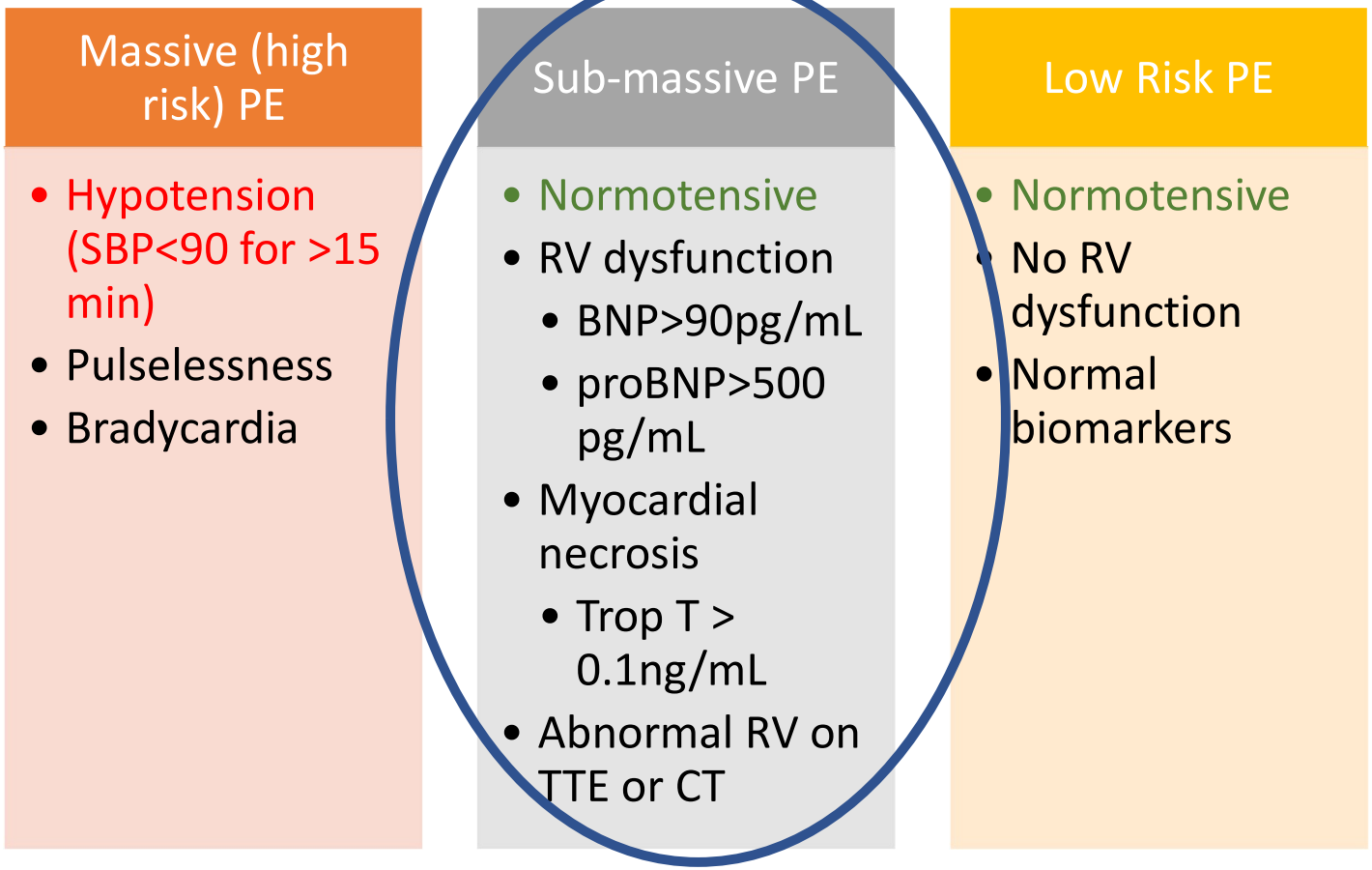
What is the final diagnosis?



