Computed Tomography (CT)
The Pulmonary Embolism Study

Our role as the Technologist.

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Outline

- Definition
- Symptoms
- CT Protocol
  - Setting up the exam
  - Scanner Parameters
- Diagnostic Pitfalls

Rewarding or Frustrating?

A little of both.

Kind of like golfing!

What is a Pulmonary Embolism?

- Clot

Clot in Lower Extremity

Clot formed in the lower extremities
What is a Pulmonary Embolism?

- Clot
- Formed in lower extremities
- Travels to the lung

Acute PE

- Filling defects within the pulmonary arteries, typically at branch points
- Cine

The rare: Chronic PE

- (Chronic thromboembolic pulmonary hypertension)
- Typical organized clot along the side of the vessel
- Surgically removed clot

Why does it seem like half the patients in the E.D. need to be evaluated for a P.E.?
• There are no other tests that can effectively rule out a Pulmonary Embolus.
• Although over utilized, a CTPE can rule out an embolus and underlying diseases.
• Only about 20% of the CTPE studies are positive for emboli.
• It is rare for a patient to only have an isolated DVT and no PE.

Patient Symptoms

Physiologic Changes

Tachycardia
Leg Swelling
Syncope
Clammy skin / excessive sweating

Other Symptoms

Coughing
Shortness of Breath
Chest Pain
Weakened pulse

Hypercoagulable Patients

Cancer
Pregnancy
Surgical
Inherited
Immobility
Birth Control/HRT
Smokers
Prolonged Bed Rest
Long car or plane rides

Other Types of Patients Likely to Develop a PE include

Stroke
Myocardial Infarctions

What types of patients develop Pulmonary Emboli?

Hypercoagulable Patients
600,000 Episodes of embolus/thrombus occur every year in the US

50,000 Deaths that occur from embolus/thrombus in the US

The CTPE Exam

Exam completion time: 10-15 minutes
Can detect 70% of diseases other than a PE

Can detect 70% of diseases other than a PE
Only 3% are not diagnostic

Other Positive finding include...

COPD, Pneumonia, Infection, Cardiac Abnormalities, Cancer, Aortic Dissection

The Stanford Scanners

CT 1. 8-Slice MD Row Scanner
CT 2. 64-Slice MD Row Scanner
CT 3. 16-Slice MD Row Scanner
How to set up a CTPE

- Make your patient comfortable
- Explain the procedure
- Follow the protocol

PE Protocols (on all scanners*)

5.8 PULMONARY EMBOLISM (without veins)
5.9 PULMONARY EMBOLISM WITH LOWER EXTREMITY
5.10 PULMONARY EMBOLISM WITH ROUTINE A/P
5.11 PULMONARY EMBOLISM IN PREGNANT PATIENT *

* Pregnant PE on CT2 and CT3

How to set up a CTPE

Setting up the Scout

Still with me?

What was the original purpose of scanning our patients from the bottom of the lungs to the apices?