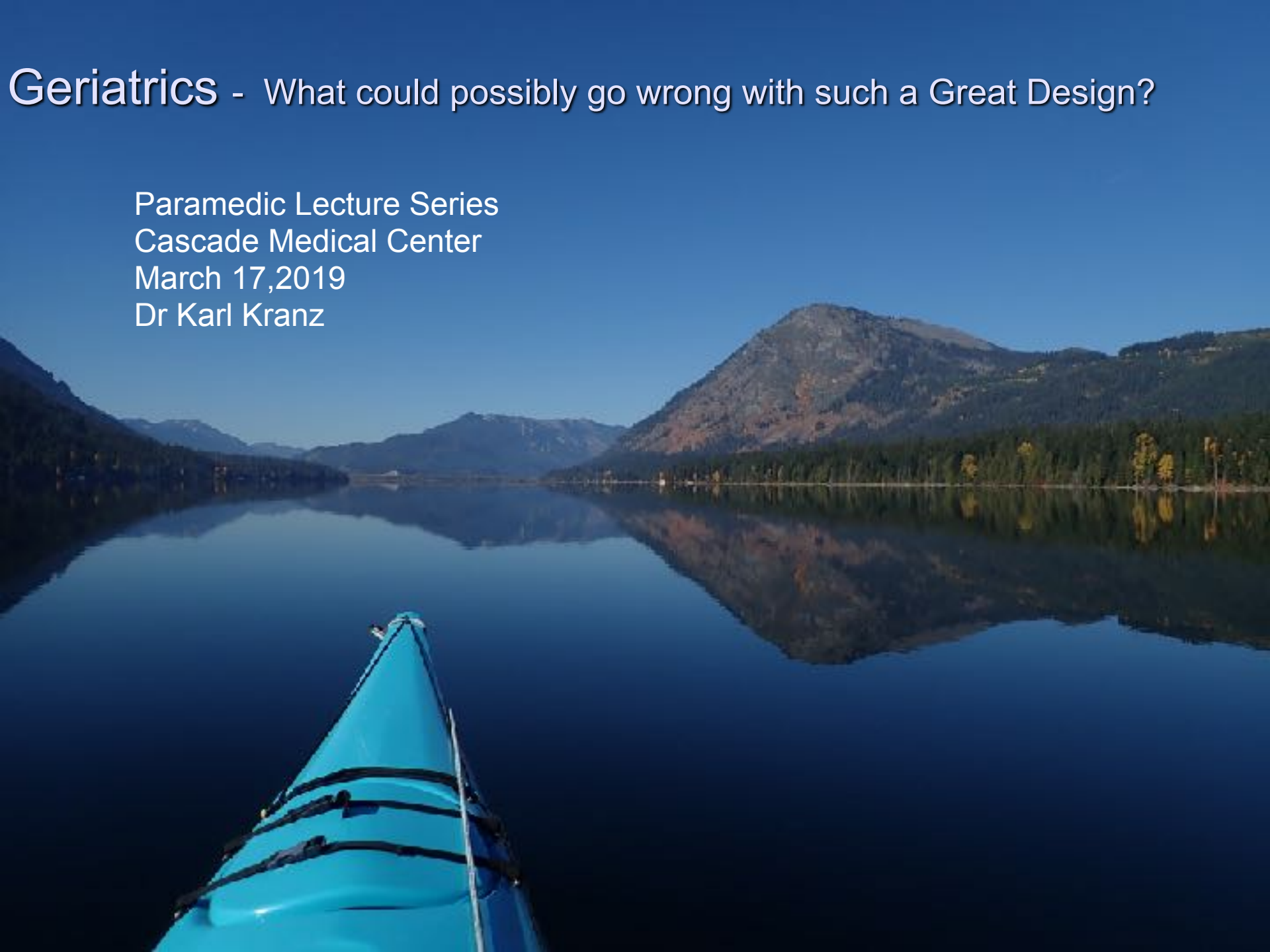
Geriatrics - What could possibly go wrong with such a Great Design?

Paramedic Lecture Series
Cascade Medical Center
March 17,2019
Dr Karl Kranz



Classics

Time, Misfortune, and Neglect


LIFE
FOLKLORE OF AMERICA, PART II
TALES THE INDIANS TOLD
WHY MEDICAL CARE
COSTS SO MUCH
JACKIE GLEASON
TAKES A FLING
ON BROADWAY
NOVEMBER 2, 1959
CIRCULATION MORE THAN 6,400,000 WEEKLY

Geriatric Emergencies

- Infection
- Infarction
- Metabolic
- Trauma
- Cardiac
- Pulmonary
- Circulatory
- Accidental Poisoning

Highlights

Treat the problem that is killing your patient first

- Older people may present their pain differently
  - Chronicity, neuropathy, distracting pain, dementia
- Consider management of Acute Kidney Injury early
  - Fluids
- Today's problem is often the old problem, again
- Patterns
  - Sustained regular tachycardia at 150,Think of Atrial Flutter, adenosine may reveal flutter waves
  - Diabetes, think of acute coronary disease
  - Acute speech/cognitive changes, think of stroke
  - Lhermitte's Sign-sub acute cervical cord compression

Case 1

- 92 year old woman with cough for the past 10 weeks
- HTN, Anxiety, Hypothyroid, Osteoporosis, A Fib, Non smoker
- Seen in clinic initially, First Rx Doxycycline, 2nd course of Azithromycin with moderate improvement, but now returns with cough and low grade fever again
- T- 99.8, P-90, BP 120/70, O2 92% RA
- A Fib controlled rate, on Xarelto

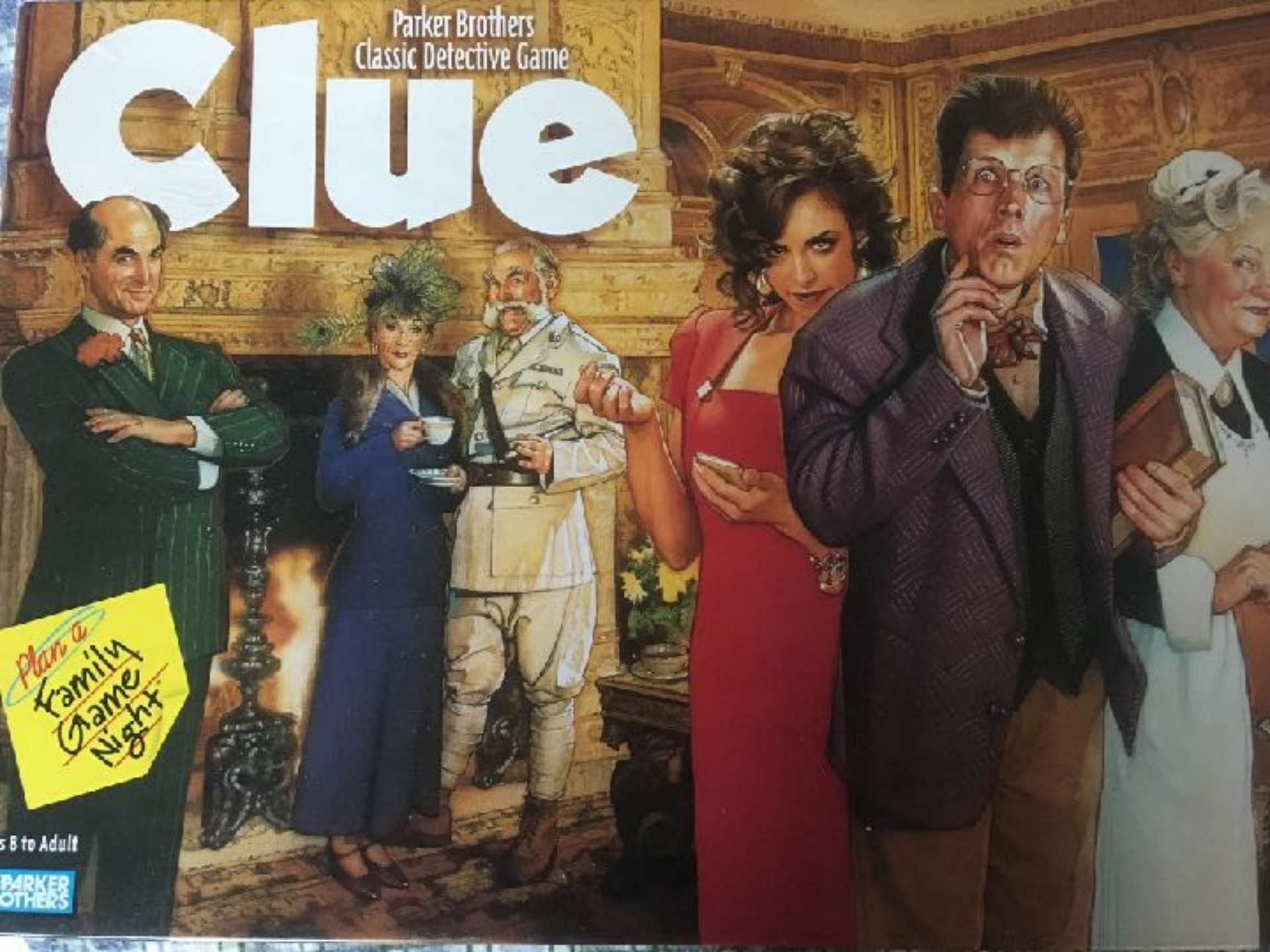
Case 1

- Alert, well known to me
- No Respiratory distress initially, on room air
- Decreased lung sounds, no wheezing, nonproductive cough
- A Fib, controlled rate, no Murmur,
- 1+ unchanged leg edema
- Admitted to acute care for IV Moxifloxicin

Case 1

- IV Moxifloxacin given, immediate dyspnea, anxiety, tachycardia,O2 Sat drop and chest pain
- Incoherent and dyspneic, sats remain low despite 10L O2
- EKG new changes, Rate 140 bpm, A Fib, new lateral horizontal 3mm ST depression V4-V6
- Coarse breath sounds with loud insp/exp stridor, faint wheezes
- Albuterol/Atrovent neb, no change
- TO ER with prompt rapid sequence intubation

- SON OF A GUN, WHAT JUST HAPPENED?
- Acute respiratory failure, hypoxia, coronary ischemia, altered mental status
- Now stable but intubated
  - PE? On chronic Xarelto
  - Allergic reaction? Given stat IV Steroids just after onset
  - Asthma? No response to A/A Neb treatment
  - Anxiety?
  - MI? EKG evidence of ischemia
  - Sepsis? Too quick


Parker Brothers
Classic Detective Game
Clue
Plan a Family Game Night
s 8 to Adult
PARKER BROTHERS


COLONEL MUSTARD
SECRET PASSAGE TO LOUNGE
CONSERVATORY

Case 1

- Extubated the next day
- Abnormal chest CT, R lower lung collapse, severe tracheobronchiomalacia
- Cardiology- demand ischemia, NonSTEMI
- Pulmonology consult
  - Elicited hx of choking episode at breakfast 10 weeks prior
  - Bronchoscopy, removed scrambled eggs and debris from R lung

