

Case Report: Cardiac MR Imaging of a Rare Primary Cardiac Angiosarcoma

MR Moynagh¹, A Mc Gee¹, A Cradock¹, M Da Costa³, J Bruzzi², JG Murray¹

¹Dept. of Radiology, Mater Misericordiae University Hospital, Dublin, Ireland

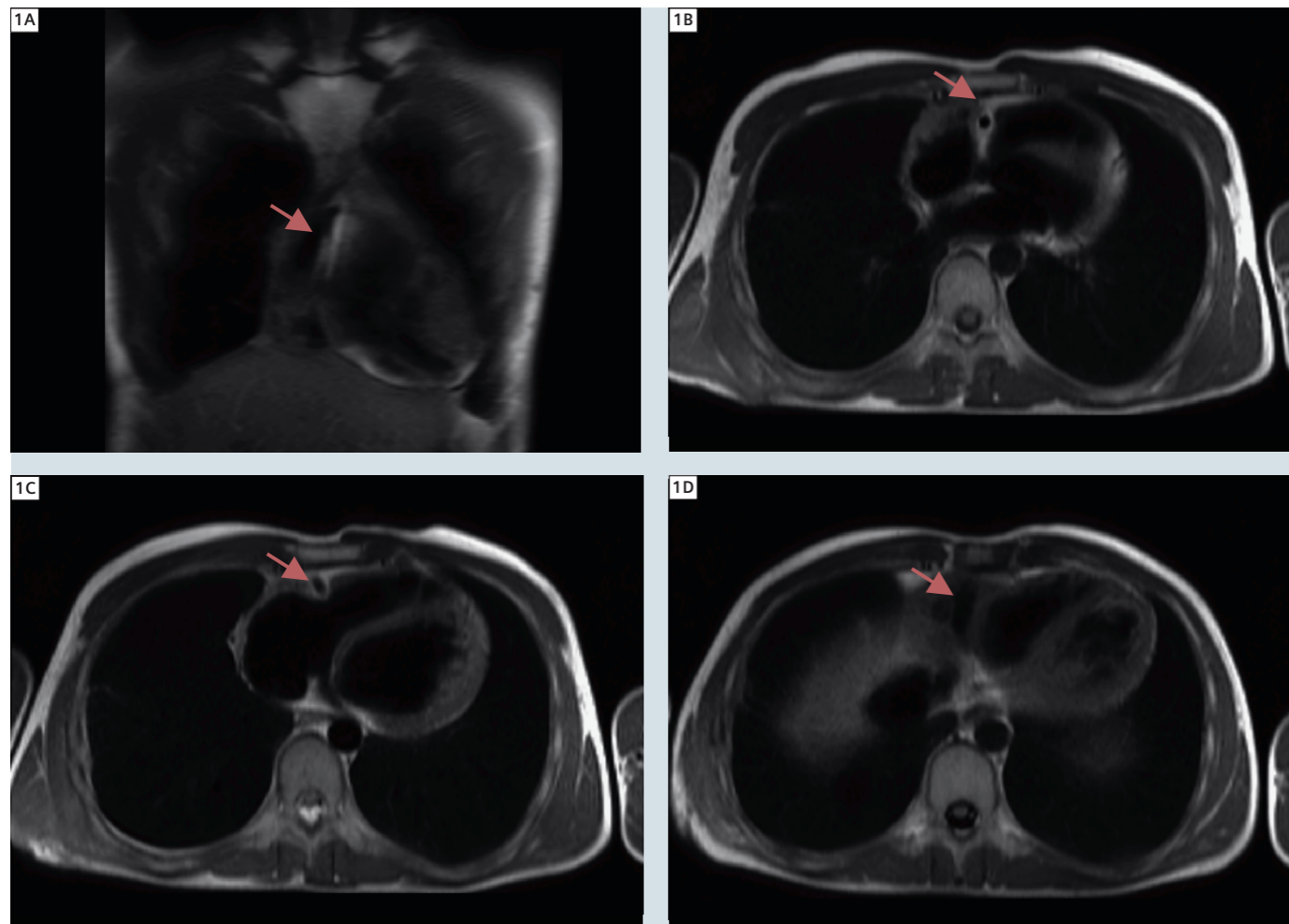
²Dept. of Radiology and ³Dept. Surgery, University College Hospital Galway, Galway, Ireland

Clinical details

A 24-year-old male was admitted under the cardiology service of a university hospital with dyspnoea and a new onset systolic murmur. Echocardiography and

CT demonstrated a mass overlying the right heart, with possible pulmonary metastases. Histology from closed chest biopsy was suggestive of a cardiac

angiosarcoma, however resectability status and exact diagnosis was unclear. The patient was then referred to the Radiology Department of the National



1 Coronal (1A) and transversal (1B–D) showing a mass at the ventral border of the right ventricle. A large feeding right coronary artery can be seen; because of the clear flow-void phenomena (arrows), higher flow within the right coronary artery has to be assumed.

