

ECG-gated 64-MDCT angiography –Diagnosis of acute aortic dissection

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PURPOSE

The purpose of this study is to show the value of ECG gated 64-MDCT as a non-invasive and reliable method for the evaluation of acute aortic dissection with significantly reduced motion artefacts of the thoracic aorta and the supraaortic vessels, at the same time allowing non-invasive assessment of the coronary arteries as part of the aortic root evaluation.

MATERIALS AND METHODS

In 2010 we performed 375 aortic examinations according to the current standard cardiac protocol (SSS) used at our hospital, with retrospective ECG gated technique using GE 64 VCT Light Speed, 0.625mm slice, 120 KV, 750 mA/s. With the contrast agent administered before, scanning was continued with 1.2mm slice standard helical protocol for the abdominal aorta (volume 90-100 ml/5ml/sec).

Premedication with β - blockers was administered in all hemodynamically stable patients with heart rate > 70 bpm. The postprocessing series were performed on GE working station 4.3.

RESULTS

Excellent image quality was achieved in 346 (92%) examinations with adequate contrast enhancement of the coronary arteries and aorta. 11 (2.95%) examinations were without useful diagnostic value (poor cooperation of the patient, high HR). In 18 (4.8%) examinations standard helical protocol 1.2 mm slice had to be used due to high calcium score.

Beside aortic dissection and coronary stenosis, pulmonary embolism was detected in 9 cases.

CONCLUSION

We emphasize the incremental value of this non-invasive examination that can confirm a suspected aortic dissection Stanford type A, helping the planning of surgical treatment and at the same time successfully evaluate the coronary arteries. Still, heart rate and breath holding seem to be crucial factors that determine the reliability of coronary artery evaluation.