

Management of a previously unreported implantable cardioverter-defibrillator lead complication

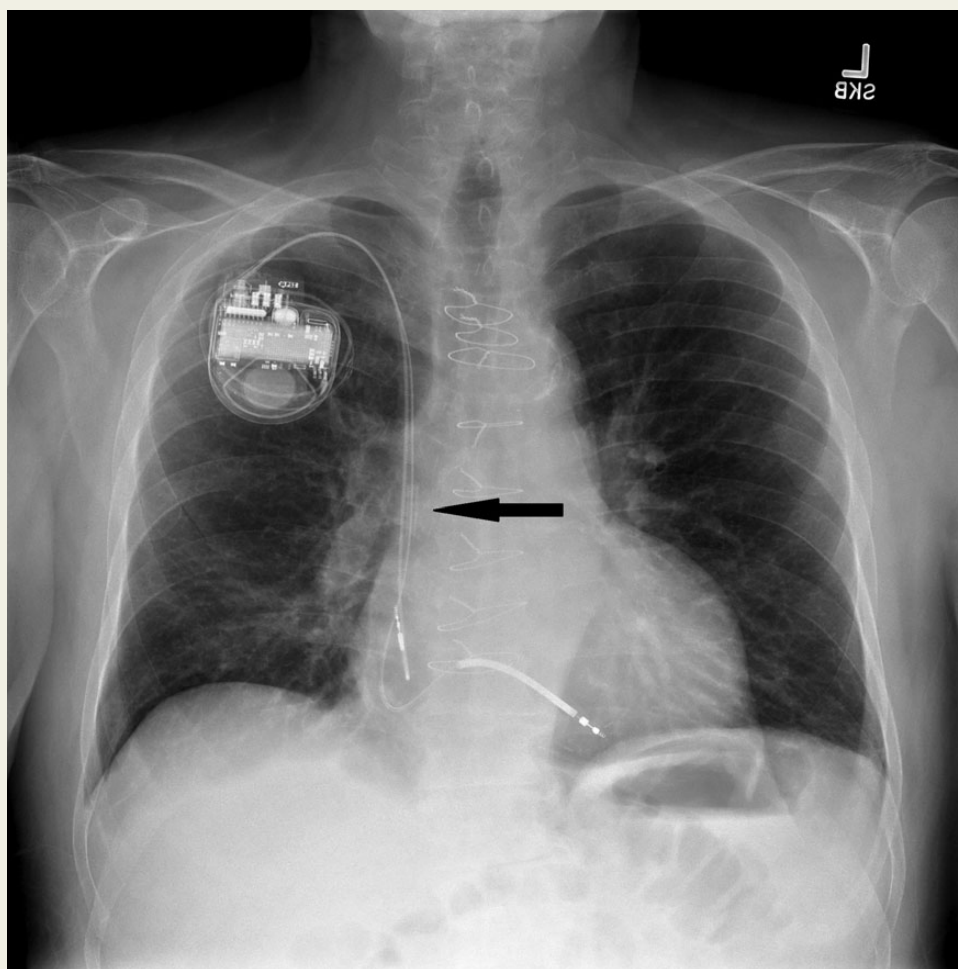
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This is a description of a management strategy for an unusual clinical scenario: a patient with a history of intravascular migration of a suture sleeve who subsequently develops an indication for defibrillator lead extraction. A dual operator approach utilizing a femoral snare and a large trans-subclavian outer sheath is outlined.

A 68-year-old male with a complex device history was referred for management of a pocket erosion. In 2005, he underwent implantation of a single-chamber implantable cardioverter-defibrillator (ICD) with a model 6949 Sprint Fidelis (Medtronic Inc., Minneapolis, MN, USA) lead via a right pectoral approach. Three years later, the device was upgraded to a biventricular ICD, with the addition of a right atrial model 4076 lead and a model 4194 lead in a coronary sinus branch. In early 2013, the biventricular ICD generator reached elective replacement indication, and after a discussion with the patient regarding the risks and benefits, a decision was made to extract and replace the Sprint Fidelis lead. During the case, the right subclavian vein was found to be chronically occluded. The technically challenging Fidelis lead extraction required a 14 F laser and outer sheaths (Spectanetics Corp., Colorado Springs, CO, USA). During that process, the right atrial (RA) and LV pacing lead insulation were damaged and extracted; because the native QRS was narrow, only the RA lead was replaced. During implantation of the new model 6935M 55 cm defibrillator lead, the suture sleeve migrated along the lead via the right subclavian vein to the superior vena cava (Figure). At that time, no further intervention for this problem was advised.



Six months later, the patient was referred for management of a 5 mm skin erosion over the inferior aspect of the right pectoral ICD pocket. Given the known chronic occlusion of the right subclavian vein, there was concern over migration/embolization of the intravascular suture sleeve if the recently implanted defibrillator lead was simply removed with gentle traction alone. In order to stabilize the lead distal to the suture sleeve and to prevent its migration toward the lead tip during attempts at retrieval, the lead was snared from a right femoral venous approach by a second operator (see Supplementary material online, *Video*) using a Needle's Eye snare (Cook Medical, Bloomington, IN, USA). The 16 F laser sheath and outer sheath were gently rotated and advanced distally over the lead until the entire suture sleeve was within the lumen of the outer sheath. The sheaths, the lead, and the suture sleeve were then removed as a unit. Post-lead removal, the mobility of the suture sleeve and its ability to easily slide distally along the defibrillator coil and off the tip of the lead were confirmed. A left pectoral ICD was later implanted. The patient has recovered well in follow-up.

This case illustrates a strategy to manage the intravascular migration of an ICD suture sleeve, with subsequent indication for lead extraction. Operators engaging in lead management should remain vigilant, particularly when implanting new leads after creating large openings into the subclavian veins during complex multi-lead extraction cases. Such migration could theoretically also occur when implanting leads using any sheath that is significantly larger than the lead being implanted. In the present case, the lead and suture sleeve were successfully removed by using a two operator technique¹ with a large mechanical sheath from the subclavian and stabilization of the lead from the femoral approach using a snare.

Supplementary material

Supplementary material is available at *Europace* online.

Conflict of interest: G.S.M.: research support and educational consulting, Medtronic; S.S.: research support, Medtronic, St Jude Medical, and Boston Scientific.

Reference

1. Fischer A, Love B, Hansalia R, Mehta D. Transfemoral snaring and stabilization of pacemaker and defibrillator leads to maintain vascular access during lead extraction. *PACE* 2009;**32**:336–9.