Multi-modality imaging in the assessment of a metastatic cardiac rhabdomyosarcoma presenting with recurrent ventricular tachycardia

David G. Platts1,2*, Mohamed Morsy1,3, and Darryl Burstow1,2

1Cardiac Investigations Unit, Department of Echocardiography, The Prince Charles Hospital, Rode Rd., Chermside, Brisbane, QLD 4032, Australia; 2School of Medicine, The University of Queensland, Brisbane, QLD, Australia; and 3Department of Anaesthesia and Intensive Care, Minia University, El-Minia, Egypt.

* Corresponding author. Tel: +61 731395576; fax: +61 731394426, Email: dgplatts@hotmail.com, david_platts@health.qld.gov.au

A 45-year-old male presented with an out of hospital cardiac arrest due to rapid ventricular tachycardia (VT). Past history included a melanoma excision and left tibia sarcoma treated with local excision and radiotherapy 4 years previously. Initial transthoracic echocardiography (TTE) and coronary angiography were normal. The patient made a full recovery and was discharged after insertion of an implantable cardiac defibrillator (ICD). However, he represented to our institution 1 month later with a VT storm, resulting in over 100 shocks, depleting the ICD battery.

An electrophysiology study was inconclusive and no ablatable rhythm was detected. Repeat TTE revealed a thickened inter-ventricular septum (Panel A, Supplementary data online, Video S1). Myocardial contrast echocardiography demonstrated two large, well circumscribed, circular intra-myocardial perfusion defects in the mid-septum and distal infero-septum (Panels B and C, Supplementary data online, Videos S2 and S3). These were also identified during late gadolinium-enhanced cardiac magnetic resonance imaging (Panels D and E). Three-dimensional TTE-guided endomyocardial biopsy of the mid-septal lesion was performed, revealing non-specific fibrosis, and thrombus. Consequently, surgery was performed, with excision of the mid-septal mass (Panels F and G) but the distal lesion could not be fully excised. Histology demonstrated a sclerosing rhabdomyosarcoma (Panel H). Staging positron emission tomography scanning revealed moderate uptake in the distal infero-septal wall (arrow) and sternal uptake consistent with a recent sternotomy (Panel I).

The patient suffered from pharmacologically resistant recurrent VT. Tumour presence precluded cardiac transplantation. In light of incomplete surgical excision and ongoing VT, the patient elected to have the ICD turned off and passed away at home.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.