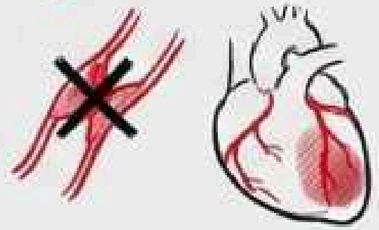
Exclude the Five Fatal Causes of Chest Pain First

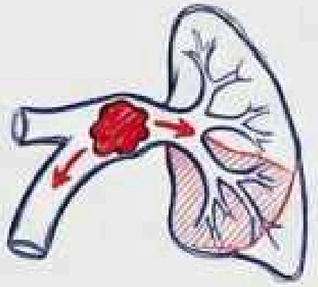
[¶ 2.1]

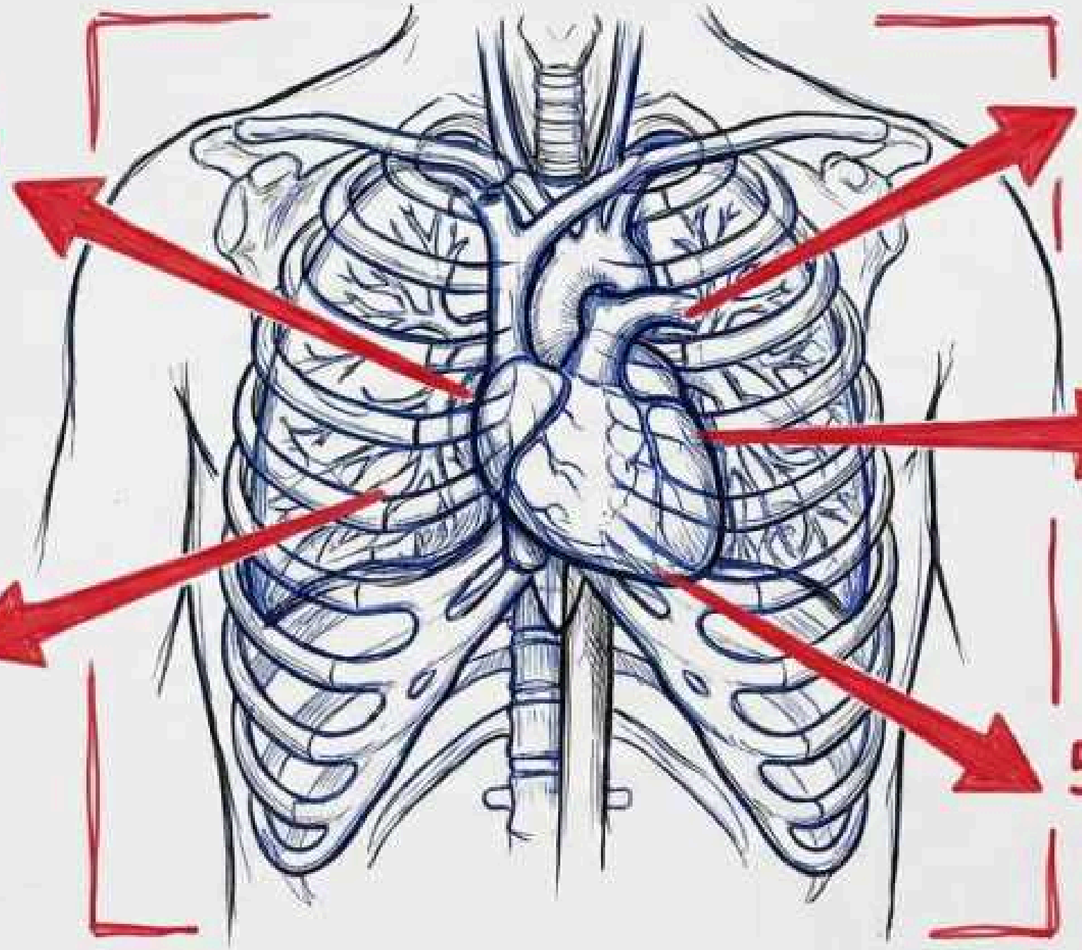
Most cases are not cardiac. The absolute priority is rapid identification of immediate threats.