Case 1

- Management options - If…

- Bronchospasm
  - Tried Duoneb, no help
  - IV steroids, given but don't help for hours
  - Epinephrine, not with tachycardia and ischemic changes
- Allergic reaction
  - IV Benadryl, given, no help
  - IV Steroids
  - Epinephrine? Probably not with ischemia on EKG
  - Consider Fluids if BP dropped
- AMI
  - Aspirin
  - Nitro
- Anxiety
  - Ativan not given this episode, concern re further respiratory depression, given post intubation with good results

Infection

- 98 year old, vigorous and at home prior to femur fx 4 weeks PTA. Had been in rehab at ECF, Staff called ER and described subtle but definite changes in mental status.
- Extensive problem list including HTN, BPH, CAD, Vertigo, and recent severe depression, started on Celexa. Current on Flu, PCV and Pneumovax immunizations

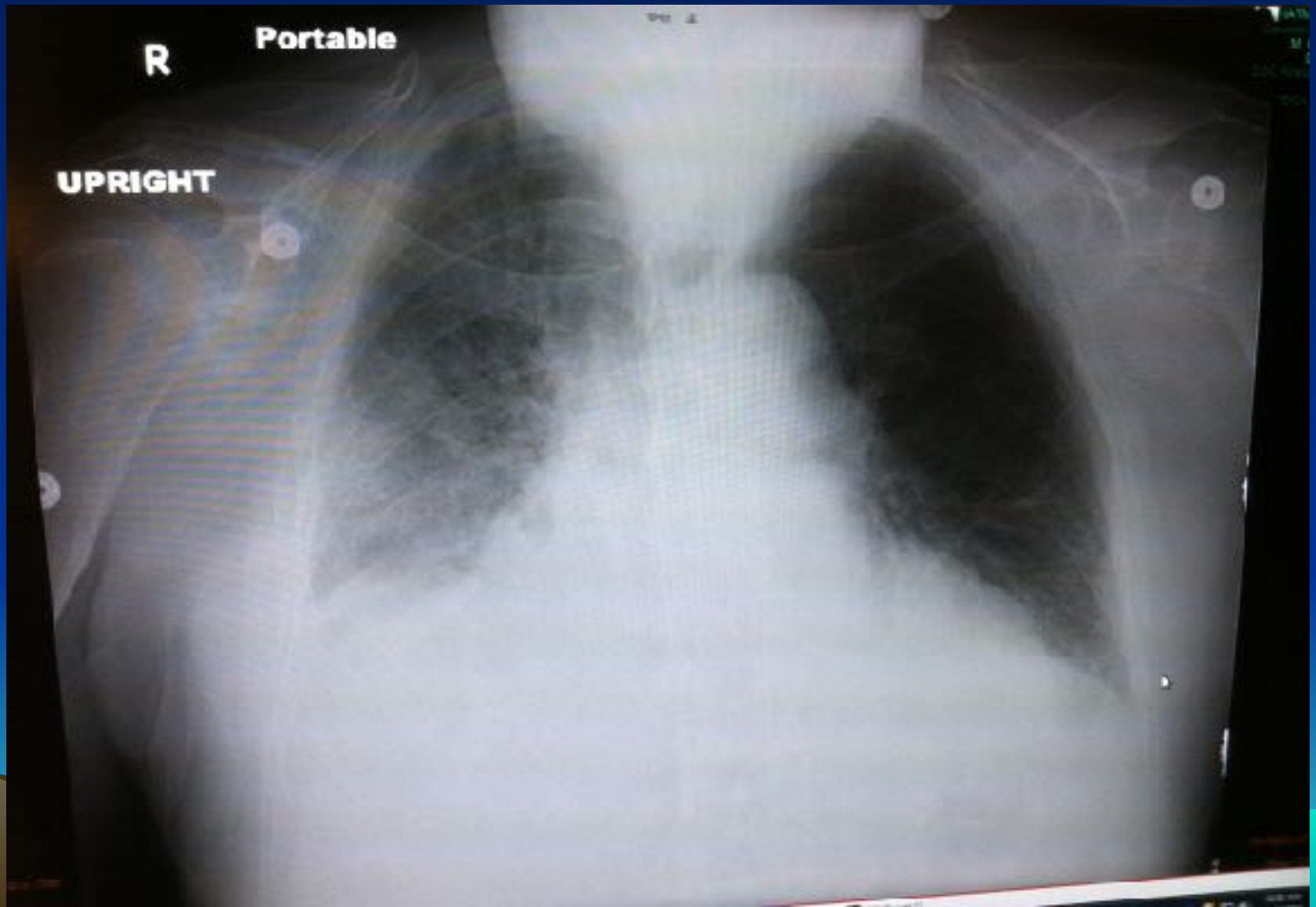
Infection

- Elderly pt, confused, agitated, delirious without hallucinations.
- Non focal neuro exam, normal skin turgor
- Tachypneic, intermittent cough
- VS T-101 P- 80 R-24 BP-122/63
- Sats- 95% 8L
- ORIF Incision well healed, normal heart rhythm with rare ectopic beats

Infection

- Flu screen negative
- Labs- BNP 39, Sodium 133, Glucose 138
- CBC
  - WBC- 7.5
  - HCT-28.7 (post op)
  - Granulocytes 84%

Infection



Infection

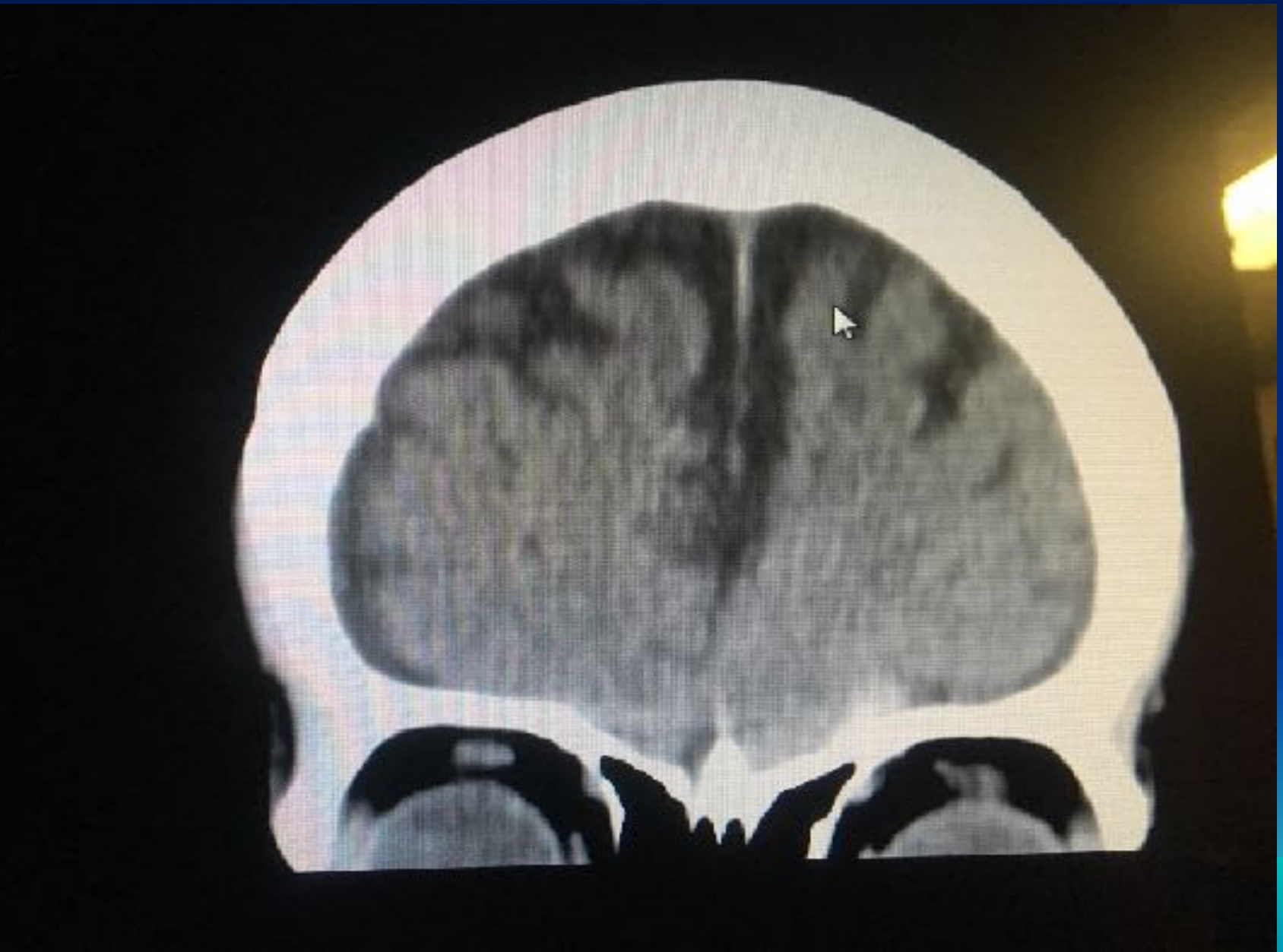
- Diagnosis-Pneumococcal pneumonia
- Secondary diagnoses-
  - Hyponatremia, due to Celexa?
  - Hypovolemia, folowed by CHF, diuresis, additional decrease in sodium to 122
  - Progressive respiratory decline and progression of pneumonia despite appropriate antibiotics and Tamiflu for potential Influenza A
  - Mental status briefly cleared
- Deceased 14 days post admit

Infarct?

