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Cardiac magnetic resonance imaging features of a rare cardiac genetic disorder: Arrhythmogenic right ventricular dilated cardiomyopathy

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Objective: To emphasize the diagnostic role of cardiac magnetic resonance imaging (CMRI) in arrhythmogenic right ventricular cardiomyopathy (ARVC).

Method: CMRI of a young Asian female who presented with palpitations and history of sudden death in the family, imaged by a 3.0 Tesla MRI scanner with a maximum gradient strength of 33mT/m and a 16 element phased-array coil with electrocardiography gating.

Result: Right ventricle (RV) showed areas of increased signal intensity on T1 weighted images, at the epicardial border extending inwards upto endocardium as a result of fatty infiltration. There was no obvious right ventricular dilatation; systolic function was impaired with an ejection fraction of 36%. Dysynchronous right ventricular contraction in addition to areas of akinesis was observed. Scalloping of the right ventricular free wall was evident, fulfilling the major criterion for the diagnosis of ARVC. Left ventricle had a normal wall thickness but impaired function with an ejection fraction of 41%. Global hypokinesis with severe septal involvement was seen, a regional wall motion abnormality which is a minor criterion in the diagnosis. Presence of mild mitral regurgitation resulting in mild left atrial dilatation and moderate right atrial dilatation due to tricuspid regurgitation were associated features. Aortic and pulmonary valves were normal. Diffuse delayed enhancement of transmural right ventricular free wall, right ventricular trabeculations and mild right ventricular septal enhancement on the post contrast phase was noted

Conclusion: ARVC can be diagnosed by CMRI using the revised task force criteria, can prevent unnecessary cardiac procedures & interventions.

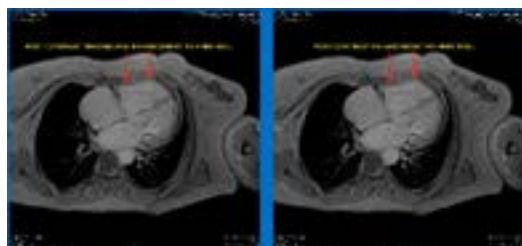


Fig 1: Free wall outpouching of the right ventricular wall (Balanced Turbo field echo SENSE sequence vertical long axis)

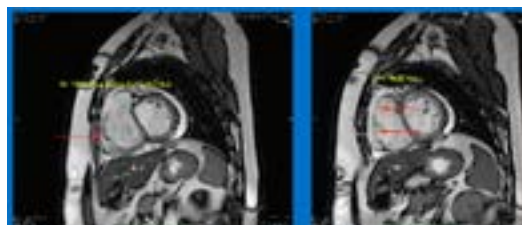


Fig 2: Transmurial enhancement of right ventricle free wall (Post contrast Phase sensitive inversion recovery SENSE sequence long axis)

Biography

Praful Kakumanu has completed his MBBS from the NTR university of Health Sciences, India and graduated in 2007. He obtained a masters degree (MD Radiology) from the same university in 2012. He is currently working as an Assistant prof since 5 years at Dr Pinnamaneni Siddhartha institute of medical sciences, Vijayawada, India. He is also working as consultant at Best diagnostics and imaging, Vijayawada, India. He is the partner and director of Pramodini diagnostics.

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