
# How can multidetector CT helps in better characterization of the aortic arch and carotid anomalies

Essay

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in

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# List of Abbreviations

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|---|---|
| **AA** | Aortic arch |
| **CCA** | Common carotid artery |
| **ICA** | Internal carotid artery |
| **ECA** | External carotid artery |
| **CECT** | Contrast enhanced CT |
| **RAA** | Right aortic arch |
| **ALSA** | Aberrant left subclavian artery |
| **DK** | Diverticulum of Kommerell |
| **PA** | Pulmonary artery |
| **RV** | Right ventricle |
| **LV** | Left ventricle |
| **TGA** | Transposition of great arteries |
| **L-TGA** | Levo-Transposition of great arteries |
| **D-TGA** | Dextro-Transposition of great arteries |
| **VSD** | Ventricular septal defect |
| **IAA** | Interrupted aortic arch |
| **PDA** | Patent ductus arteriosus |
| **SVAS** | Supravalvular aortic stenosis |
| **DA** | Descending aorta |
| **RSA** | Right subclavian artery |
| **LSA** | Left subclavian artery |
| **DAA** | Double aortic arch |
| **MPA** | Main pulmonary artery |
| **AbICA** | Aberrant internal carotid artery |
| **PFO** | Patent foramen ovale |
| **ATCM** | Automatic tube current modulation |
| **ASIR** | Adaptive statistical iterative reconstrution |

# INTRODUCTION

Congenital anomalies of the thoracic vascular system are an important cause of morbidity and mortality in infants and children. Anomalies in the developmental process of the aortic arch and its main branches have clinical importance, as the anomalies may be associated with other congenital cardiovascular diseases or vascular rings around the trachea and esophagus that may or may not be symptomatic depending on the location and degree of compression ***(Ramos-Duran et al., 2012).***

Multiple imaging modalities, such as chest radiography, barium oesophagography, echocardiography, CT, MRI and conventional angiography, are used to diagnose the anomalies and plan possible treatment.

Conventional radiology detects the presence of anomalous compressions of the trachea and oesophagus. However, in most cases, it is not sufficient alone to accurately diagnose the vascular abnormalities. Although echocardiography is a useful and safe technique for the diagnosis of thoracic vascular anomalies, angiography is usually necessary for definitive anatomical evaluation, especially before surgery. Digital subtraction angiography is the gold standard for detection of extracranial vascular anomalies. However, the sensitivity and specificity of MDCT angiography are reported to be high ***(Silvennoinen et al., 2007).*** Digital subtraction angiography is also an invasive technique that has several disadvantages including long procedure time, need for sedation, arterial puncture and rare potential complications such as dissection and occlusion.

CT angiography is a preferable modality of diagnosis for arterial disease as an alternative to conventional angiography, because it is safer, less time