1. Acute Coronary Syndrome (ACS)



2. Pulmonary Embolism (PE)

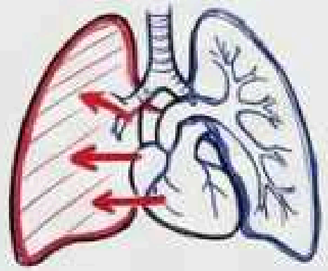




3. Aortic Dissection



4. Tension Pneumothorax



5. Rupture of the Oesophagus

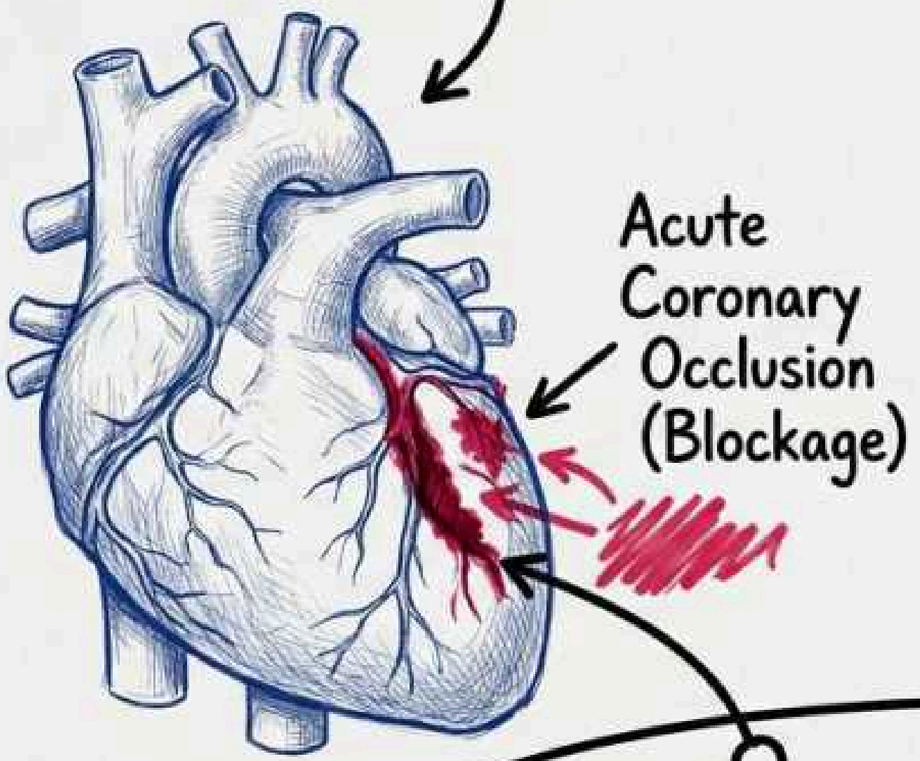


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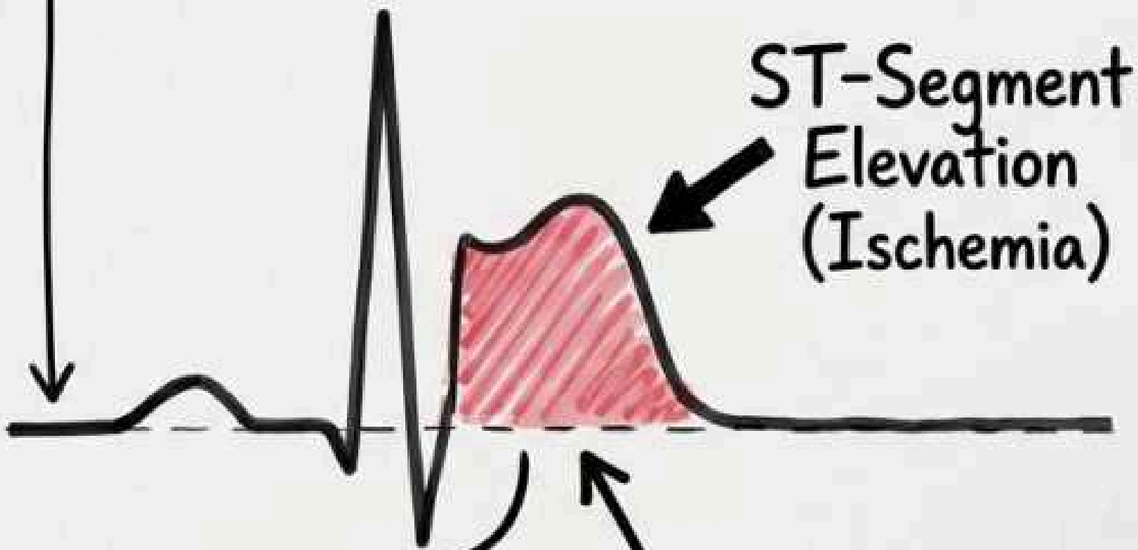
The 12-Lead ECG Detects Ischemia in Minutes

