

EP CASE REPORT

An unusual cause for implantable cardioverter-defibrillator extraction

Hossamaldin Z. Abuomara^{1,2*}, Christopher Cassidy¹, Michael Brack¹, and Amir Zaid³

¹Cardiology Department, Lancashire Cardiac Centre, Blackpool, Lancashire, UK; ²Department of Cardiovascular Medicine, Ain Shams University, Cairo, Egypt; and

³Cardiology Department, Manchester University NHS foundation trust, Manchester, UK

*Corresponding author. Tel: +44 7427058974; fax: +44 1253957845. E-mail address: Hossamaldin.abuomara@nhs.net

Case

A 67-year-old man underwent an uncomplicated implantation of a secondary prevention dual-chamber implantable cardioverter-defibrillator (ICD) (ENDOTAK RELIANCE SG, Boston Scientific) in 2012 with normal post-procedural chest X-ray. Subsequent ICD interrogations were normal. Following ICD check in October 2016, he presented three times to the emergency department with pleuritic chest pains. Investigations including cardiac troponins and chest-X-ray were reported as normal, and he was managed conservatively. Shortly afterwards, he developed progressive chest and abdominal wall bruising (Figure 1A) without history of trauma. Chest-X-ray and computed tomography chest showed right ventricular (RV) lead (antero-apical) perforation (Figure 1B). The pacing threshold was 1.6 v@1.5 ms October 2016 (1.4 v@1.5 ms April 2016). The R-wave amplitude dropped from 8.7 mv (October) to 2 mv following bruising. Figure 1D shows impedance trends of the ICD.

Following MDT discussion, we opted to attempt percutaneous lead extraction in cardiac theatre, under general anaesthesia with surgical support, with the patient prepared for immediate bypass if required. A 6F-pigtail-catheter was placed in the RV apex from right femoral vein. Contrast injection confirmed the entire distal coil had advanced beyond the myocardium with small ongoing leak from the right ventricle (Figure 1C). A 65 cm stylet was advanced to the lead tip and the lead pulled back into the right atrium with gentle traction. Further RV angiogram showed no further extra-cardiac contrast leak. A new ICD RV lead was placed on the septum. The patient was discharged the following day and remains well 16 months post-extraction.

Cardiac perforation is an uncommon complication of pacemaker and ICD implantation (incidence of 0.1–5.2% depending on the series).¹ One study suggested that chronic lead perforation rates are higher with ICD-leads (up to 5.2%) compared with pacemaker-leads (0.1–0.8%).² Age >80 years, female gender and apical RV lead position were found to be independent predictors of lead-related cardiac perforations.¹ Although acute perforation associated with haemodynamic compromise must be dealt with as a medical emergency, the best approach of clinically stable RV lead subacute and delayed perforation is uncertain and still a matter of debate.³

Conflict of interest: none declared.

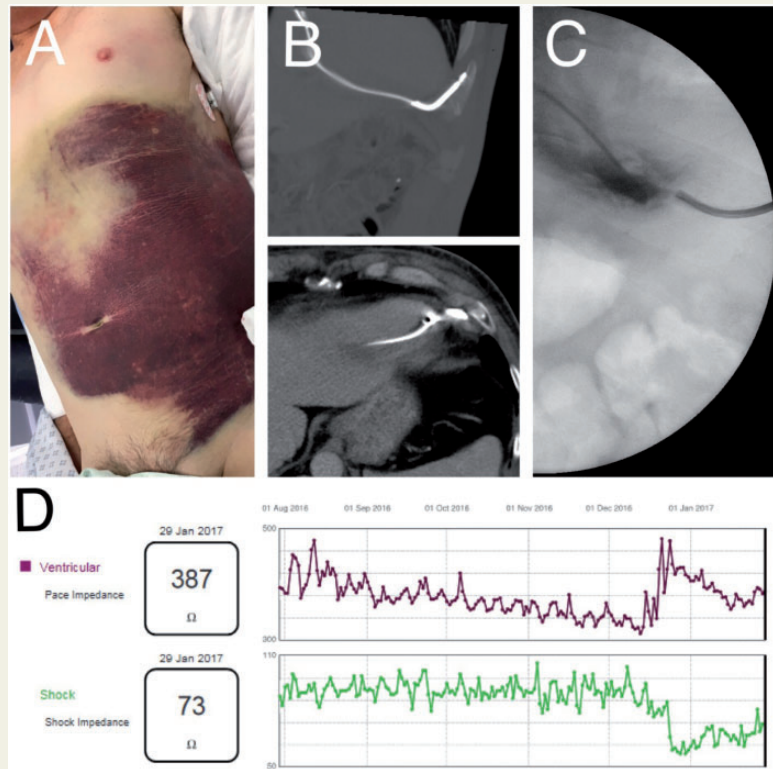


Figure 1 Unusual presentation for ICD perforation.

References

1. Cano Ó, Andrés A, Alonso P, Osca J, Sancho-Tello MJ, Olague J *et al.* Incidence and predictors of clinically relevant cardiac perforation associated with systematic implantation of active-fixation pacing and defibrillation leads: a single-centre experience with over 3800 implanted leads. *Europace* 2017;**19**:96–102.
2. Khan M, Joseph G, Khaykin Y, Ziada K, Wilkoff B. Delayed lead perforation: a disturbing trend. *Pacing Clin Electrophysiol* 2005;**28**:251–3.