Clinical Case Discussion:

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CUSOM

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CAMPBELL UNIVERSITY | Jerry M. Wallace School of Osteopathic Medicine

A 62-year-old man presents to the ED with episodes of lightheadedness and palpitations.

He lives at home with his wife who does not think the patient has had fever or chills. The patient has been "breathing hard" over the last month. He has not complained of chest pain, diarrhea or pain with urination.

PMH:
HTN, onset age 51

Medications:
Lisinopril 10 mg po daily
ASA 81 mg po daily

Social hx: Married. Lives with his wife. Small business owner. Never smoker. Rare alcohol. No drug use.

He is moderately short of breath. He can identify the year but not the day or month

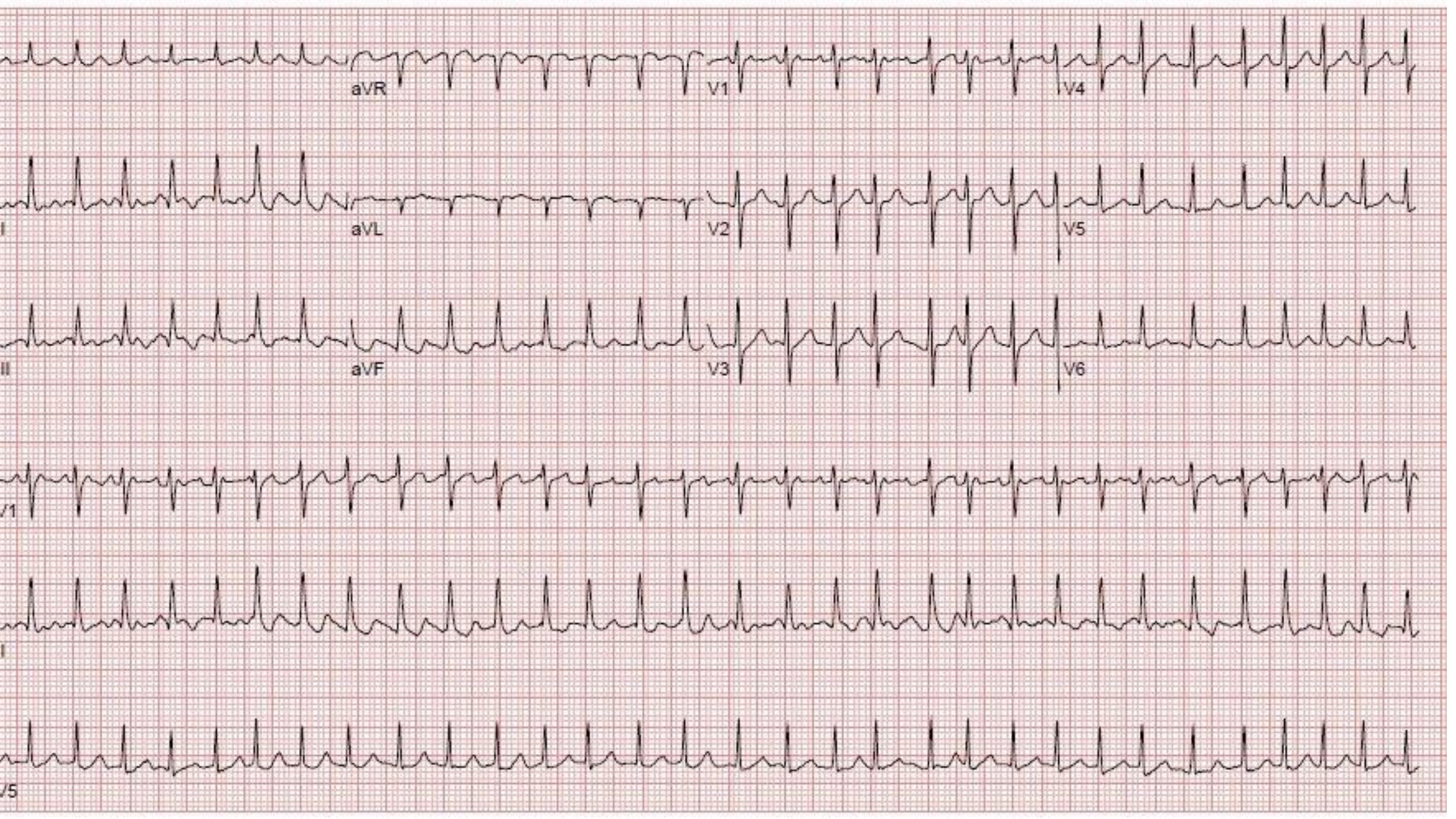
On exam: VS 110/70 p 150 RR 24 afebrile with oxygen sat 92% on RA