Centre for Cardiothoracic Surgery for further assessment. Cardiac MRI was performed to further characterize the right atrial mass and identify the relationship to coronary vasculature.

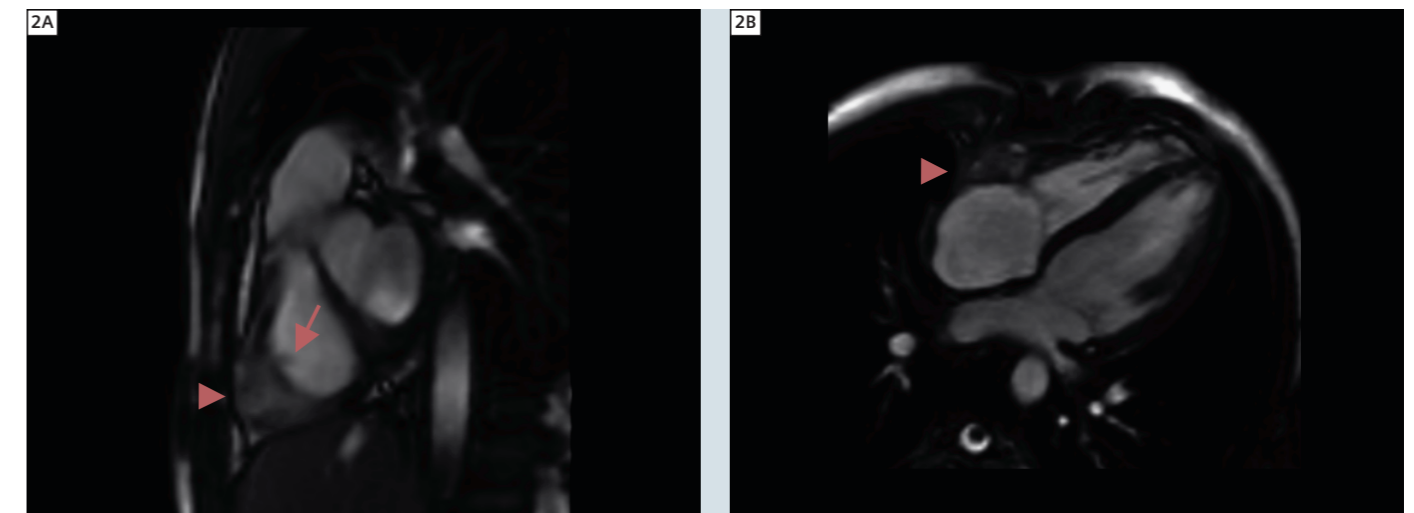
Sequence details

All images shown were acquired at a 1.5T MAGNETOM Symphony, A Tim System with a combination of the Body Matrix coil and spine coil elements. The

