

Role of MRI in venacaval anomalies of complex congenital heart disease

T. K. KAPILAMOORTHY¹, N. Bodhey², and T. Titus²

¹RADIOLOGY, S.C.T.I.M.S.T., TRIVANDRUM, KERALA, India, ²SCTIMST

Purpose :

Both superior and inferior venacaval anomalies are associated with complex congenital heart disease like various heterotaxy syndrome. The purpose of the study is to define the role of MRI in depiction of these venous anomalies. The efficacy of various sequences of MRI in depicting the lesion is also studied.

Outline of Content:

52 patients with complex congenital heart disease were imaged with 1.5 T MRI (Avanto Siemens). The following sequences were used a) Black blood imaging using fast spin echo double inversion recovery and / or conventional spin echo with echo planar imaging (EPI) readout b) Cine sequences include true fisp sequences c) Three-dimensional sequences were also used in selected cases

Various Superior venacaval anomalies includes persistent left Superior venacava draining into coronary sinus , idiopathic dilatation of SVC. Inferior venacaval anomalies include intrahepatic interruption with azygos continuation seen in poly splenia syndrome, interrupted venacava connected to left SVC . The demonstration of these anomalous connections were best done in True fisp cine sequences with 4 mm thickness with no interslice gap. Both coronal and axial images were used to demonstrate the cava. Black blood imaging was also in coronal planes. 3 D MR angiography was also done in all cases with intravenous infusion of 0.2 mmol/kg gadolinium contrast agent.

Summary:

MRI provides several advantages over ultrasonography for evaluation of vascular structures including flow analysis and cardiac function. Serial accurate measurements of size increase of cava and aorta with higher degree of reproducibility is possible. Apart from morphological evaluation, functional evaluation in the form of flow velocity/volume quantification, including QP/QS, stroke volumes, and regurgitant fraction etc can also be done in congenital heart disease.