

Introduction

- One of the leading causes of emergency department visits are due to chest pain (Blanke et al., 2012). Pulmonary embolisms can be fatal if not caught at the right time and treated properly. Nearly 25% of pulmonary embolism cases were sudden death and 33% were ultimately fatal (Ahmed, Yousef, & Guichard, 2016). Computed Tomography (CT) is the most efficient imaging modality in diagnosing pulmonary embolisms due to its precision and speed. Pulmonary embolisms are the third leading cause of cardiovascular death (Morales-Borrero & Maldonado-Vargas, 2016).

What is a pulmonary embolism?

- “A pulmonary embolism is a blockage in one of the pulmonary arteries in your lungs caused by blood clots that travel to the lungs from the legs” (Mayo Clinic, 2018).
- According to the CDC (2018), as many as 900,000 people a year can be affected by pulmonary embolisms. That’s one or two out of one thousand people per year in the United States

Signs/causes of pulmonary embolisms

- Chest pain
 - Shortness of breath
 - Shallow breathing

 - Inactivity for a lengthy time
 - Clotting disorders
 - Birth control pills
 - Surgeries
 - Pregnancies
- (Cleveland Clinic, 2016)

What is CT?

- Computed Tomography (CT) is an imaging modality that uses cross-sectional imaging by taking images of the body in slices, not by a region like seen in general radiography.
- CT is a fast scanning, low dose modality and with the cross-sectional imaging it can pinpoint exactly where the pulmonary embolism is at within the lungs.
- Computed Tomography Angiography (CTA) imaging is protocol for pulmonary embolism signs and symptoms. This uses contrast to light up the vessels to see where the blockage is located.
- Other modalities such as MRI would be able to find a pulmonary embolism, but would take far too much time. In cases where time is of the essence, a CT scan is what’s needed.



Filling defect in pulmonary artery, suggesting pulmonary embolism.

<http://www.stitch.luc.edu/lumen/MedEd/Radio/curriculum/Medicine/PE1.htm>

Conclusions

- CT scans are the initial response to pulmonary embolism symptoms
- Without the fast scanning, cross-sectional imaging modality of CT, pulmonary embolisms could be detected entirely too late or not at all resulting in patient mortality.

References

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