Poster Session -- Clinical case poster session 1

P122

Aetiology of right ventricular mass defined by CMRI

Briosa E Gala A.; Dimarco AD.; Adam R.; Peebles C.; Haydock P.; Harden S.; Flett A.

University Hospital Southampton NHS Foundation Trust, Southampton, United Kingdom of Great Britain & Northern Ireland

A 51-year-old man was admitted to Coronary Care Unit in December 2018 following a syncopal episode. His medical history was notable for a surgically resected left-sided papillary renal cell carcinoma six months earlier which at diagnosis was staged as T3BN1M0. Macroscopically, the tumour had extended into the distal renal vein but not into the inferior vena cava. A surveillance Computed Tomography (CT) scan two months later was highly suggestive of thrombus in the right ventricle (RV) and multiple pulmonary emboli but no evidence of tumour recurrence. Transthoracic echocardiography (TTE) at this time confirmed the presence of a mass in the right ventricle but did not help differentiate the nature of the mass. He was anticoagulated with low molecular weight heparin on the presumption of RV thrombus secondary to hypercoagulable status. The patient made a good functional recovery.

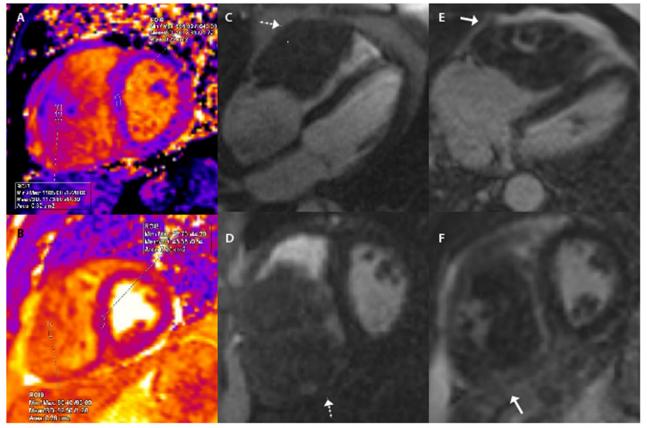
On admission repeat TTE showed a dilated right ventricle with a large heterogeneous mass filling almost the entire cavity causing obstruction of the right ventricular outflow tract (RVOT). Notably the right atrium was free of filling defects. These findings raised the possibility of either RV thrombus expansion, despite anticoagulation, or neoplasm within the right ventricle.

To further characterise this mass and address the diagnostic uncertainty we performed a Cardiac Magnetic Resonance (CMR) scan. This revealed a large mass virtually filling the RV with near occlusion of the RVOT. There was abnormal interventricular septal motion suggestive of RV overload. T1-weighted images the mass had intermediate signal. T2 maps revealed increased T2 and T1 of 62 ms (normal 35-55ms) and 1200 ms (normal <1060ms) respectively. Following administration of gadolinium and first-pass perfusion sequence there was uniform enhancement of the mass suggestive of arterial blood supply virtually ruling out thrombus. On delayed enhancement images the majority of mass had similar intensity to the myocardium. The combination of these findings was in keeping with a malignant tumour or metastasis. The patient was referred to the cardiac surgeons for excision of the mass but after discussion with his oncologist elected for palliative chemotherapy.

Cardiac metastasis from RCC are rare with direct tumour extension through the inferior vena cava being the most common mechanism. This case shows an extremely rare presentation of a isolated right ventricular mass which, despite it is large size and subtotal occlusion of the RVOT, was asymptomatic until the disease was advanced. It was initially characterised as a thrombus on CT and due to its rapid increase in size almost complete filling the right ventricle it was overlooked on follow-up scans. Superior tissue characterisation using T1 and T2-weighted images, excellent contrast resolution, first-pass perfusion imaging and LGE make CMR a powerful and robust tool in the assessment of cardiac masses as demonstrated in this case.

Abstract P122 Figure. Cardiac Magnetic Resonance Image

ii68 Abstracts



Short axis CMR showing increased T1 time of 1173 ms and T2 time of 60ms (Panel A and B). 4 chamber view (Panel C) and short axis view (Panel D) first pass perfusion CMR showing coronary artery supply to the mass (white interrupted arrow). 4 chamber view (Panel E) and short axis (panel F) LGE showing scarring (white arrow).