Neck: Full ROM.
No adenopathy.
Trachea midline

Car: Irregularly irregular
without murmur
JVP 8 cm at 45 degrees

Lungs:Bibasilar rales

Extremities: Trace pitting edema.
Dp pulses 1+ B/L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V1
V4
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He is moderately short of breath. He can identify the year but not the day or month

On exam: VS 110/70 p 150 RR 24 afebrile with oxygen sat 92% on RA. Wt 70 kg

Neck: Full ROM.
No adenopathy.
Trachea midline

Car: Irregularly irregular
without murmur
JVP 8 cm at 45 degrees

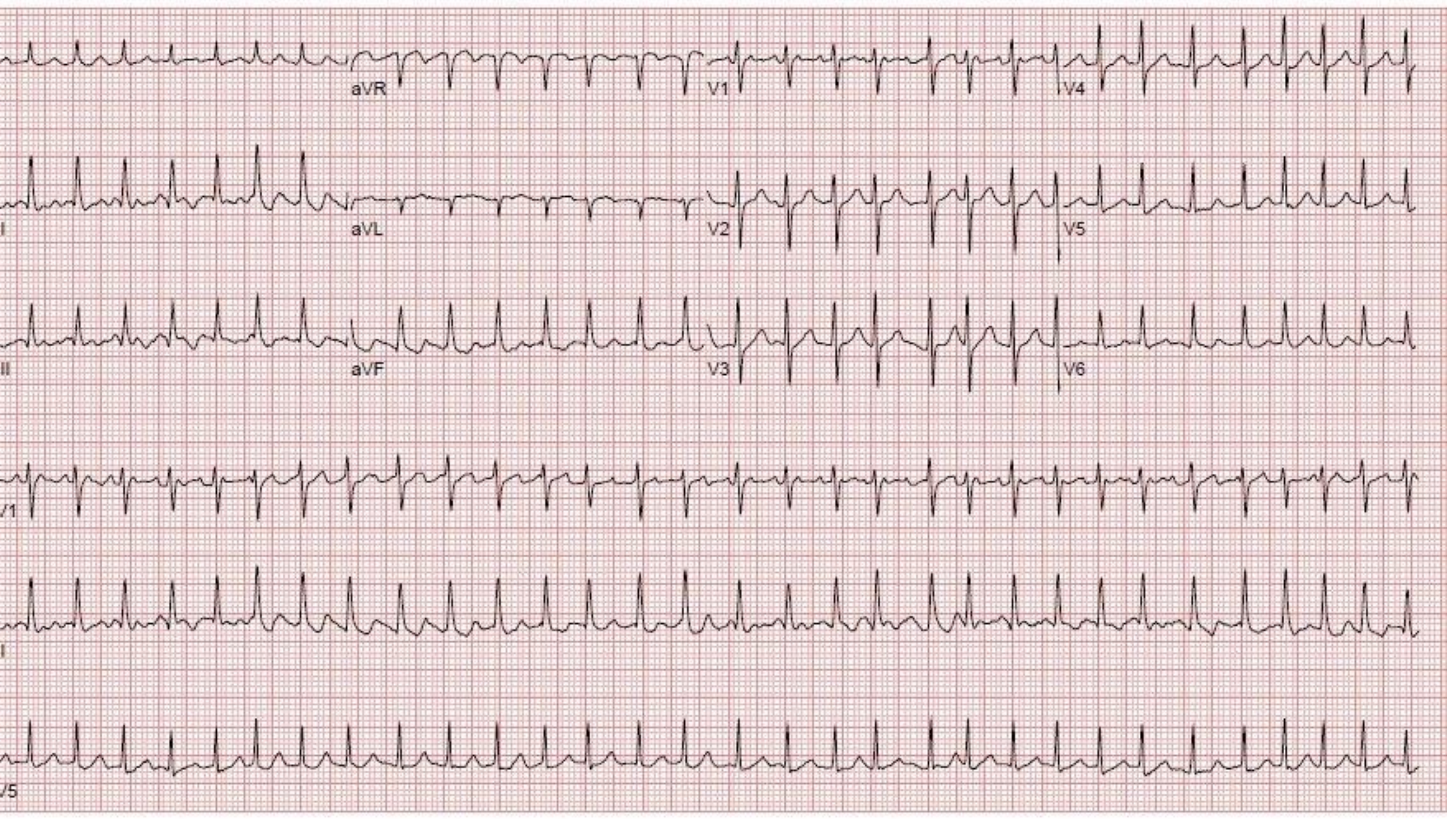
Lungs: Bibasilar rales

Extremities: Trace pitting edema.
Dp pulses 1+ B/L

Thyroid not enlarged but there is a 1 cm soft nodule palpable in the right lobe

Neuro: CNs II through XII grossly intact
Motor: 5/5 throughout
Reflexes: 2+ throughout, including ankle jerks.

NOT NORMAL: Elderly patients often lose reflexes, especially at the ankles.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V1
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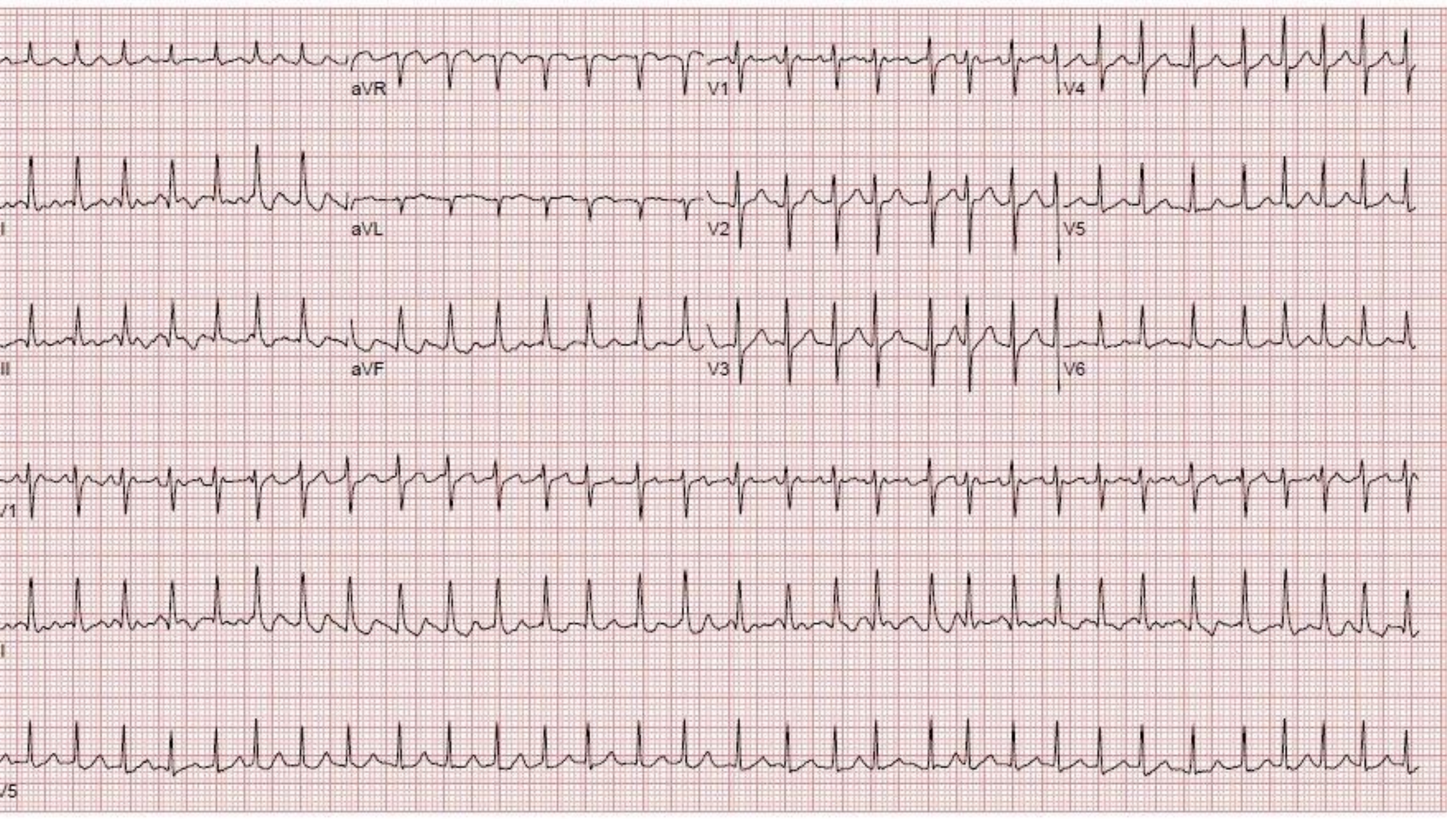
V5