[¶ 2.2]

Protocol: Record ECG within minutes of arrival for any potentially cardiac pain.



Acute Coronary Occlusion (Blockage)



ST Elevation + Right Clinical Setting = Blocked Artery

↳ Requires immediate reopening, usually via angioplasty (Ref: Med 521 B).

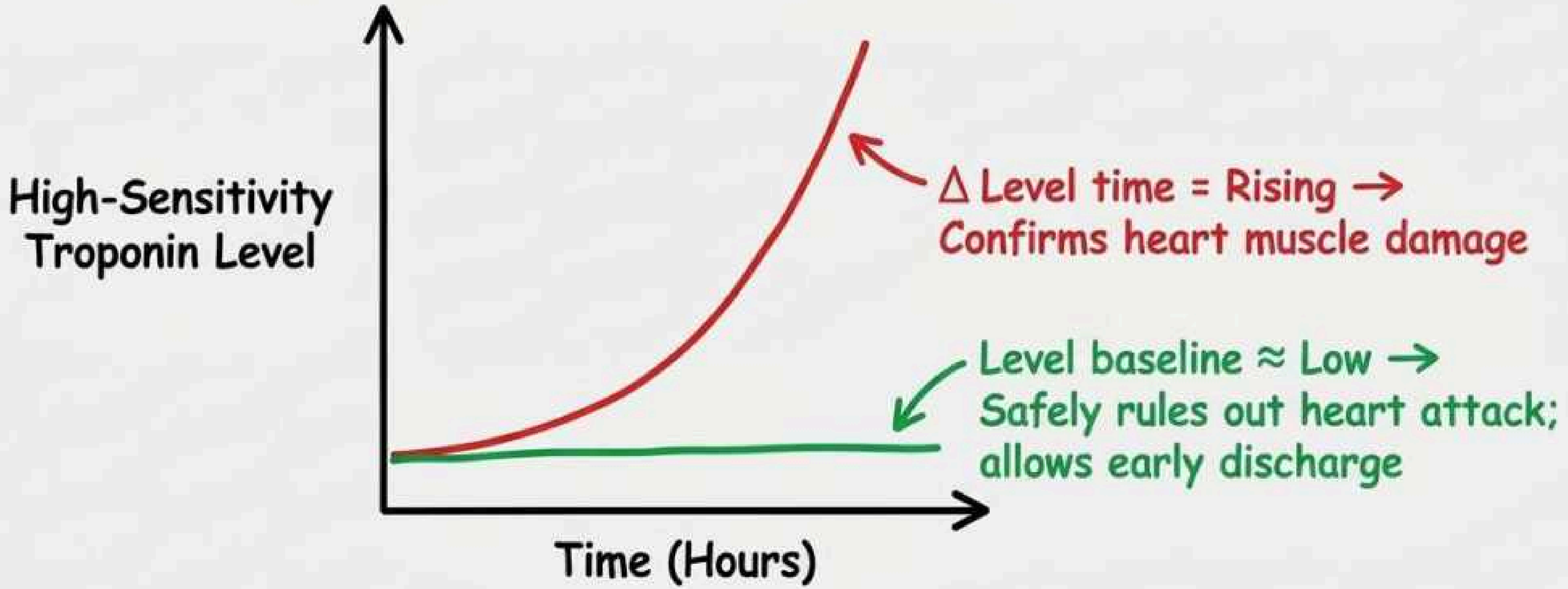
Gemini Notebook

[¶ 2.3]