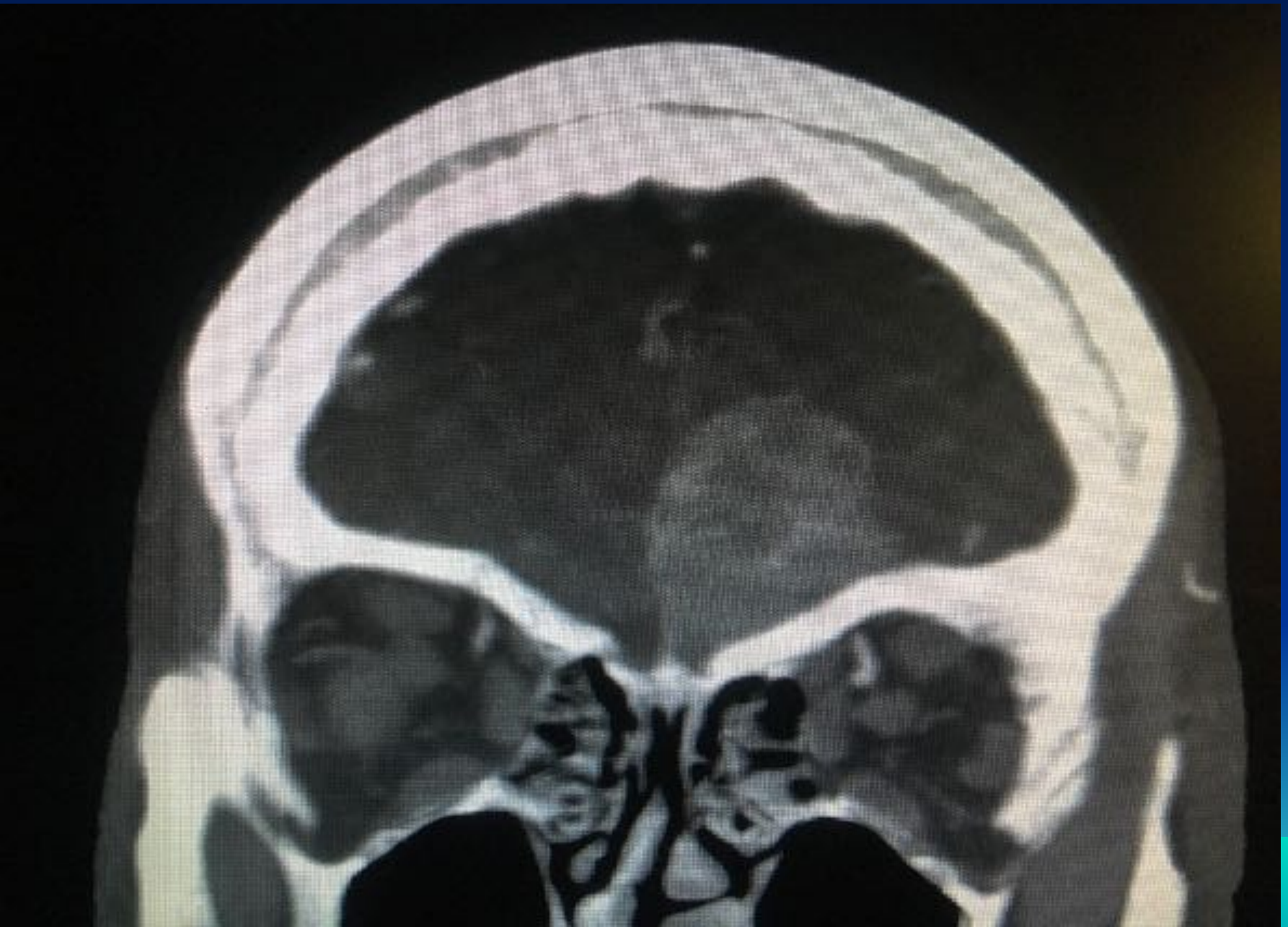
- 95 year old woman was on the golf course, suddenly did not know where she was or how to drive the golf cart. Friends escorted her to the clinic.
- Usual vigorous state of health 30 min prior to presentation
- New Slurred speech, assymetrical facial weakness
- Transferred to our ER, Code Stroke

- ER evaluation deferred except for VS
- VS T-98.6, P-98, R-16, BP 178/89
  – Oxygen Sats 95% on RA
  Rapid EMS transport to Level 2 ER
  Stat Head CT with initial exam there

Non Contrast CT



Contrast CT



- Intracranial golf ball size mass identified,
- Released home per neurosurgery for outpatient followup
- Transient speech changes and confusion resolved within 72 hours
- This acute episode was most likely a separate reversible ischemic event with incidental intracranial meningioma

Diabetes, and More

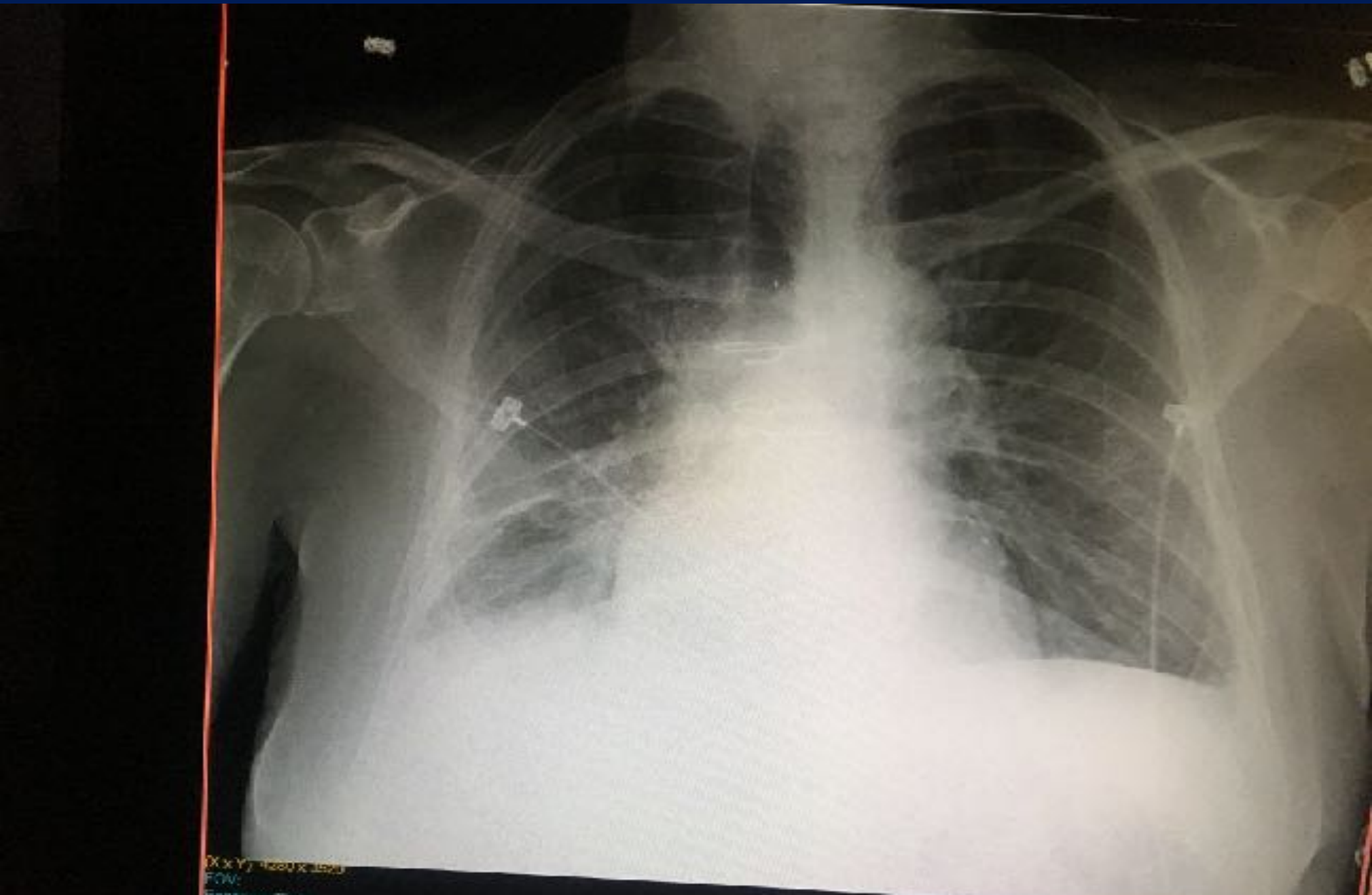
- 911 call-Increasing dyspnea over several days reported in a 68 year old woman at home
- Tachypnea, no cyanosis, mild chest pain, progressing for 3 days
- PMH: +Type 2 DM 35 yrs +MI x 1, CABG 4 vessel + Hx of Lung CA, treated
- +Hx of upper GI Bleeding
- + CHF
- + CRF Creatinine=2.0
- + Chronic Pleural effusion
  - Slight improvement with Talc pleurodesis

- E D Exam: chronically ill appearing woman, describes dyspnea, speaks full sentences
- No cyanosis, no current chest pain
- Mild non productive cough
- T-99, P 90, R-28, BP138/90, Sats 90% RA
- Monitor-NSR, old infarct, no changes seen on EKG
- Heart –No S3 or Murmur, regular, Lungs with crackles, no wheezes, chronic dullness percussion R > L base
- Neuro- nonfocal, symmetrical findings
- Fingerstick Glucose-240
- Admit to hospital q 3 weeks for CHF past 5 months despite multiple interventions

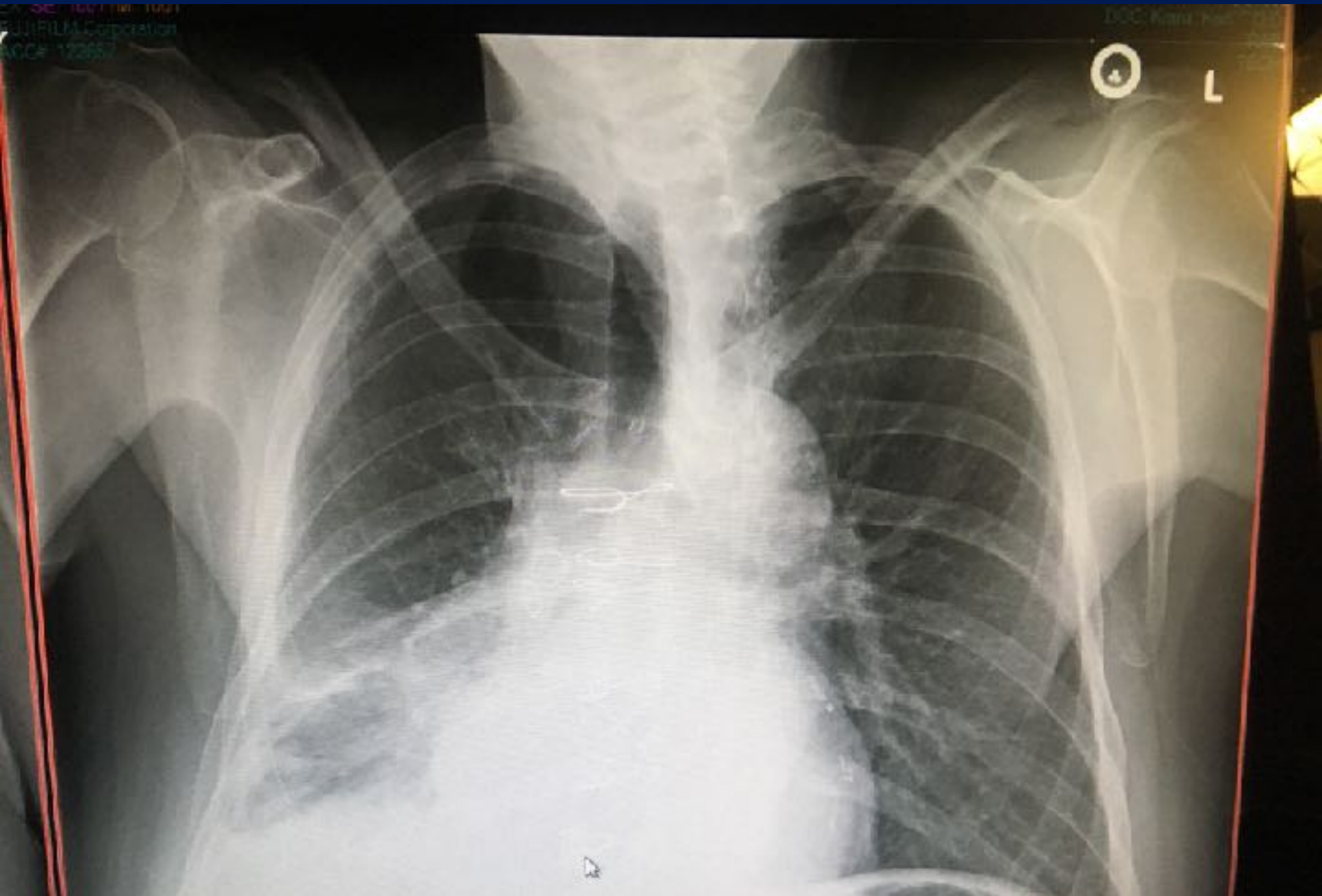
- Complex pt- stable Vitals
  - There is time to gather data, then treat

