

CTA Of The Aortic Root And Valve

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Cardiovascular of the thoracic aorta, especially in the area of aortic root and valve, is a diagnostic challenge. Conventional CT of the chest may not be able to diagnose the disease of this area because of cardiac motion artifact. Although CT of the thoracic aorta is the study of choice to define the severity and extent of the aortic disease, small pathology at the aortic valve could be overlooked with non-gated CT scan of the chest. Bicuspid aortic valves could be visualized with non-gated CT of the chest but with less confident than ECG-gated cardiac CT. When pathology around aortic root or aortic valve is suspected, ECG-gated CT scan should be the imaging of choice.

The protocol for ECG-gated CTA of the aortic root and valve is similar to cardiac CTA after bypass graft surgery, in term of adequate coverage from ascending aorta to apex of the heart. Using at least 64-section CTA with high temporal resolution during rapid IV injection of nonionic contrast material, most of the diseases of aortic root and valve could be confirmed. With this protocol , high quality images, such as coronary anomaly from abnormal position of its sinus of valsava could be clarify. Aneurysm of sinus of Valsava with or without rupture to adjacent cardiac chamber has been shown with high accuracy, which is for surgical planning. In patients with connective tissue disorders, the disease such as Marfan syndrome, aneurysmal dilatation of the ascending aorta with extension into the sinus of Valsava could be identified. Association of bicuspid valve or complication such as aortic dissection with or without coronary artery dissection could also be easily seen.

The drawback of this technique is high radiation dose exposure.

In this topic, details of various aortic conditions will be discussed, including abnormality of the supraaortic, sinus of Valsava, aortic valve and subaortic valve areas. In addition, preoperative planning or post-operative procedures, such as aortic valve replacement, will be shown.