Rising Troponin Dynamics Confirm Myocardial Damage

Definition: Protein released exclusively from damaged heart muscle.

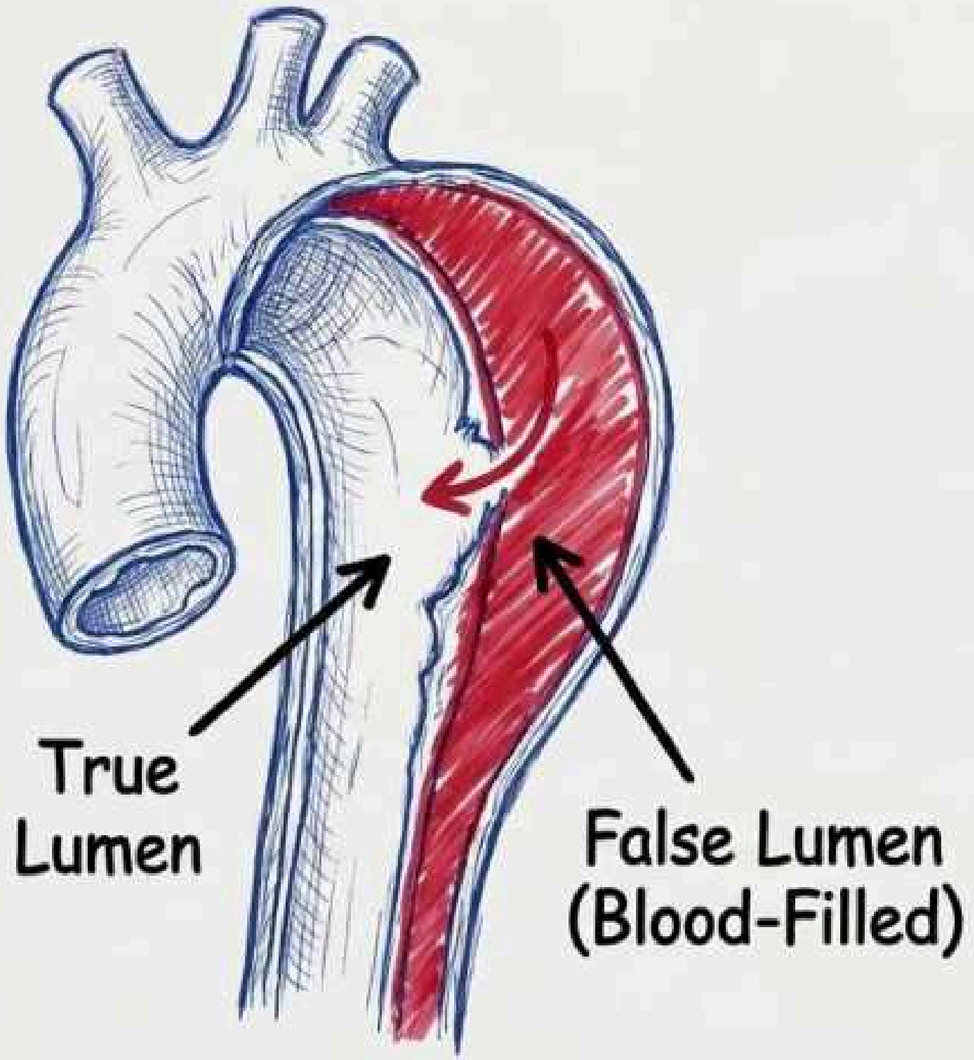
Testing Protocol: Baseline measure on arrival → Repeat 1 to 3 hours later.