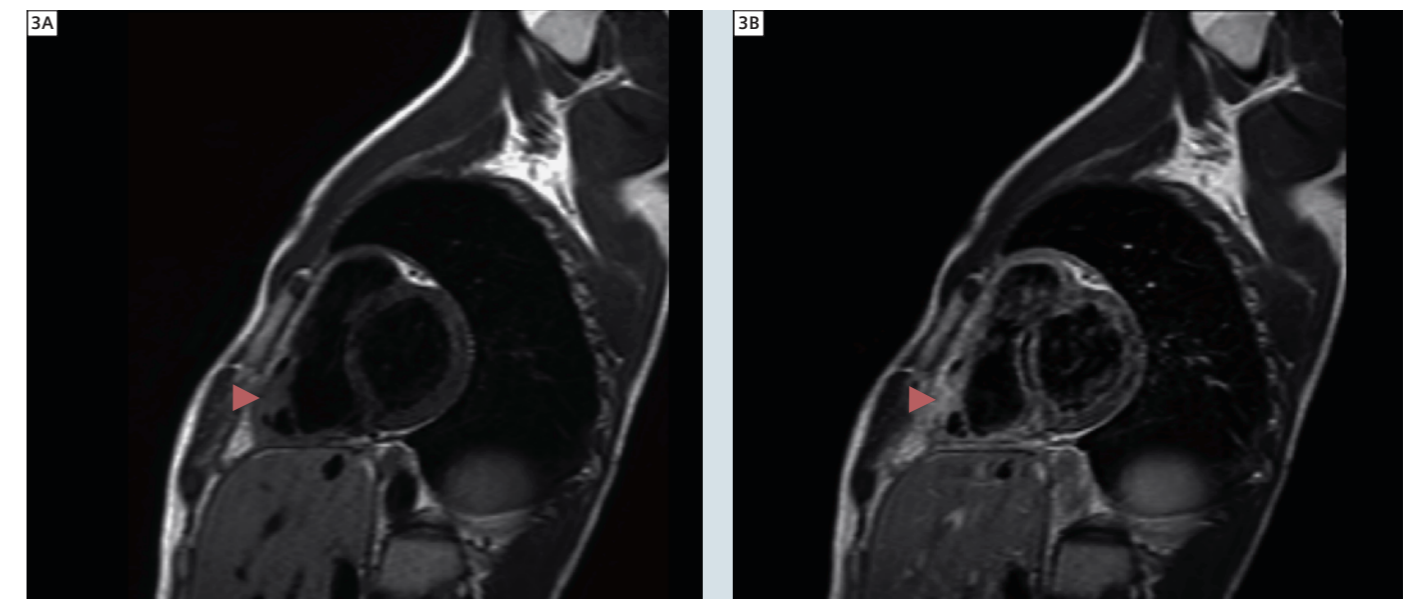
imaging protocol included transversal and coronal HASTE, 4-chamber view and oblique oriented transversal cine-True-FISP and pre- and postcontrast 2D FLASH in transversal and oblique sagittal planes. For assessment of the vascular architecture of the lesion, a highly temporal resolved MR angiography was applied, using the syngo TWIST technique (TR / TE = 3.29 / 1.39 ms; FOV 400 mm, matrix 294 x 448, temporal resolution 6 s).

Imaging findings

6 x 4.3 cm intensely enhancing mass overlying the anterior margin of the right atrium and right ventricle, which extended across the atrioventricular groove to about the free wall of the right ventricle. The right coronary artery and adjacent cardiac vein were partially encased, with intimate relationship to the tricuspid valve ring. Direct blood



2 Cine TrueFISP sequences are shown. In Fig. 2A a small irregular signal-loss can be seen on the sagittal oblique view (arrow), indicating a draining vein to the right ventricle.



3 Avid enhancement of the mass was observed, suggesting angiosarcoma.



4 Thinslice MIP of the syngo TWIST MR Angiography are shown. Temporal resolution was 6 seconds. A large arterial feeder (right coronary artery) and vascular mass can be seen in Fig. **4B** (VRT of the vessel shown in **4L**). An atypical enhancement of the blood within the right ventricle can be seen in Figs. **4G** and **4I**, indicating a potential shunt between the mass and the right ventricle.

supply arising from the right coronary artery and probable partial venous return directly to the right atrium. Image findings were consistent with a cardiac angiosarcoma.

References

1 Best AK, Dobson RL, Ahmad AR. Best cases from the AFIP, Cardiac Angiosarcoma. *Radiographics* 2003 ; 23:S141-S145. Erratum in: *N Engl J Med* 1991; 325(18):1324.

2 Kalra MK, Abbara S. Imaging cardiac tumors. *Cancer Treat Res.* 2008; 143:177-196.
 3 Neragi-Miandoab S, Kim J, Vlahakes GJ Malignant tumours of the heart: a review of tumour type, diagnosis and therapy. *Clin Oncol (R Coll Radiol).* 2007 Dec;19(10):748-56.
 4 Kurian KC, Weisshaar D, Parekh H, Berry GJ, Reitz B. Primary cardiac angiosarcoma: case report and review of the literature. *Cardiovasc Pathol* 2006 Mar-Apr;15(2):110-2.

Contact

Dr. John Murray, M.D.
 Dept of Radiology
 The Mater Misericordiae University
 Hospital
 Eccles Street
 Dublin 7
 Ireland
 jmurray@mater.ie