

## Complete tear-off of a Riata dual coil lead tip

Julia W. Erath<sup>1†</sup>, Nadejda Monsefi<sup>2†</sup>, and Stefan H. Hohnloser<sup>1†\*</sup>

<sup>1</sup>Division of Clinical Electrophysiology, Department of Cardiology, J. W. Goethe University, Theodor-Stern-Kai 7, Frankfurt D 60590, Germany and <sup>2</sup>Department of Cardio-Thoracic Surgery, J. W. Goethe University, Frankfurt, Germany

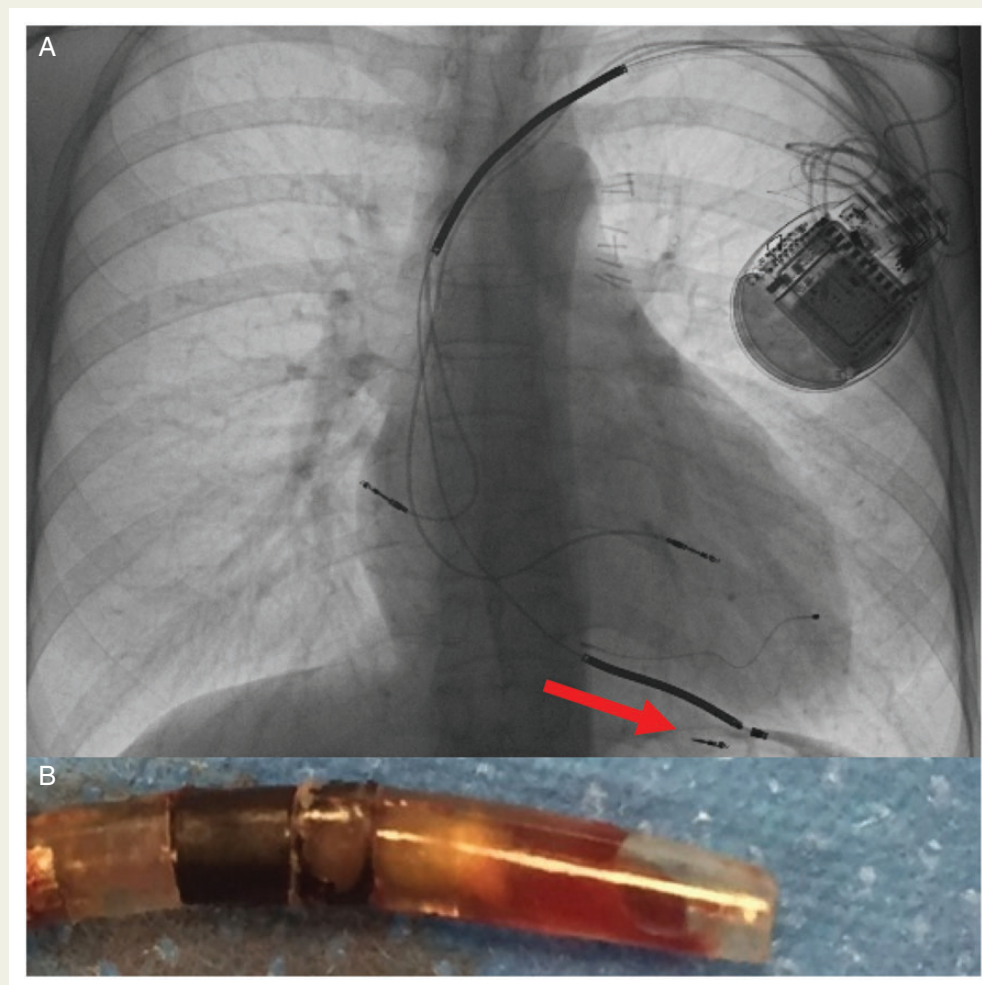
\* Corresponding author. Tel: +49 69 6301 7404; fax: +49 69 6301 7017. E-mail address: hohnloser@em.uni-frankfurt.de

† All authors take responsibility for all aspects of the reliability and freedom from bias of the data presented and their discussed interpretation.

Received 20 June 2016; accepted after revision 25 August 2016

The implantable cardioverter-defibrillator (ICD) is a technically highly developed system and tested to a high standard due to the ultimate impact on saving a patient's life. Although the incidence of lead-related adverse events is relatively low,<sup>1,2</sup> malfunctioning of ICD leads can often constitute a clinical challenge. Data from observational studies and large registries have demonstrated distinct failure modes of specific lead families, such as the Riata ICD lead (St Jude Medical, USA).<sup>1,3</sup>

We report the case of a 42-year-old woman who recently presented to have elective battery replacement of her CRT-D system. The CRT-D was implanted 10 years ago because of dilative cardiomyopathy with severely reduced left ventricular function (LVEF 20%). Seven years ago, the dual coil Riata lead implanted in the RV apex showed an exit block which was resolved by the addition of a new pace-sense RV lead. Two years ago, she had a traffic accident and suffered from blunt chest trauma. Chest X-ray at that time (Figure 1A) showed complete tear-off of the tip of the RV Riata lead. As sensing and pacing values of the RV pace/sense lead and shock impedance of the dual coil lead remained within normal ranges, the ICD system was left unchanged. When the patient presented for elective generator replacement 20 months later, chest X-ray demonstrated migration of the isolated tip of the broken shock electrode (see Supplementary material online, Movie S1). Pacing, sensing, and impedance properties of the added pace/sense lead continued to show normal values.



**Figure 1** (A) Chest X-ray showing complete tear-off of the Riata lead tip. (B) Fractured site of the Riata lead.

Nevertheless, we decided and performed a transvenous removal of the damaged shock and the pace-sense electrodes from the RV by utilizing an excimer laser extraction system and replaced them by a new DF-4 ICD lead. The fractured site of the Riata lead is shown in *Figure 1B*.

This case demonstrates that tear-off of the tip of a Riata ICD lead can occur. Whether this was caused by the chest trauma, remains speculative. Although measurements of lead parameters might indicate optimal lead function, it seems prudent to replace such leads, particularly in younger patients.

#### **Supplementary material**

Supplementary material is available at *Europace* online.

**Conflict of interest:** J.W.E. and N.M. have no conflict of interest. S.H.H. receives lecture fees and consulting fees from St Jude Medical, outside the submitted work.

## **References**

1. Epstein A, Baker J, Beau S, Greenberg S, Goldman D, Deering T. Performance of St. Jude Medical Riata ICD leads. *Heart Rhythm* 2009;**6**:204–9.
2. Kleemann T, Becker T, Doenges K, Vater M, Senges J, Schneider S *et al*. Annual rate of transvenous defibrillation lead defects in implantable cardioverter-defibrillators over a period of > 10 years. *Circulation* 2007;**115**:2474–80.