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[¶ 2.4]

Aortic Dissection is a Deadly Intimal Tear



Clinical Presentation: Sudden, severe tearing pain radiating through to the back.

$$BP_{\text{Left Arm}} \neq BP_{\text{Right Arm}}$$

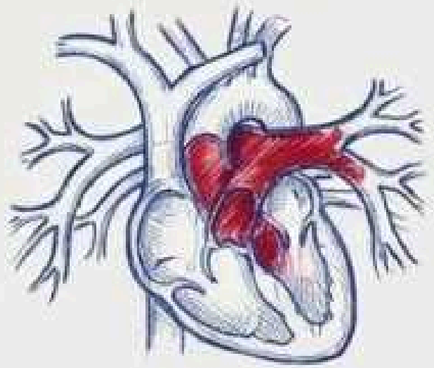
Confirmation Tool: CT Angiography.

CRITICAL WARNING: DO NOT treat with clot-dissolving drugs.

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Pulmonary Embolism Demands Swift Diagnostic Routing

[¶ 2.5]



Symptoms: Breathlessness, pleuritic pain (worse on breathing in), collapse

→

[Clinical Scores] + [D-dimer Test (Ref: Med 535 B)]

→

Determines need for CT Pulmonary Angiography

→ Standard: Anticoagulation

→ If in Shock: Clot-dissolving drugs

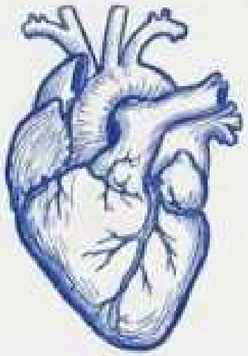
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Differentiate Breathlessness by the Failing System

¶ 2.6

Diagnostic Toolkit: History, Exam, SpO_2, Chest X-ray, ECG, Blood tests

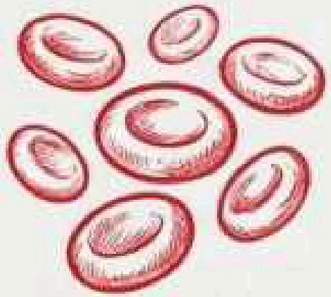
Heart
(e.g., Acute Heart Failure)

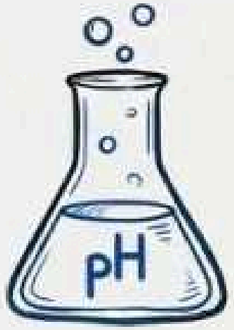




Lungs
(e.g., Pneumothorax)

Blood
(e.g., Anaemia)





Metabolic
(e.g., Acidosis)

