We hypothesized that injecting via an implanted arm port would produce better-quality images, the result of more appropriate timing and less streak artifact” Verity et al (2017).

Abstract:

Background: The safety of power-injectable implanted arm ports is well established, but there is insufficient data to conclude that image quality of computed tomography resulting from contrast introduced via the port is of equal quality to images derived from contrast introduced via traditional peripheral access. The objective of this study was to determine whether the image quality of computed tomography pulmonary embolism and computed tomography aorta studies would differ when injecting contrast via an implanted arm port vs a peripheral intravenous site. We hypothesized that injecting via an implanted arm port would produce better-quality images, the result of more appropriate timing and less streak artifact.

Methods: Scans from a provincial database search for patients who underwent a computed tomography pulmonary embolism or aorta study with contrast injection via the implanted arm port and thin section images available, were reviewed (pulmonary embolism studies n = 3, aorta studies n = 3). Only a limited number of patients were available for review because there are currently few patients with these ports in place and we limited evaluation to thin section images. Comparison was made with 6 control patients who did not have a port and had received a peripheral arm intravenous contrast injection for these study types. Objective measurements included signal-to-noise ratio and contrast-to-noise ratio of the pulmonary arteries (4 sites) and aorta (2 sites) as appropriate for scan type. Subjective analysis of image quality was performed by 2 radiologists.

Results: Although sample size was limited, the implanted arm port group had similar or higher mean signal-to-noise ratio and contrast-to-noise ratio values at all sites. Subjective assessments showed the implanted arm port group to have similar or better opacification and diagnostic confidence; similar or less streak artifact was also observed at each of the sites.
Conclusions: These exploratory results suggest that studies with implanted arm port injection can generate high-quality images on both objective and subjective assessment, similar to, or possibly better than, images generated from usual peripheral intravenous access for contrast injection.

Reference:


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