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Thrombus formation on a defibrillator lead with conductor externalization

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A 51 year old man with arrhythmogenic right ventricular cardiomyopathy reported non-specific symptoms of muscle aches and shivering at outpatient review. A dual chamber implantable cardioverter defibrillator (ICD) had been inserted seven years previously. Fluoroscopic lead screening had previously demonstrated conductor externalisation (Figure and Video) of a single coil Riata ICD lead (model number 1582-65, St. Jude Medical, Sylmar, CA, USA). All electrical parameters were normal.

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A transoesophageal echocardiogram (TOE) with ultrasound contrast revealed a well circumscribed, 1 cm diameter, echo-

bright mass attached to the ICD lead in the right atrium (Fig. 1). The patient was admitted for further investigation. Clinical examination was unremarkable. Investigations revealed a normal full blood count, electrolyte profile, C-reactive protein concentration and erythrocyte sedimentation rate. Multiple blood cultures were sterile. The echocardiographic findings and clinical picture were felt to be in keeping with thrombus formation and the patient was anticoagulated with warfarin. A repeat TOE after 3 months of warfarin therapy revealed complete resolution of the right atrial mass.

A number of studies have demonstrated that Riata family ICD leads are at greater risk of insulation breach resulting in conductor externalization [1]. The optimal management of patients with a Riata lead is unclear. The U.S. Food and Drug Administration has recommended that lead replacement should be considered in patients with a Riata lead with evidence of conductor externalization and abnormal electrical parameters [2]. We believe that thrombus formation in the present case was related to conductor externalization. A small number of similar cases have been described previously [3]. Thrombus formation with the risk of pulmonary embolism is a serious complication of Riata lead conductor externalization. If the lead remains in place, lifelong anticoagulation and careful serial echocardiographic monitoring is indicated. Thrombus formation may be asymptomatic or minimally symptomatic as in this case. If a significant degree of conductor externalization is noted during fluoroscopic screening, consideration should

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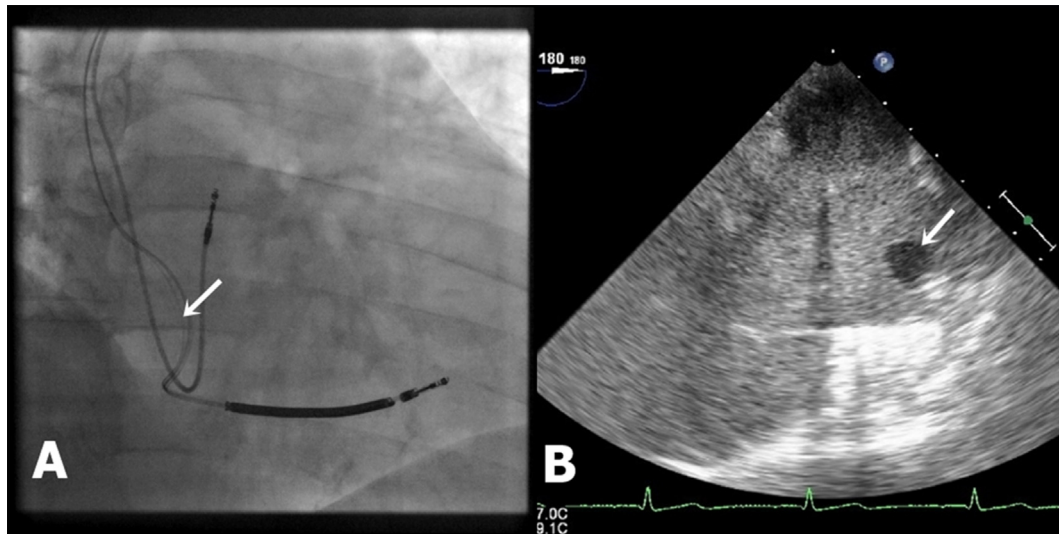


Fig. 1 – Panel A: Fluoroscopic image demonstrating conductor externalisation (arrow) affecting the implantable cardioverter defibrillator (ICD) lead. Panel B: Contrast transoesophageal echocardiogram image demonstrating a 1 cm mass in the right atrium (arrow) associated with the ICD lead.

be given to echocardiographic assessment with contrast to exclude thrombus formation.

Conflict of interest

Nicholas A McKeag: Honorarium from Biotronik, Laboratoires Servier, Menarini Pharma UK and St Jude Medical. Attendance at Boston Scientific Corp. and Medtronic courses.

David J McEneaney: Honorarium from Biotronik, Medtronic and St. Jude Medical.

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