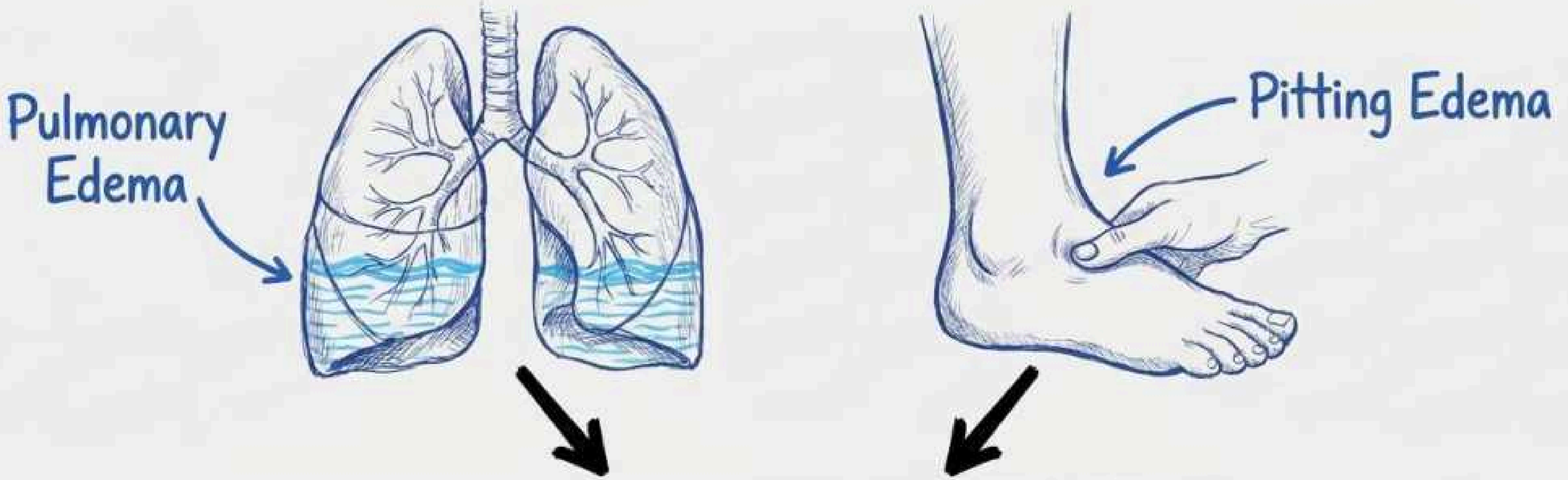
Sudden Onset → Assess for: PE ⩒ Pneumothorax ⩒ Acute Heart Failure

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Acute Heart Failure Manifests as Fluid Overload

[¶ 2.7]

Presentation: Breathlessness (especially when lying flat), fluid in lungs and legs.



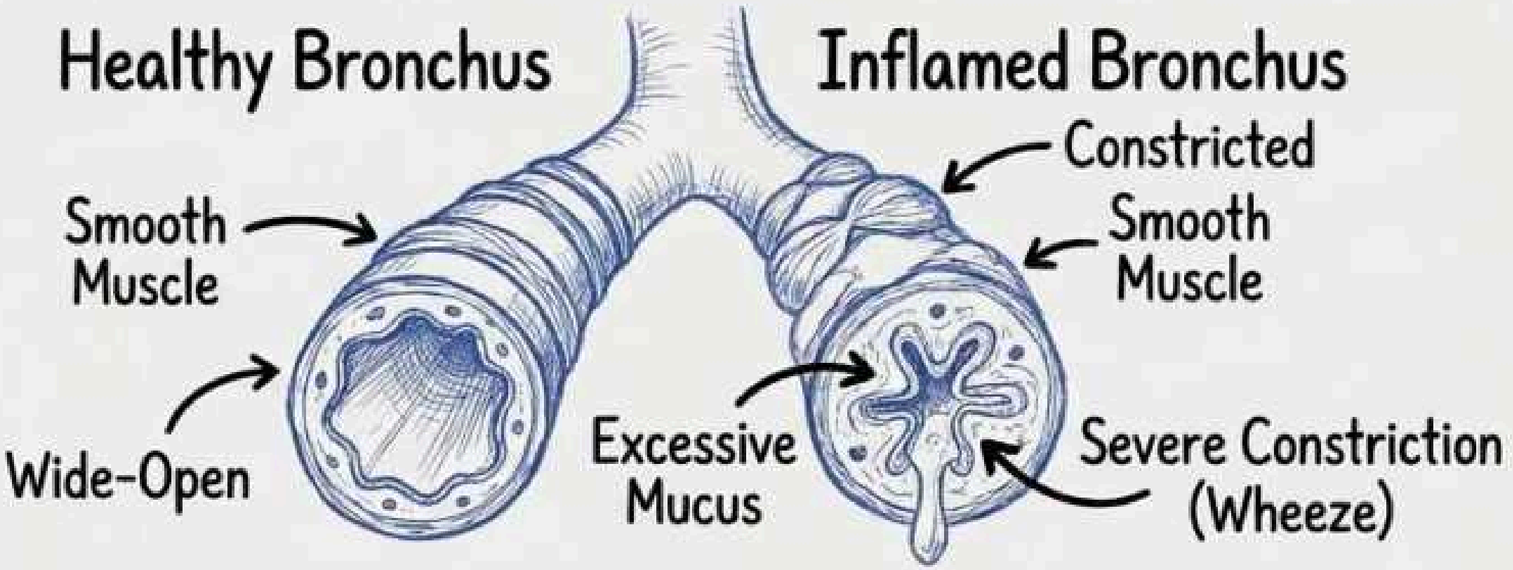
Intervention = O_2 (if needed) + Diuretics (fluid removal) + Root Cause **Resolution**