Options????

- Diltiazem 0.25 mg/kg IV x 1= 15 mg
- Wait 15 minutes
- Still in afib with RVR, vitals 120/60 p 140 RR 20
- Diltiazem 0.35 mg/kg IV x 1= 25 mg
- Wait 15 minutes
- Still in afib with RVR, vitals 110/60 p 130 RR 20
- Metoprolol 5 mg IV x 1
- Repeat vital signs: bp 85/70 p 150
- Patient is now complaining of chest pressure . . .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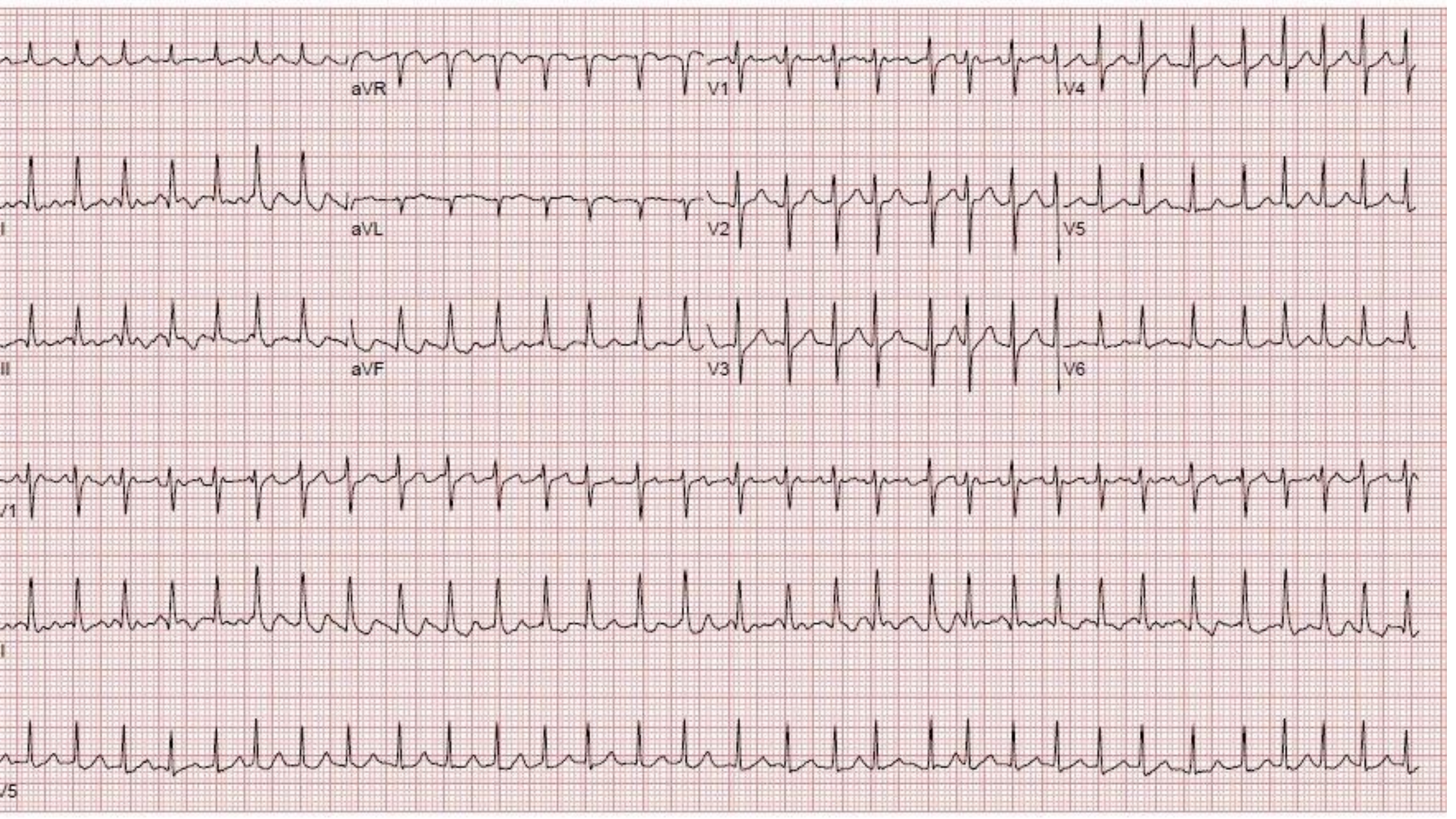
He is hemodynamically unstable.