- EKG
  - No acute changes, old Q waves
- Labs
  - Elevated glucose-240
  - Elevated BTNP-760
  - Elevated Crea-1.9, stable K at 4.9
  - Hgb-low at 9.6, unchanged
  - Troponin-normal
- UA
  - + glucose
  - No WBC or bacteria
- CXR
  - Chest X-ray obtained with recent comparison

New X-ray



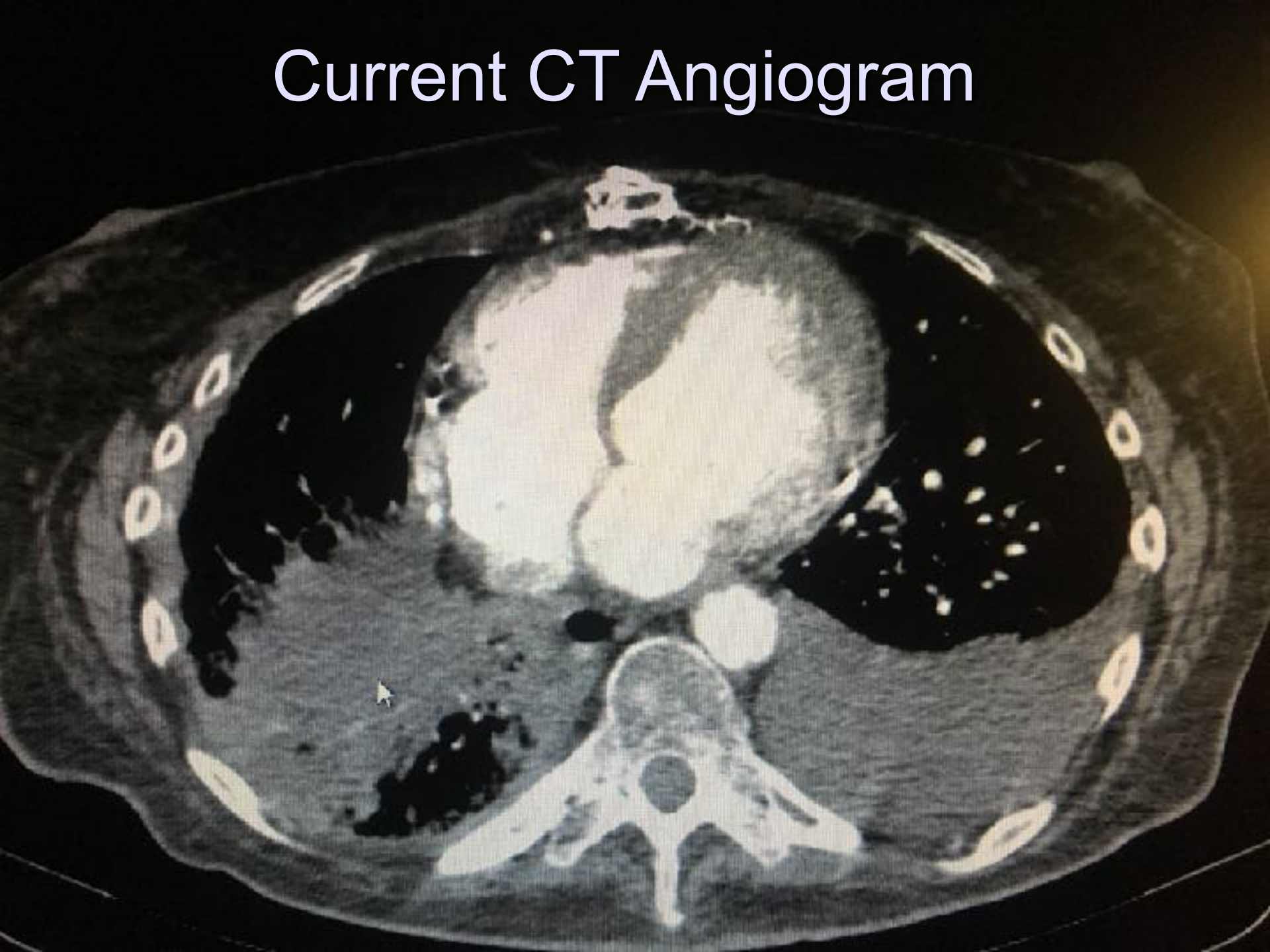
Prior Xray

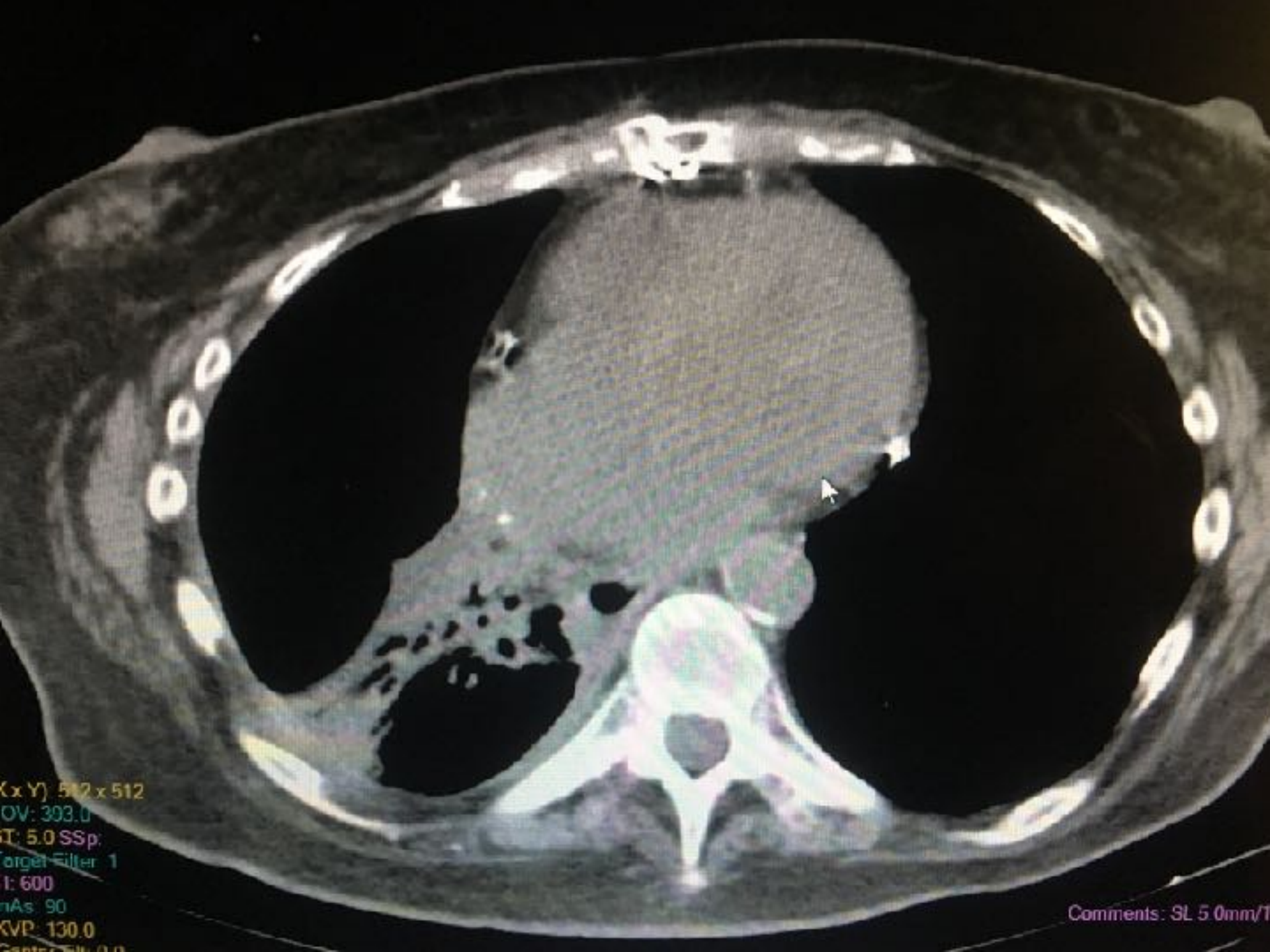


CXR

- Pleural effusion, scarring, ? infiltrate or CHF
- CT Angiogram Chest
  - Obtained to clarify CXR

Current CT Angiogram

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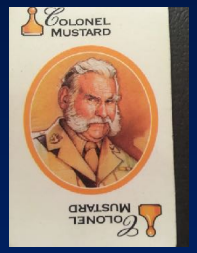
Chest CT

- Mild pulmonary edema-CHF
- Chronic Pleural effusion Right, but now present on the Left as well
- Possible small pulmonary embolism R mid lung



- Clues:
  - Chronicity- Hx of several recent hospitalizations and is relatively stable despite today's concerning films and labs
  - New elevation in BTNP, chest imaging is worse, new Left pleural effusion
  - Possible lung infiltrate, but no fever or mental status changes
  - Suggestion of Pulmonary embolism on CTA
  - No angina, EKG unchanged, troponin normal

- Experience counts!
  - What's the next question mountain people ask me after seeing this photo?

Where’s the MOM?

- What's going to happen next to our diabetic, anemic, mildly dyspneic patient with CHF, Chronic Renal failure, CAD, and a history of multiple hospitalizations if we don't intervene?

A New Larger Problem!

