

Inappropriate sensing events revealing electrocautery-induced implantable cardioverter–defibrillator lead failure

Electromagnetic interference (EMI) associated with current implantable cardioverter–defibrillator (ICD) generators and leads are less prone to long-term failure. Thus, it has been suggested that routine post-ICD replacement interrogation of the device may not be necessary. We present the case of a patient who underwent ICD replacement during which therapies were inadvertently not turned off, which lead to EMI and shock and subsequently lead failure.

A 52-year-old-man who had ICD (BiotronikLumax340 VR-T, Berlin, Germany) implanted in 2008 presented with an ICD generator end-of-life and was scheduled for generator replacement. Before the procedure device interrogation showed a right ventricular (RV) pacing threshold of 0.6 V at 0.5 ms pulse width, R-wave sensing was 6.7 mV, RV lead pacing impedance was 715 Ω , and shock impedance was 46 Ω . The patient received a Medtronic D384DRG ICD, Minneapolis, USA. During the surgical closure of the device pocket, electrocautery was used for hemostasis, which resulted in EMI and inappropriate 35 J shock (Fig. 1). Postoperatively, inappropriate senses were monitored, which were concordant with lead failure (Fig. 2). The RV pacing threshold increased to 1.25 V at 0.5 ms, and the R-wave sensing decreased to 3.30 mV. Lead impedance measurements were RV pacing at 619 Ω , RV coil at 48 Ω , and SVC coil at 73 Ω . At the second week, a new pace sense lead was uneventfully implanted from the same site and over sense completely ended after the replacement of the lead.

Despite the advances in ICD technology, electrocautery, especially when used close to the device, can still lead to lead failure, which might necessitate intervention. Thus, we still recommend routine postprocedural interrogation of the device.

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Figure 1. ECG monitoring showed electrocautery-induced electromagnetic interference and inappropriate 35J shock.

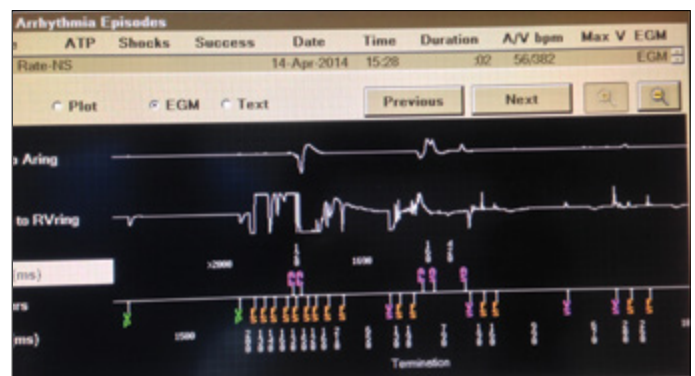


Figure 2. Postoperatively, inappropriate senses were monitored, which were concordant with lead failure.

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