- **Root Causes to Fix:** Heart attack, arrhythmia, uncontrolled blood pressure.
- **Post-Stabilization:** Initiate/continue survival-improving drugs (Ref: Med 521 B).

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The COPD Oxygen Paradox Requires Strict Saturation Targets

[¶ 2.8]



Treatment: Nebulised bronchodilators, steroids, antibiotics (if infection likely).

The Danger: In COPD, excess O_2 can dangerously raise CO_2 levels.

$$88\% \leq SpO_2 \leq 92\%$$

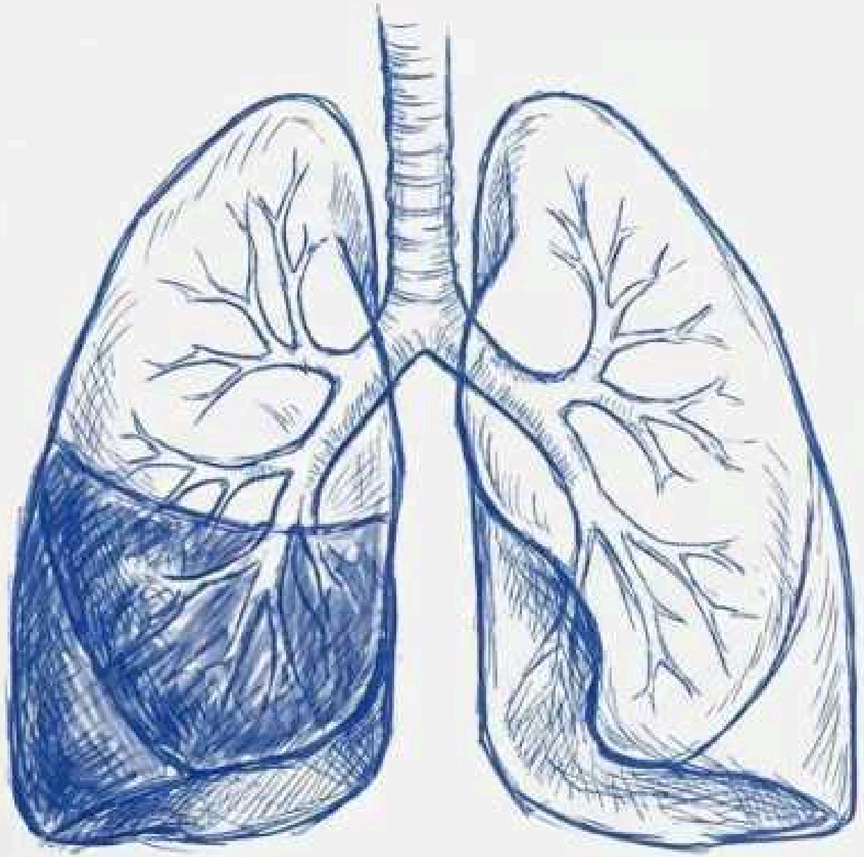
Escalation: Non-Invasive Ventilation (NIV) is required if CO_2 continues to rise.

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CURB-65 Scoring Dictates Pneumonia Hospitalization

¶ 2.9

Presentation: Cough, fever, breathlessness, pleuritic pain, new X-ray shadowing.



Confusion +

Urea +

Respiratory Rate (Breathing rate) +

Blood Pressure +

Age ≥ 65

= Severity Score (Determines hospital care)

Treatment: Antibiotics chosen based on severity score and local resistance patterns.