Morphine 1 mg IV x 1

Synchronized electrical cardioversion with 200 J with biphasic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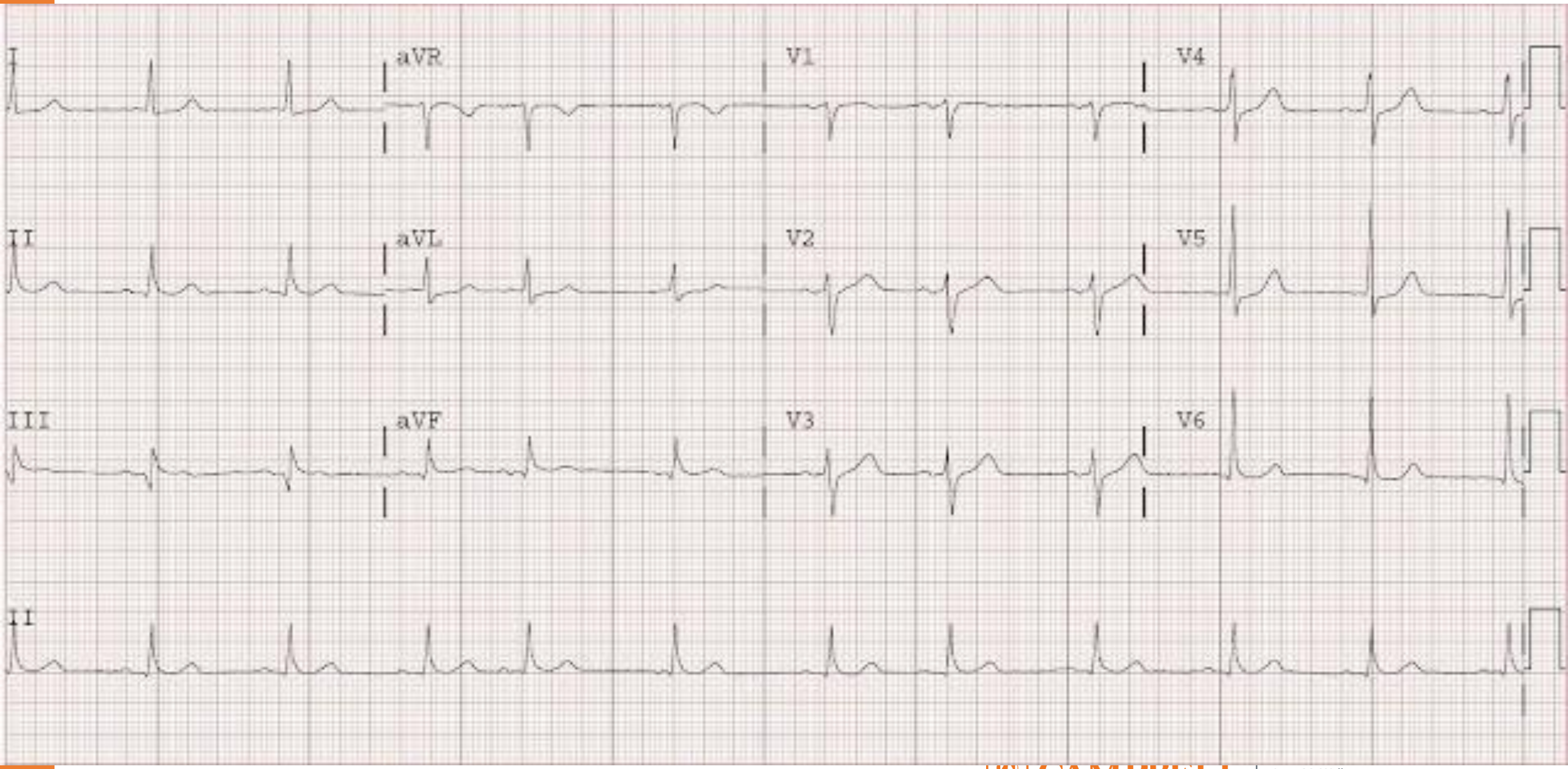
Amiodarone 150 mg IV x 1