- Treat what you find, anticipate what could happen next
- CHF- Diurese with IV Lasix
  - Monitor renal function
- Hyperglycemia-5 to 10 units IV Insulin
  - Gently, a little hyperglycemia is better than hypoglycemia here
- PE?-Lovenox cautiously
  - Think of GI bleeding and monitor
- Anemia-chronic, but check iron level, stool for blood, consider transfusion
- CAD- Use judicious O2, follow EKGs and troponin levels
  - No extra aspirin, unless positive AMI evidence


PACKER
Country
14 3 15 66 92
PACKER FANS
DICK & JAN

Diabetes

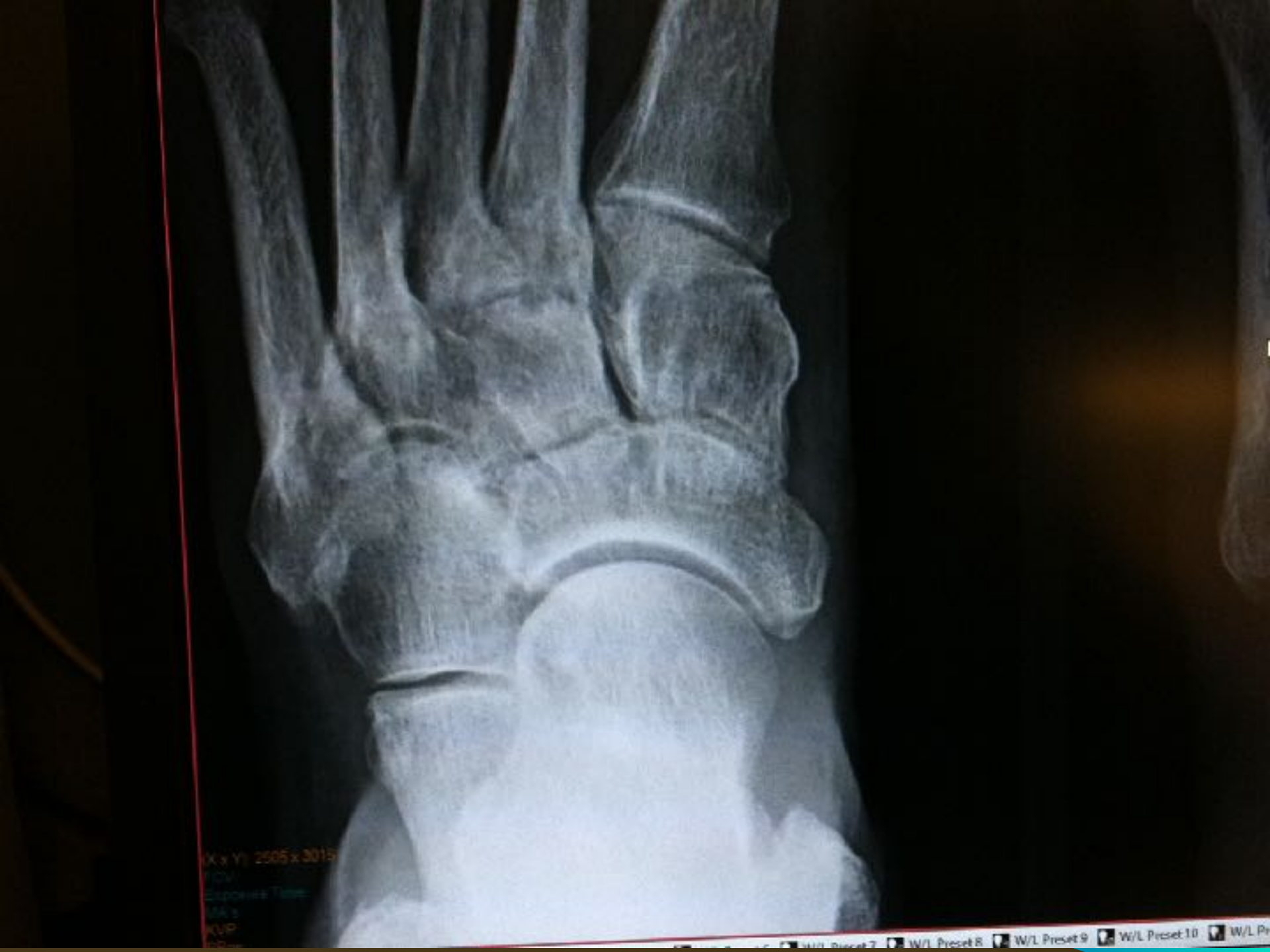
- Diabetics are complex
- Always consider Acute MI with acute change of status
- Mind the kidneys, Acute Kidney Injury is getting more attention
- Think outside the problem list

Diabetic Foot

-
  - 78 year old returns from a road trip to California.
  - He developed a sore R foot, was seen in Urgent Care in California, prescribed oral antibiotics, then returned to the ER there when the foot became worse
  - No change in chronic peripheral neuropathy, no definite injury. Hx DJD MCP joint, DM 2

Infection

- Admitted in California for fever, chills,
- + Blood cultures, MSSA, no resistance
- Surgical Incision and Drainage by Podiatry
- IV ABX for 4 days, discharged on Augmentin
- Wound care, packing changes, daily dressing changes in clinic, suture removal at the appropriate time
- Skin cellulitis at ankle resolved, no fever, course of oral antibiotics finished Friday


W/L Preset 8
W/L Preset 9
W/L Preset 10

Infection

- Monday Morning:
  - Wound has opened, aching into leg and groin, T-99.6
- Tuesday
  - Podiatry Consult , Acute Admit, MRI foot
  - IV Antibiotics and Infectious Disease consult
- Wednesday AM
  - Great toe amputation, Surgical exploration, Osteomyelitis
- Friday AM
  - Surgery, Partial 1st Metatarsal removal

Infection

- Staph Aureus cellulitis, Sepsis, Deep Foot infection followed by osteomyelitis and amputation

ODTAA**

- Non diabetic healthy 78 year old with no cardiac history had been having night time chest pressure.
- Only PMH prostate CA treated with radioactive seeds 10 years ago
- Saw the optometrist, they noted an irregular pulse
- Went to the Rose Bowl, had new chest heaviness walking 1 mile uphill to his car after the game.
- Came to clinic
  - EKG- LBBB, Trigeminy
  - Radial Pulse 42, asymptomatic
  - no old EKG for comparison

- **One Damn Thing After Another

-Left bundle branch block.
-Left atrial enlargement

ABNORMAL

iewed By

iew Date

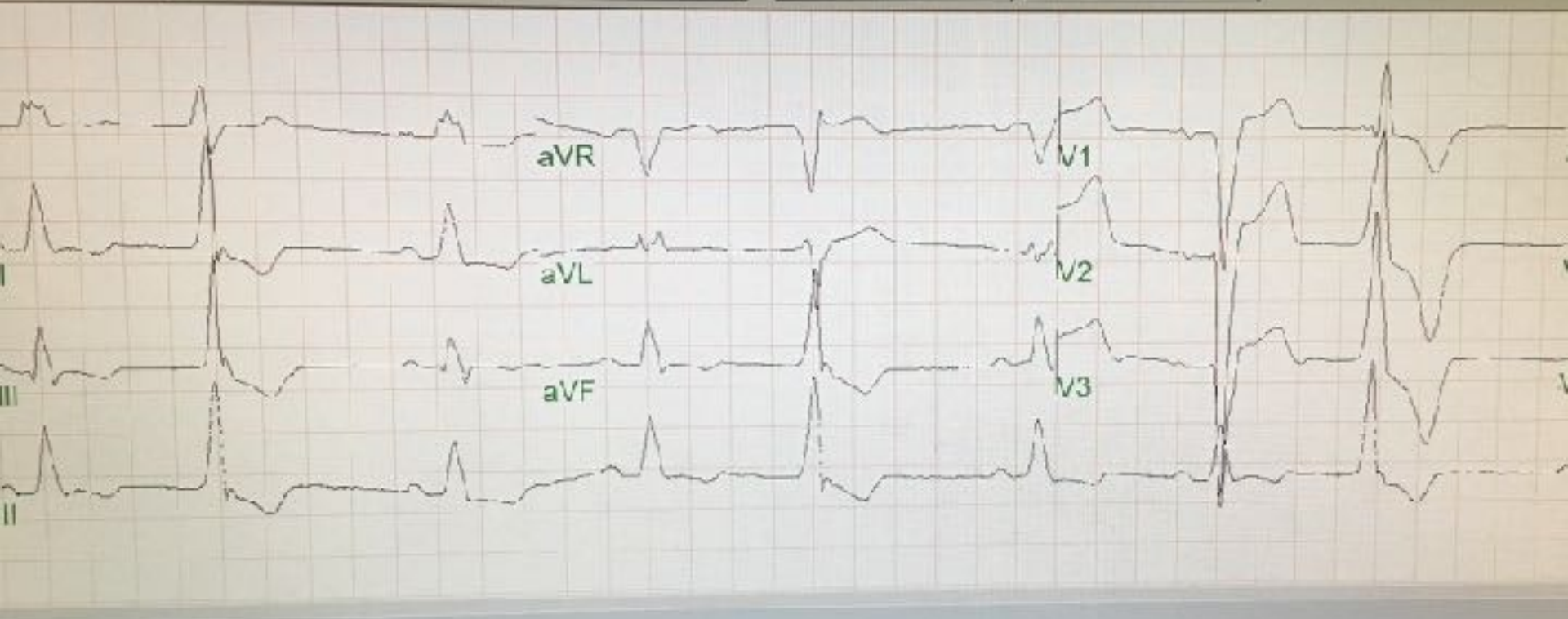
Details

Gain 1X

Settings

Add

Clear All/Add



File

Print

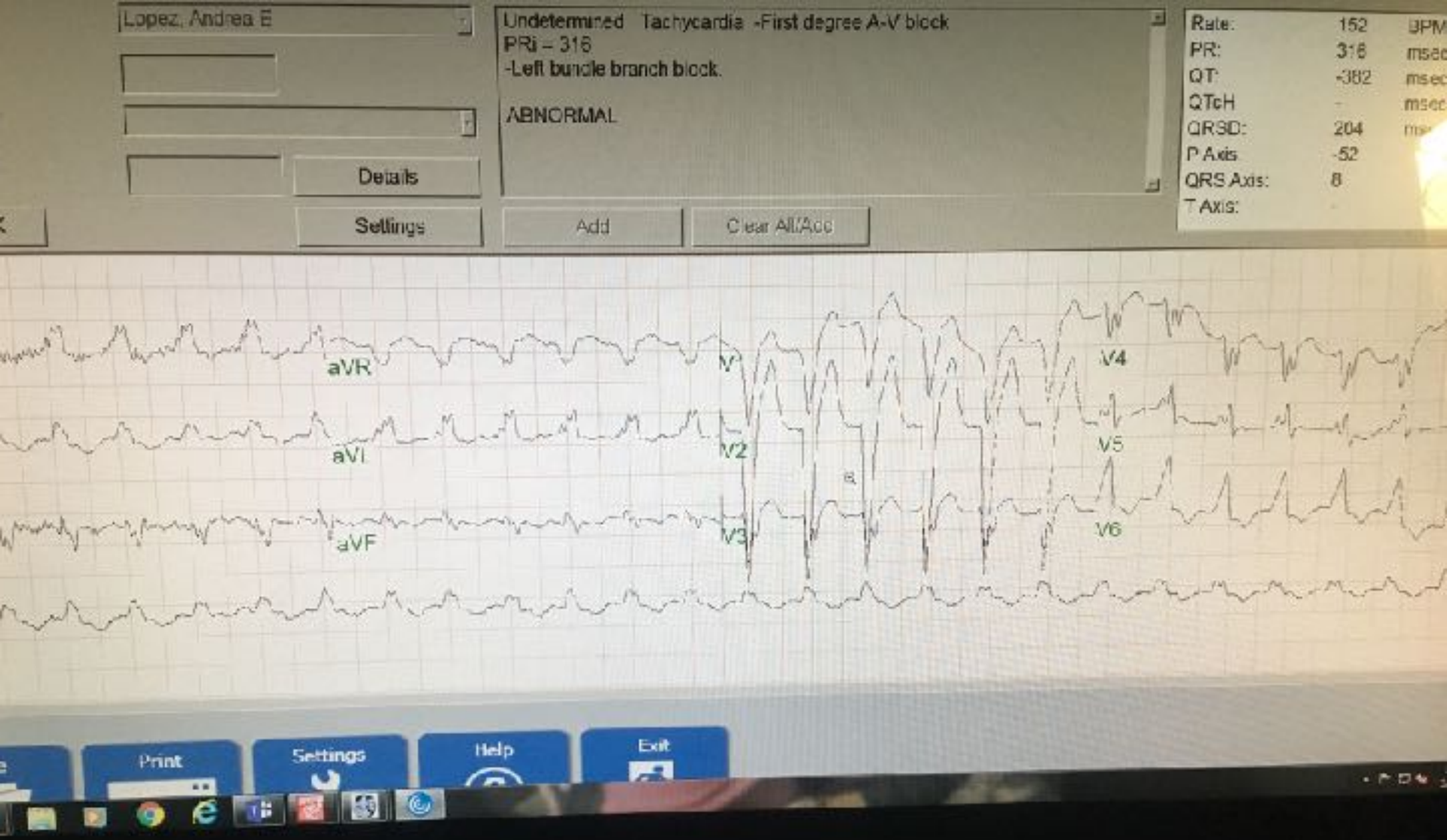
Settings

Help

Exit

- Abnormal Treadmill performed,
- Equivocal nuclear stress test
- Abnormal coronary angiography, long tight LAD lesions not amenable to stents
- CABG x 2, complicated only by urinary retention, staff couldn’t pass a catheter but he finally voided, and returned home