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The Silent Chest Signals Life-Threatening Asthma

[¶ 2.10]



Status: Absolute Emergency requiring rapid senior and critical care involvement.

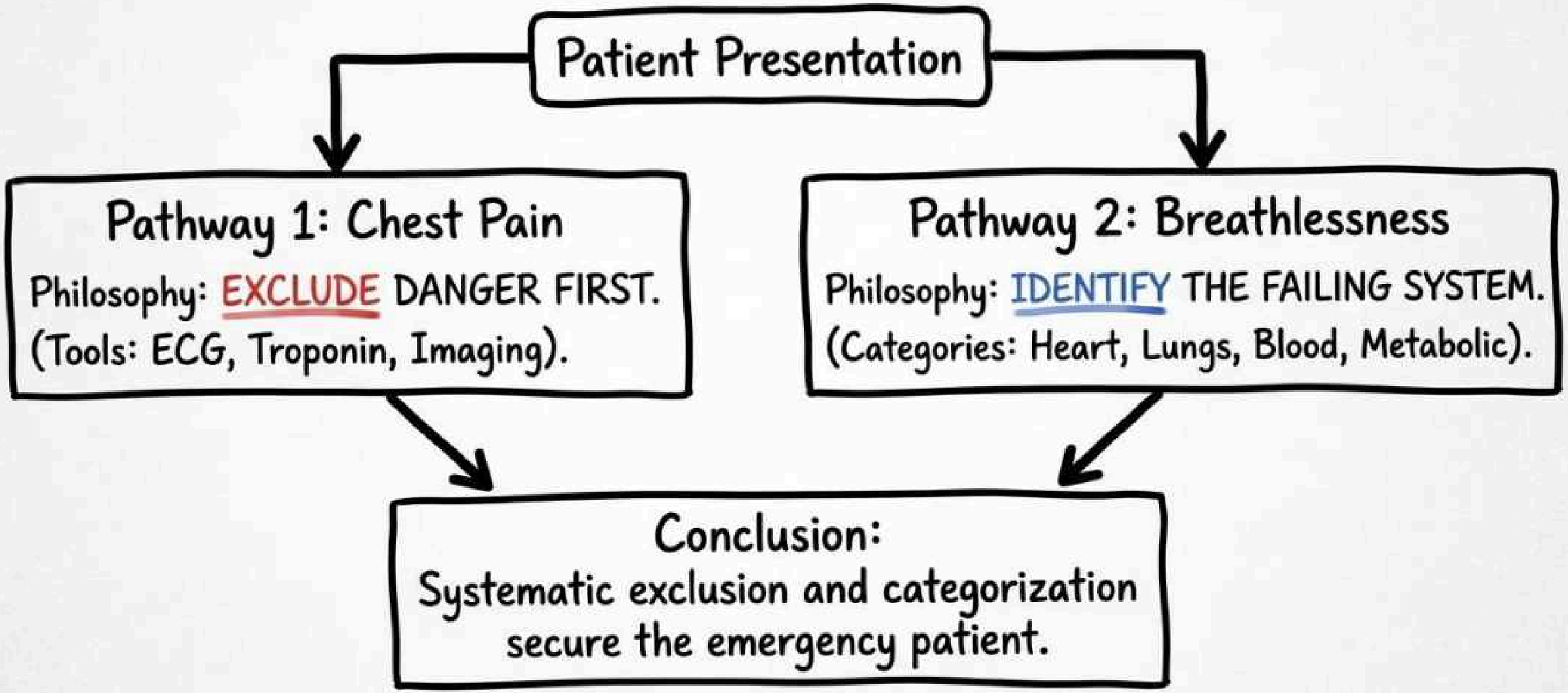
Critical Warning Signs: Inability to complete sentences, silent chest, low oxygen, exhaustion.

The CO2 Trap: Normal or rising CO2 in a patient who should be hyperventilating (breathing it off) indicates impending respiratory failure.

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Algorithmic Triage: Parallel Pathways for Thoracic Symptoms

[¶ 2.11]



Looking Ahead (Lecture 3): Sepsis and Infection.

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