He is *still* hemodynamically unstable.

Synchronized electrical cardioversion with 200 J with biphasic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II

Now what???

Start Amiodarone infusion at 1 mg/min x 6 hrs then 0.5 mg/min x 18 hrs

ASA 81 mg po x 4 chewed

Heparin drip weight-based protocol for ACS

Patient looks better. He is alert and denies chest discomfort or SOB.

Repeat vital signs: bp: 140/95 p 60 RR 16 Temp 98.7 O2 sat 95% on 2 L NC

Why is our patient so sick???

Thyroid palpation: anterior approach

Use your thumb to locate the isthmus of the thyroid below the cricoid cartilage

Palpate each lobe from the front:
Patient's RIGHT thyroid lobe:

- Place right thumb along the left side of the trachea
- Gently displace the right lobe laterally
- Use tips of the fingers of the left hand to palpate the right lobe medial to the right sternocleidomastoid muscle
- Have patient swallow a sip of water and use the pads of the fingers of the left hand to palpate the right lobe
- Similarly, use the left thumb and fingers of the right hand to palpate the LEFT lobe

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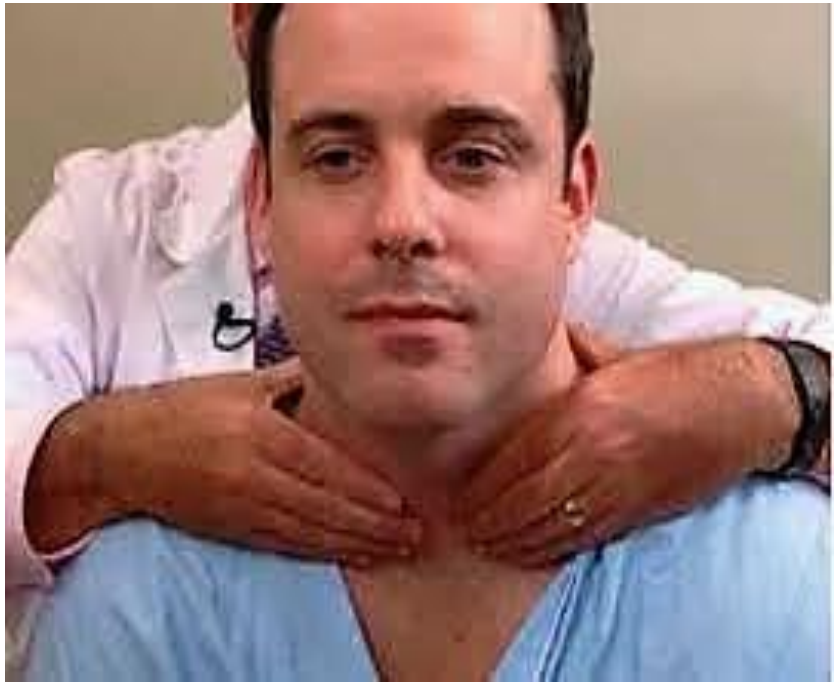
Thyroid palpation: posterior approach