- Recuperating at home, but 10 days after surgery he developed a different feeling of chest pressure and dyspnea, at rest as well as with exertion. He elected not to call EMS, and returned to the clinic the next AM.
- Pulse 150, BP 110/70, O2 sats 92% RA
- EKG-Regular wide complex tachycardia
- CXR- Mild pulmonary edema
- Troponin and labs normal


Lopez, Andrea E
Undetermined Tachycardia -First degree A-V block
PRi – 316
-Left bundle branch block.
ABNORMAL
Details
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Rate: 152 BPM
PR: 316 msec
QT: 382 msec
QTcH msec
QRSD: 204 msec
P Axis -52
QRS Axis: 8
T Axis:
aVR
aVL
aVF
V1
V2
V3
V4
V5
V6
Print
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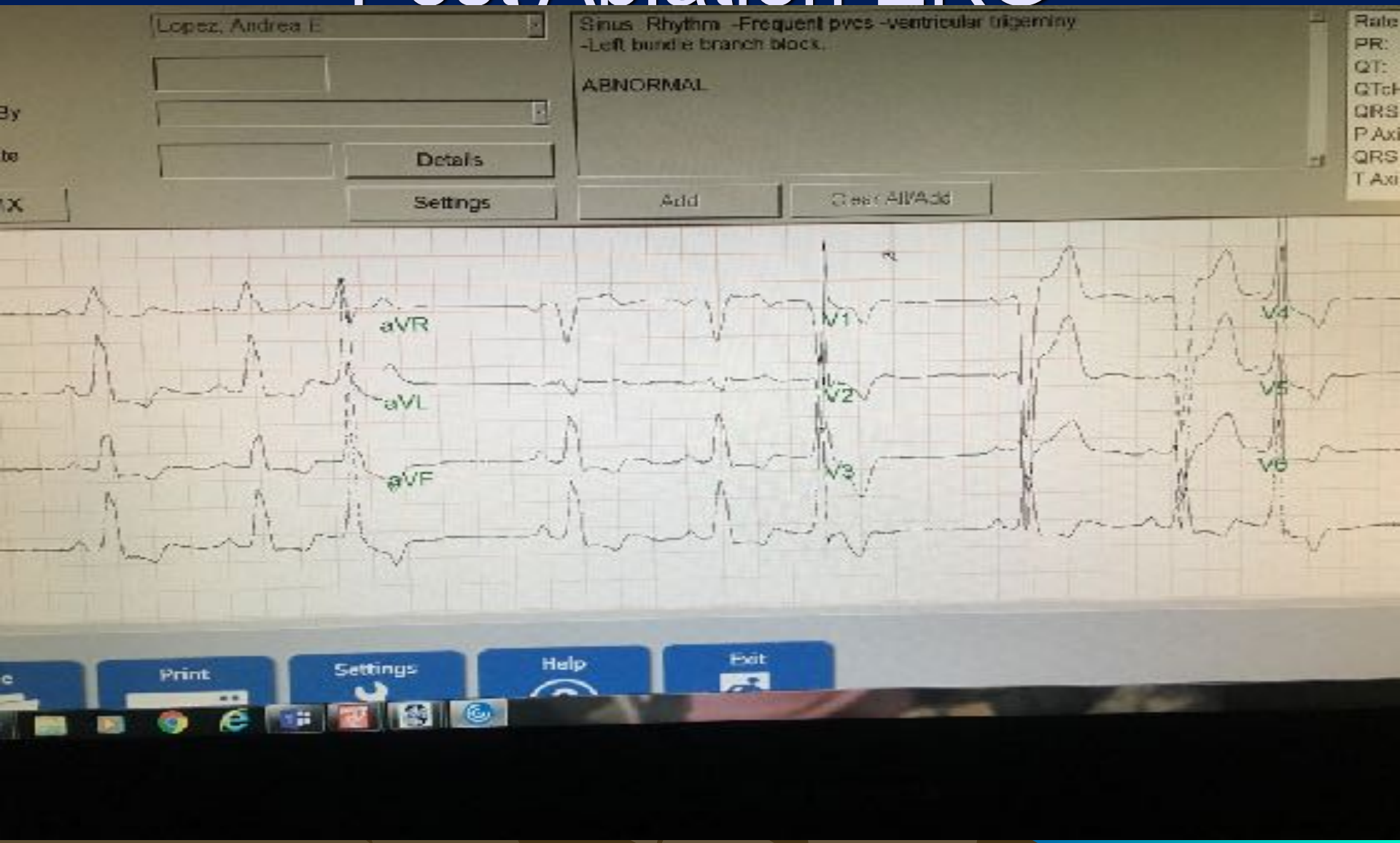
Help
Exit

•Regular rapid rate of ~150 is Atrial Flutter, 2:1 block in geriatrics until disproven

- Think before you shock
- We called for expert opinion
- Transferred to CWH,
- In the ablation lab within 2 hours, successful ablation
- No cardiac injury
- No recurrence
- Stopped the post CABG Beta Blocker and his rate improved
- Still has some urinary retention, mild
  - To see Urology

- Regular rapid rate of ~150 in older people is Atrial Flutter until proven otherwise

Post Ablation EKG




"SUPERBUGGER"

The Geriatric Cascade

- One thing leads to another:
  - Extra salt leads to fluid overload, leads to CHF and an acute MI
  - A fall in the bathroom causes broken ribs which reduces chest excursion which leads to pneumonia
  - A UTI is ignored initially, causes urosepsis and seeds bacteria into a lumbar disc, then lumbar discitis and an epidural abscess erupts weeks later
  - A shoulder strain leads to abdominal surgery-Case report

The Geriatric Cascade

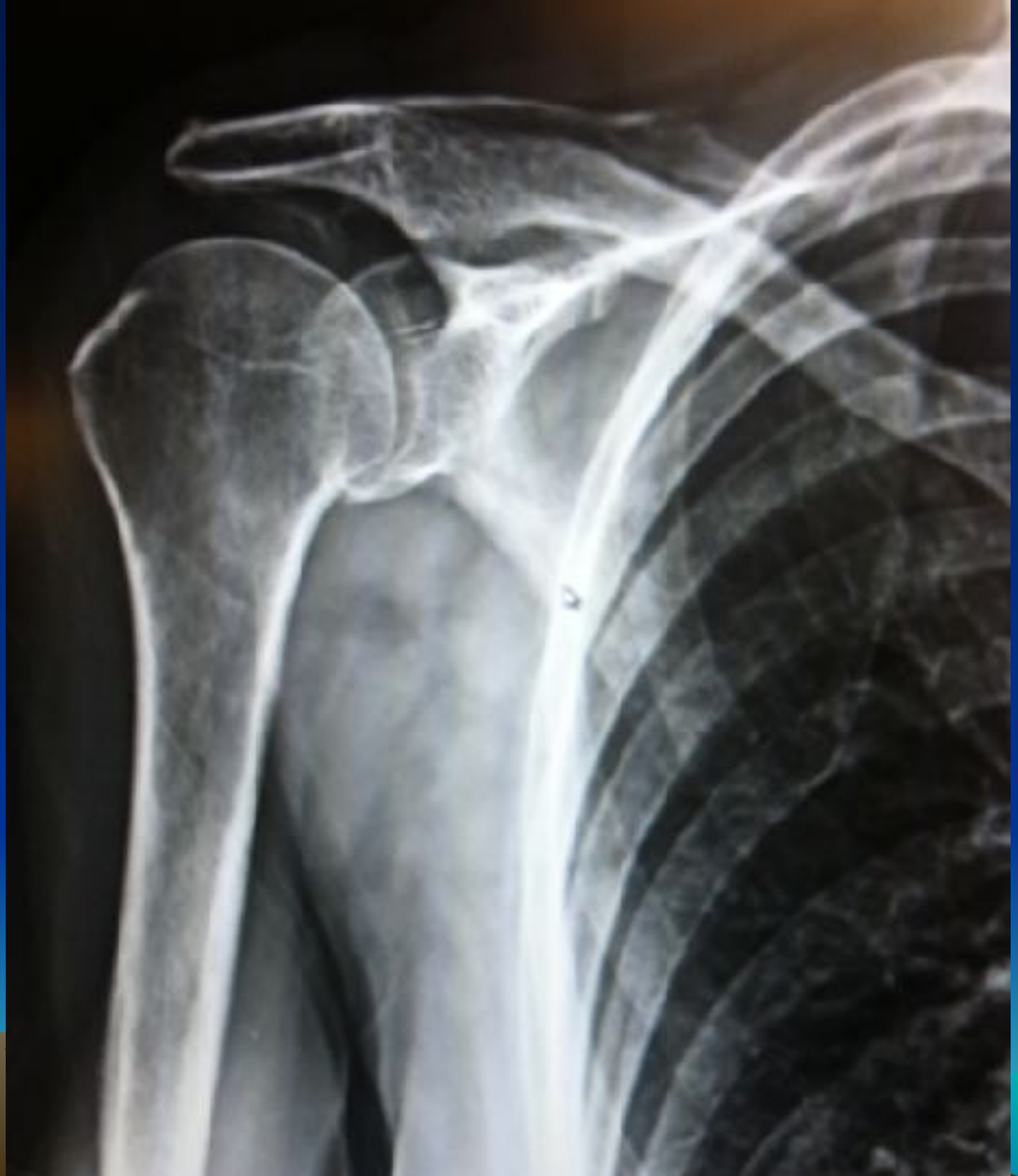
- A vigorous generally healthy 69 yr old aluminum plant worker presents to the ED at midnight with nausea, stomach upset and R scapular pain. He states he has not felt well for a couple of days, then pulled on a 4 foot long wrench at work 8 hours PTA and had sharp pain in the Right upper ribs and scapula. He describes the pain as severe, relieved with Morphine in ER.

