Does the Position of the Arm during Intravenous Contrast Administration alter Image Quality in Computed Tomography Pulmonary Angiography (CTPA)?

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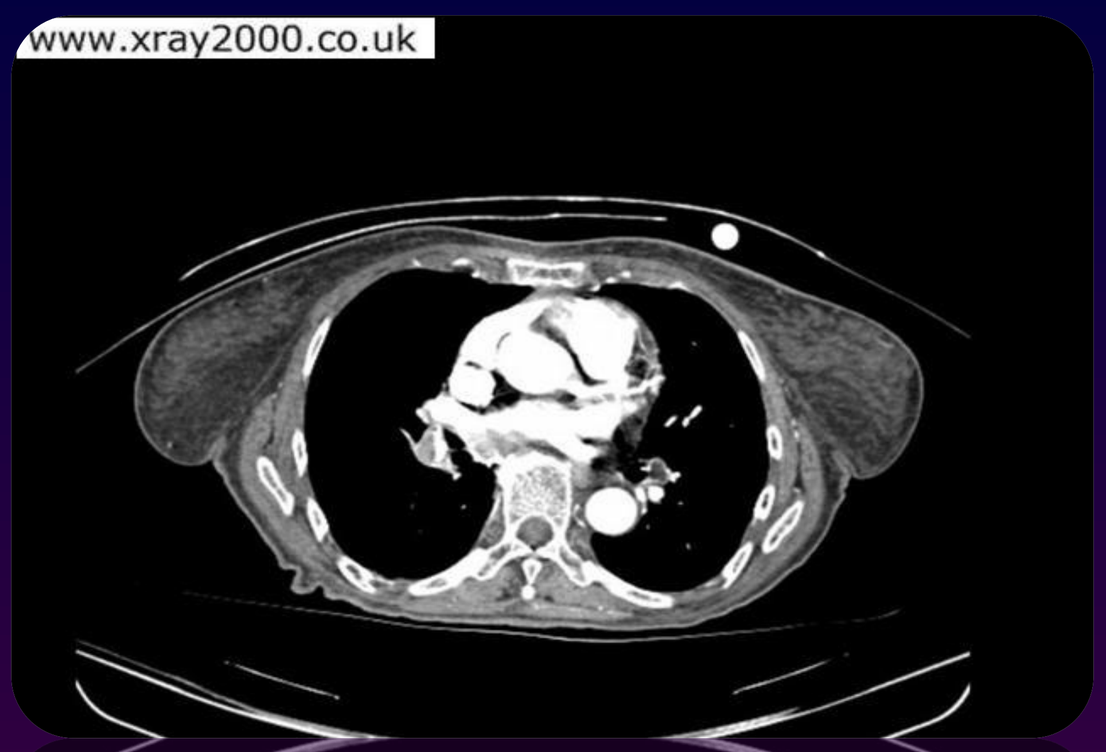
Pulmonary embolism (PE) is the sudden blocking of a pulmonary artery, commonly by a blood clot.PE can be very difficult to diagnose clinically and is potentially fatal carrying a 30% mortality rate if untreated [1].

In the UK 10% of all hospital deaths equating to 1% of all hospital admissions have been shown to be attributable to PE [2].



With the advent of multi-slice computed tomography (MSCT), CTPA is recognised as the gold standard imaging test for PE [3 4 5].

Optimal arterial visualisation is crucial in the depiction of these pulmonary vessels, allowing the vessels to be depicted as high attenuation structures on the resultant image.

Arterial attenuation of arterial vessels is in the main determined by contrast flow rate and concentration [6].

Study Aims

- To assess whether there is indeed any difference in image quality at the level of the pulmonary vessels due to “drag and flow” artefacts caused by subclavian vessel compression when the arm (site of injection) is raised, using contrast/noise ratio measurement.
- To assess subjective image quality of each CTPA technique (blinded observer s /inter-observer agreement).
- To measure sensitivity and specificity of CTPA sample for each technique (Follow up at 3 months).
- To measure radiation dose for each technique.

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