Tell your patient about the exam before you start!

Place your hands on the neck with the index fingers just below the level of the cricoid cartilage.

Palpate the lobes the the thyroid with the patient still and with the patient swallowing a sip of water.



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Labs are back . . .

Lab value	Normal value	Patient value
TSH	0.5 to 4 mU/L	< 0.01
Free T4	0.8 to 1.8 ng/dl	3.6
Free T3	2.3 to 4.2 pg/ml	5.2

	900 am	noon	3 pm
High-sensitivity cardiac Troponin (hs-cTn) (normal < 14 pg/L)	54	513	323

Diagnoses

- New onset atrial fibrillation with rapid ventricular response
- Non-ST elevation MI
- Thyrotoxicosis

Now what???

Follow up

- Admitted to CCU

- Continues:
  - Oxygen 4 L NC
  - Amiodarone drip
  - Metoprolol 2.5 mg IV q 6 hrs, hold for systolic bp < 100 or HR < 60
  - ASA 81 mg po daily
  - Heparin drip per weight-based protocol
  - Atorvastatin 80 mg po qhs

- Bedside 2-D echo: Decreased LV systolic function with LVEF 35%, mild mitral regurgitation, normal AV, TV, PV, normal RV systolic function

Follow up

- After aggressive beta blockade, patient undergoes L heart cath which shows non obstructive CAD for which medical management is recommended

Medical management of CAD, atrial fibrillation, HFrEF and thyrotoxicosis . . .

Treatment Goals in Congestive Heart Failure

- Increase vagal tone
  - Decreases heart rate
  - Decrease vasoconstriction
  - Relieve cardiac ischemia
- Prevent pathologic myocardial remodeling
- Maintain favorable fluid balance

Follow up

- Medical management of
  - CAD
  - Atrial fibrillation
  - HFrEF
  - Thyrotoxicosis
- Amiodarone drip is tapered to off

- Transition to metoprolol 25 mg p po bid
- Lasix 40 mg po daily
- Sacubitril/valsartan 24 mg/26mg po bid
- Spironolactone 25 mg po daily
- Empagliflozin 10 mg po daily
- Apixaban 5 mg po bid
- ASA 81 mg po daily
- Atorvastatin 80 mg po qhs

Osteopathic Treatment of Congestive Heart Failure

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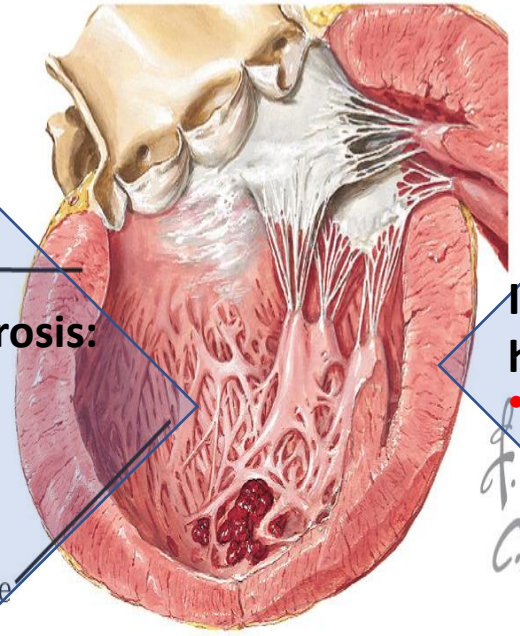
Congestive Heart Failure with reduced ejection fraction (HFrEF) Pathophysiology and OMM