The Geriatric Cascade

- Meds
  - Metformin,
  - Lovastatin
  - Losartan
  - ASA 81 mg
- PMH + for:
  - Well controlled DM
  - Multiple orthopedic surgeries,
  - HTN

The Geriatric Cascade

- Initial ER workup at 0030:
  - Normal EKG
  - Normal CXR
  - Labs normal including Troponin, LFT and Amylase, except glucose 155(nausea and stomach upset)
  - Plain film abdomen normal
  - Exam- Mild Abd tenderness, no rebound. Pain in scapula and Right shoulder, good motion

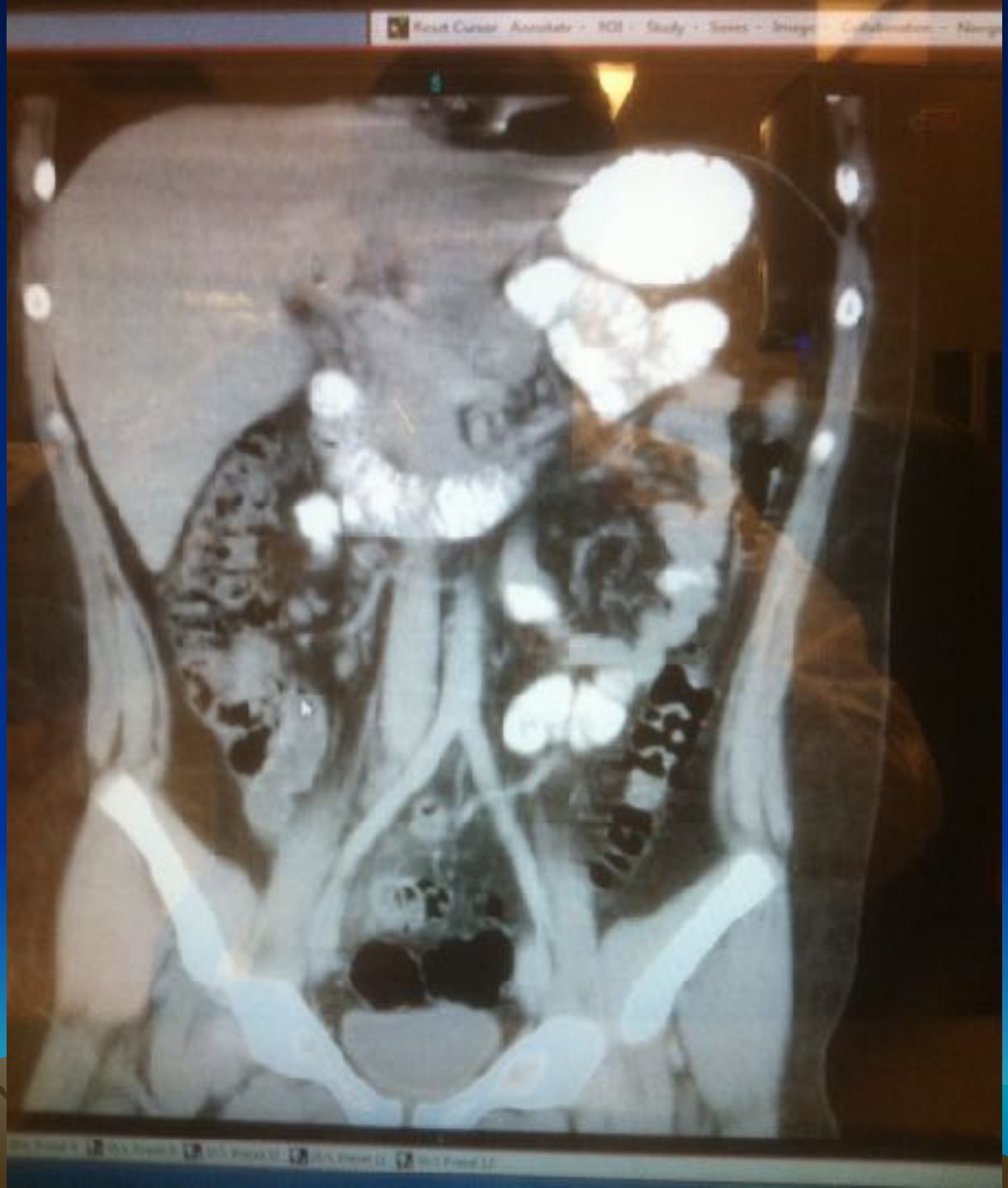


The Geriatric Cascade

- Discharged home with pain Rx, advised to see PCP in Clinic later that day, no work

The Geriatric Cascade

- 15 hours later patient presents to clinic as instructed, now in a wheelchair, nauseous, vomiting clear to bilious emesis, Temp 99.6 and pale with diaphoresis
- Abdominal and shoulder pain are worse
- Blood Tests repeated, liver AST and ALT are now 700 and 800 rather than 70 and 80 from ER lab. Amylase is normal
- Abd x-ray and CT scan are not conclusive, possibly enlarged gallbladder and increased stool volume



The Geriatric Cascade

- Transferred to General Surgery
  - Emergent Laparoscopy
  - Gangrenous gall bladder packed with stones
- Chain of events-
  - Cholelithiasis > Bile duct obstruction >Gall bladder enlargement > Referred pain to shoulder > acute hepatitis with nausea and vomiting
  - enlarged gallbladder obstructs Cystic Artery causing infarction and gangrene of the gall bladder
  - Fatal illness without prompt cholecystectomy

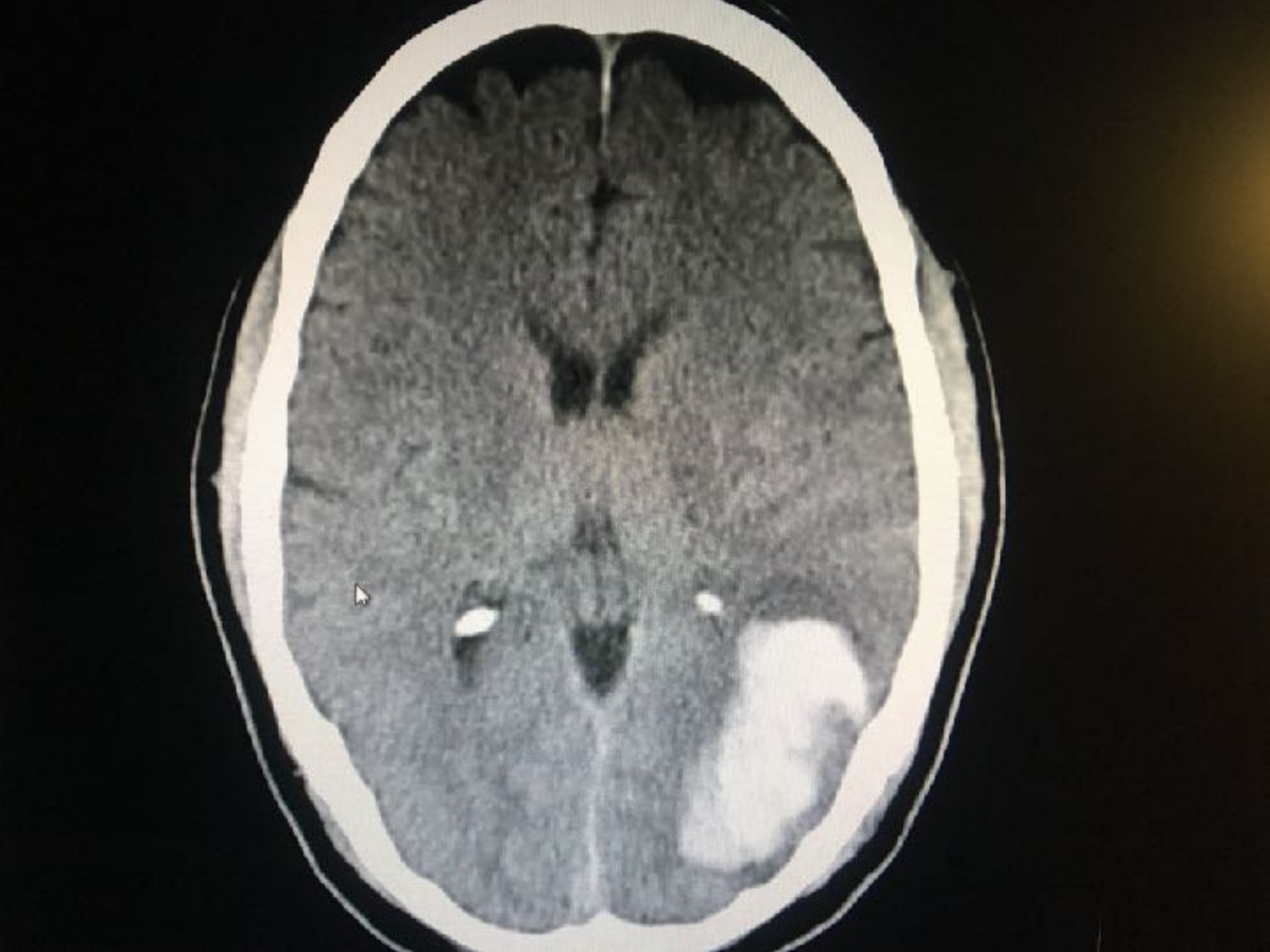

UK 18-12

- 65 year old presents to ER with abrupt onset of severe headache and weakness.
- Heavy equipment operator, was upside down in machine exerting force to loosen a nut, abrupt onset of symptoms.
- Felt well when he woke up that AM
- Negative Medical History, borderline HTN
- FH
  - brother with cerebral aneurysm

- VS-P90 R-18 BP190/96 O2 95% RA
- Cardiopulmonary exam normal
- Neurological Exam
  - R upper and lower extremity weakness
  - Slurred speech with dysarthria
  - Persistent Headache
  - No visual or cranial nerve changes

