An unusual cause of ventricular tachycardia

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A 65-year-old man with no cardiac risk factors presented to our Accident and Emergency department with dizziness and palpitations over the preceding week but no chest pain, breathlessness, or syncope. On examination blood pressure was 120/94 with a heart rate of 170 bpm. Electrocardiogram showed a wide QRS complex tachycardia compatible with a sustained monomorphic ventricular tachycardia (Panel A) originating from the inferior left ventricle. Amiodarone was started and the tachycardia terminated. Trans-thoracic echocardiogram demonstrated a non-dilated left ventricle with asymmetric septal hypertrophy and associated hypokinesis. Coronary angiography confirmed non-obstructive coronary arteries. Cardiac magnetic resonance imaging revealed localized thickening in the mid inferoseptal, mid inferior, and mid inferolateral segments measuring maximally 22 mm with associated hypokinesis. Cine imaging showed evidence of an intra-myocardial mass (Panel B). On late gadolinium enhancement there was a ring enhancing pattern with areas of inner areas of signal void, which could indicate an avascular necrotic core (Panel C). These images support the diagnosis of a malignant intra-myocardial lesion.

This patient’s detailed history revealed an antecedent right renal cell carcinoma (RCC) treated with a laparoscopic right radical nephrectomy [previous computed tomography (CT) imaging, Panel D]. A recent CT scan had demonstrated lung metastases. The cardiac mass was not resectable and given the patient’s history, the most likely explanation was an RCC metastasis. Haematogenous cardiac RCC metastases is incredibly rare with more common cardiac involvement due to venous extension through the renal vein and inferior cava, and some even extending to the right atrium.

Panel A Monomorphic ventricular tachycardia with right bundle branch block and superior axis.
Panel B Cardiac magnetic resonance image, four chamber view demonstrating evidence of intra-myocardial mass in the mid septum (arrow).
Panel C Cardiac magnetic resonance image, late gadolinium enhancement in the intra-myocardial mass with areas of inner areas of signal void (arrow).
Panel D Abdominal computed tomography showing a renal cell carcinoma in the upper pole of the right kidney (arrow).

Supplementary material is available at European Heart Journal online.