PATHOLOGIC PROCESSES

STANDARD MEDICAL TREAMENT

OSTEOPATHIC TREATMENT



Aldosterone-induced myocardial fibrosis: ventricular dilatation

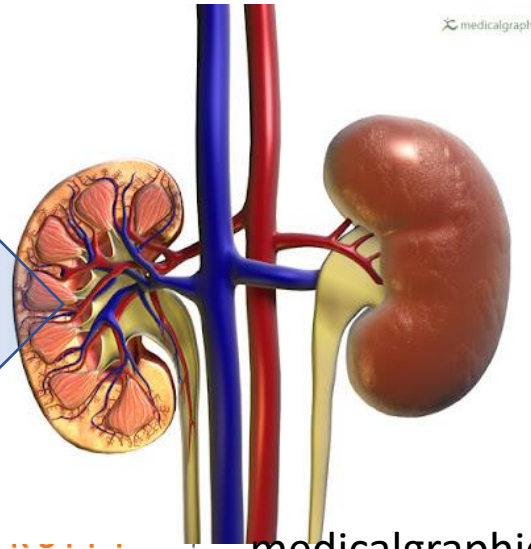
- **spironolactone**

Increased sympathetic activity: Uncontrolled hypertension, Ventricular hypertrophy

- **Beta blocker**

Activation of renin-angiotensin-aldosterone system: Water and sodium retention, Vasoconstriction

- **ACE-I or ARB or neprilysin inhibitor-ARB**
- **SGLT-2 inhibitor**
- **Diuretic**



Management of Chronic Heart Failure Download PDF
Hannah Bensimhon and Carla A. Sueta
Netter's Cardiology, Third Edition 29, 190-196

medicalgraphics.de

Example of OMT Sequence for CHF

OMT Technique	**Treatment Goals**
Rib Raising T10 to L2	Increase blood flow to the kidneys; optimize diuresis
Rib Raising T1 to T4	Decrease tension on thoracic sympathetic chain which supplies the heart
Suboccipital release	Decrease tension on the vagus nerve

Example of OMT Sequence for CHF

OMT Technique	**Treatment Goals**
Myofascial release of the thoracic outlet	Optimize lymphatic drainage from the whole body
Pedal Pump	Optimize lymphatic drainage from the whole body

Management of Thyrotoxicosis

Management of Thyrotoxicosis

- Step 1: confirm the diagnosis with clinical assessment and thyroid function tests
- Step 2: Start beta blocker: example:
  - Metoprolol already prescribed.
  - Can also use propranolol or atenolol
- Step 3: Order a radioactive iodine-131 uptake scan to determine the etiology(NO antithyroid medications for about two weeks prior to the scan)

Six weeks after discharge from the hospital,
our patient undergoes a RAIU scan to determine the etiology of his thyrotoxicosis . . .

RAUI Scan Findings

- Large and generalized I-131 uptake: Graves disease
- Low and generalized uptake: Thyroiditis
- High focus of uptake with remainder of gland's uptake suppressed: hyperfunctioning thyroid nodule

Follow up

- Over the four weeks following discharge, his medications are titrated up to
  - Sacubitril-valsartan 97/103 mg po bid
  - Metoprolol 50 mg po bid
- He continues
  - Spironolactone 25 mg po daily
  - Empagliflozin 10 mg po daily
  - Furosemide 40 mg po daily
  - Apixaban 5 mg po bid
  - ASA 81 mg po daily
  - Atorvastatin 80 mg po qhs

Eight weeks after the patient's hospital discharge, he undergoes elective hemithyroidectomy to remove the hyperfunctioning nodule.

He does well postoperatively and will return for routine follow up with his primary care physician and his cardiologist in six weeks.

Questions?

Thank you!