  CT

  --Acute intra cranial bleed



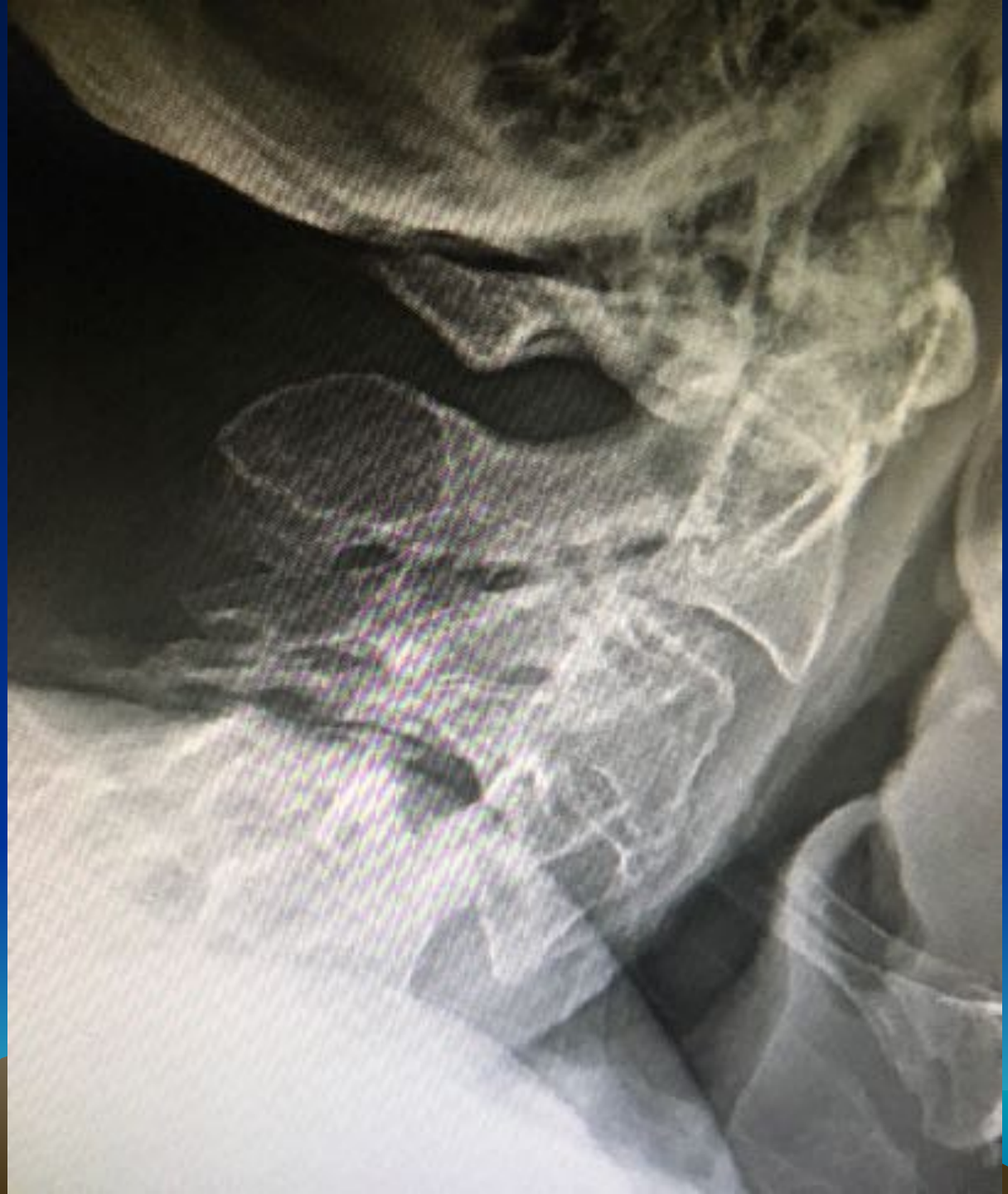
- Medical Management Decisions
- Anticoagulants
  - If taking warfarin, give Vit K
  - If on NOACs- Eliquis, etc. consider reversal agent
  - No Thrombolytics
- Blood Pressure Management
  - Permissive HTN management is acceptable,
  - Labetolol 20 mg IV if BP markedly elevated
- Disposition
  - To stroke center ASAP
  - Pt was Airlifted to Harborview

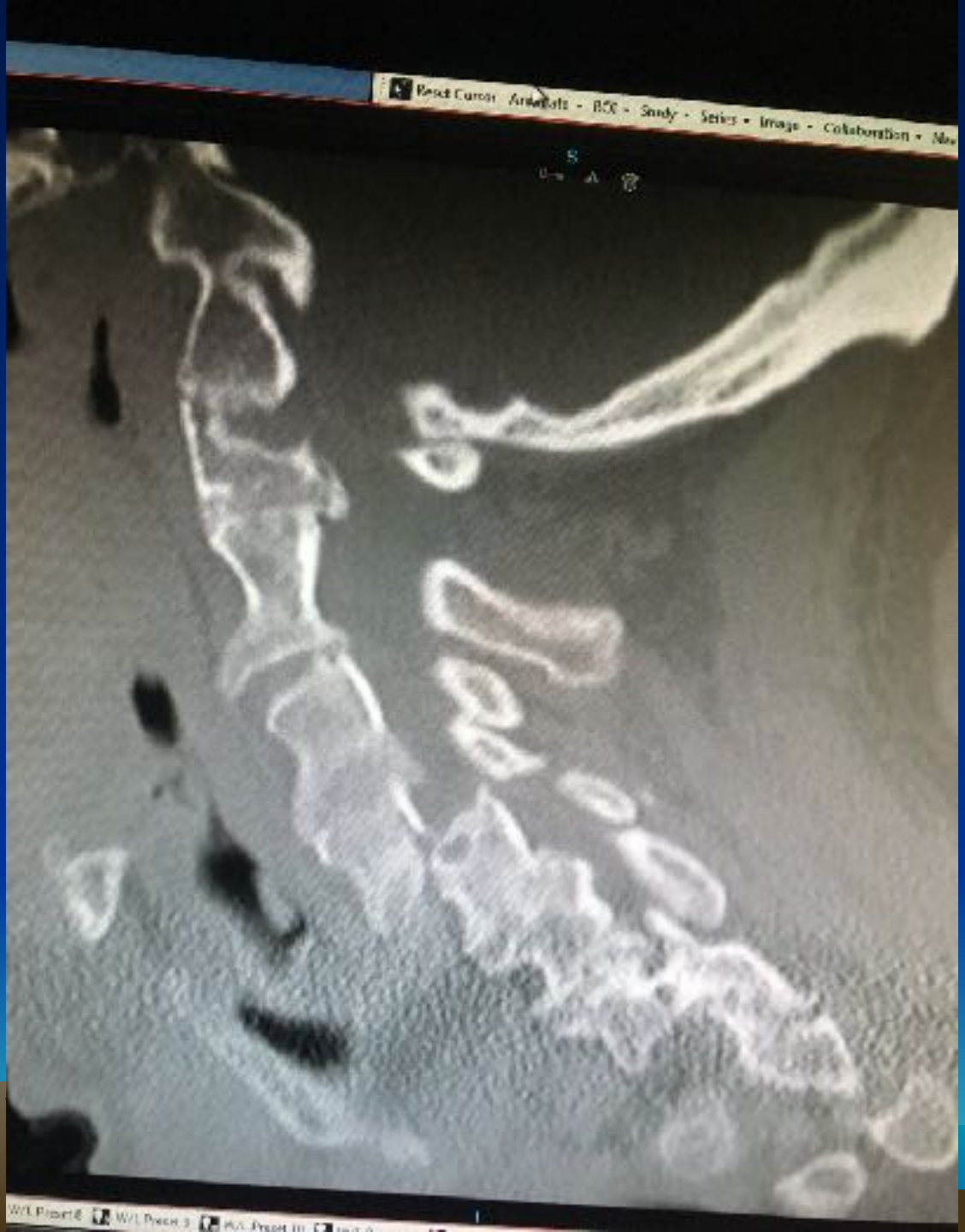
- Diagnosis
  - Acute cerebral infarction with hemorrhagic transformation.
  - Bleeding stopped, no surgery needed, no aneurysm
  - Complete recovery with no deficits

- 84 year old man with Rheumatoid Arthritis for over 50 years presents with progressive weakness and difficulty walking over the past 2 months.
- Unable to get into bed, came to the ER.
- Multiple orthopedic surgeries and joint replacements, on antinflammatories, never tried the newer biologic agents, DMARDs
- No new pain, daily arthritic joint pain most of his life

- Exam challenging due to the severe disability of multiple joints destroyed by the RA.
- Multiple hand and foot surgeries, Right elbow fused. Both shoulders and the Right knee joint replaced
- No neck pain, but describes an electrical shock down his spine over the past few weeks when he looks down.

- Admitted for observation
- Incontinent of formed stool that night
- Lumbar spine x-rays done in ER, no acute injury, extensive arthritic changes
- Cervical spine x-rays obtained

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Collaboration

- Airlifted to Harborview for prompt spinal stabilization surgery

Lhermitte's (Barber Chair) Sign

- Electric shock like sensation down the lower cervical and thoracic spine with cervical flexion.
- Associated with stretching of the hyper excitable portion of damaged or demyelinated fibers in the cervical dorsal column of the spinal cord.
- Found in Multiple Sclerosis, transverse myelitis, chronic cervical cord compression, trauma, and post chemotherapy


Thank You
Safe Trip Home

Extra Material

Diabetic Complications

- Acute Myocardial Infarction
  - Acute coronary artery occlusion and death of heart muscle may be painless in patients with extended history of DM or severe disease.
  - These patients usually have multi-system disease, including renal and peripheral vascular disease, which complicates care
  - Treatment is the same as a non-diabetic MI, but careful attention must be paid to Potassium, Magnesium, and fluid balance concerns, plus blood sugar management
  - Have a high level of suspicion with acutely ill diabetics

Diabetic Complications
Infarction

- Standard ACLS Treatment including;
  - Oxygen
  - Nitro SL
  - Aspirin 162 to 324 mg crushed PO
  - Morphine prn pain
  - Nitro drip if needed
  - Heparin or TPA if appropriate, to cath lab
  - Dopamine for hypotension
  - Consider and manage Potassium, Magnesium levels

Diabetic Complications

- Renal Damage
  - Progressive renal insufficiency
  - Interferes with medication metabolism, may lead to complications (Metformin)
  - May cause refractory Hypertension
  - Eventual dialysis as end result
  - Hyperparathyroidism

Diabetic Complications

- Diabetic Retinopathy
  - Related to duration and chronic sugar elevation in long term diabetes
  - Disabling, impairs independent living and medication administration
  - Laser treatment may slow progression of damage
  - Impaired vision causes Insulin mistakes, wrong dose or wrong med!

Diabetic Complications

- Immunological impairment
  - Acutely or chronically elevated sugars impair the body's response to infection, particularly bacterial attacks.
  - WBC's function poorly with sugars above 180
  - Deadly cycle, as infections destabilize glucose control, blood sugars become more elevated, immune response deteriorates, and allows infection to elevate sugars further. This produces more cellular dehydration and reduces immune function even more

Diabetic Complications

- Glucose Regulation
  - Hypoglycemia/Hyperglycemia
- Hyponatremia
- Acute on chronic renal failure
- Dehydration
- Thyroid issues
  - Hypothyroid

Diabetic Complications, Metabolic

- Diabetic Complications
- Vascular
  - CAD
    - Acute MI
    - Angina?
    - CVA
- Type 1 Diabetes
    - Vascular dementia
- Renal
  - CRF- Dialysis
    - Secondary hyperparathyroidism
      - High phosphate, low Vit D
        - Bone disease
  - Electrolyte imbalance
  - Anemia
  - Refractory HTN
  - Neuropathy
  - Injuries
    - Secondary infection
      - Amputations
      - Charcot foot
  - Gastroparesis

Diabetic Complications

- Neurological
  - Damage and degeneration of long nerves to extremities leads to decreased sensory function which leads to neglected ulcers, burns, trauma, and infections, especially feet
  - Painful peripheral neuropathy leads to increased medication burden, depression, chronic pain issues
  - Increased risk CNS infections, CVA