4 Basics

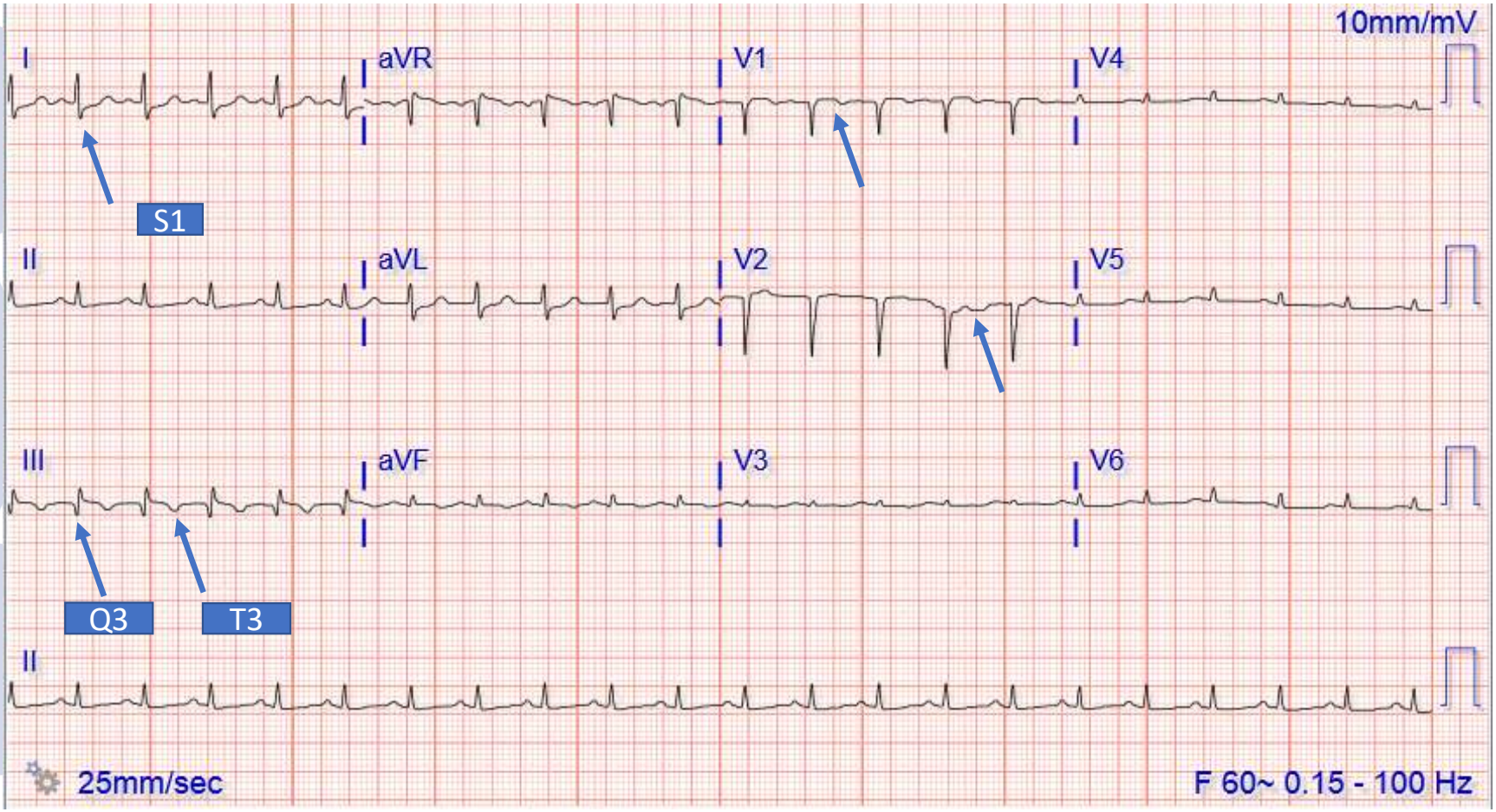
- History
- Rate
- Rhythm
- Axis

4 Intervals

- PR Interval
- QRS width
- ST seg
- QT interval

4 Waves

- Atrial size
- Vent size
- R wave progression
- ST/Q/Twave



Revising differential

- Dyspnea + acute cor pulmonale (S1Q3T3) = Revise your differential
- If S1Q3T3 is identified, it is NEITHER specific nor sensitive for PE
  - Ddx: COPD, ARDS, PNA, PTX, PE
- TWI in V1/V2 + S1Q3T3 = increases specificity for PE

Submassive PE Major Tx Options

Systemic Thrombolysis (50-100mg/2hrs)

Unfractionated Heparin or LMWH

Catheter-Directed Thrombolysis (8-24mg total)

Who Are These High Risk Submassive PE Patients who May Benefit from Thrombolysis?

CONSULT IR, Cardiology, Pulmonology EARLY for consideration of catheter-directed thrombolysis

Likely?

- Tachycardic, elevated shock index (HR/BP)
- Syncope or presyncope
- High Endogenous Stress
  - Lactic acidosis
  - Severely “ill appearing” or decompensating

Possibly?

- Severe hypoxemia
- Severe right ventricular dysfunction
- Extensive clot burden

CC: Shortness of breath

HPI: 48-year-old female with recently diagnosed Type II DM and hypertension presents for worsening shortness of breath on exertion. 1 week ago, she started to feel short of breath on exertion. She went back to her PCP after noticing her blood pressure was elevated despite taking medications. Her PCP added metoprolol to her medication regimen. She now presented to the emergency department for worsening shortness of breath with minimal exertion. She can no longer walk short distances. She feels palpitations in her chest when she tries to.

Tmax 100.9F, HR 119, RR 19, 149/99, Spo2 94% RA

General: Well-appearing young female however breathless easily when speaking at length

HEENT: No lymphadenopathy, pupils round and equal bl

CV: Tachycardic, regular but no murmurs

Pulmonary: Clear to auscultation bl, not using accessory muscles but visibly short of breath when speaking at great lengths

Abd: Tender to palpation in lower bl quadrants

Ext: R calf significantly larger than L calf

Neuro: CN II-XII grossly intact, moving all extremities, no focal deficits

Psych: Normal affect and mentation

Skin: No ulceration or rashes

CTPE: Large filling defects are seen in the right and left pulmonary arteries with extension into the **bilateral lower lobar arteries** compatible with large pulmonary emboli. There is leftward bowing of the interventricular septum compatible with right heart strain.

TTE: Study consistent with **cor pulmonale**. The right ventricular cavity size is severely enlarged. The right ventricular global systolic function is moderately reduced. The interventricular septum is flattened during both systole and diastole consistent with RV pressure and volume overload.

Troponin 0.07 -> 0.07 (111->108)

NT-pro BNP 1183

Learning Points:

1. To guide your pre-test probability for suspected PE, use WELLS score or PERC score
2. True or False: S1Q3T3 is specific for PE? Answer: False
3. If PE confirmed, hemodynamically unstable patients are massive PE
4. If PE confirmed, hemodynamically stable patients with evidence of RV dysfunction are classified as submassive PE
    1. In HIGH risk submassive PE, in addition to starting heparin, consider (1) systemic thrombolysis vs (2) early consult to IR, Pulmonary or cardiology for consideration of catheter directed thrombolysis or thrombectomy