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Recurrent infectious complications following cardiac implantable electronic device procedures: a case report

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Introduction: Cardiac implantable electronic device (CIED)-related infections represent a significant clinical challenge and may require device extraction and reassessment of the subsequent therapeutic strategy. Management becomes particularly complex when complete lead extraction cannot be achieved and infectious complications recur following reimplantation.[1,2]

Case report: 59-year-old patient with ischemic cardiomyopathy secondary to recurrent coronary artery occlusions involving the right coronary artery (RCA) and left anterior descending artery (LAD) underwent prophylactic implantable cardioverter-defibrillator (ICD) implantation in 2014. Following further clinical assessment, the system was upgraded to a cardiac resynchronization therapy defibrillator (CRT-D) on 16 April 2026, with a TYRX antibacterial envelope used during implantation. On 11 July 2026, the patient was admitted with erythema and oedema at the CRT-D implantation site, without fever, chills or rigors. On 18 July, device and lead extraction was performed; however, the procedure was incomplete, with the tip of the atrial lead and the defibrillation lead coil remaining in situ. An additional attempt to retrieve the retained components using a snare via femoral venous access was unsuccessful. Microbiological cultures obtained following the initial extraction were predominantly negative, with one exception, while C-reactive protein (CRP) levels remained unremarkable. An extravascular implantable cardioverter-defibrillator (EV-ICD) was subsequently implanted on 31 July 2026, again with the use of a TYRX antibacterial envelope. On 26 August 2026, the patient was readmitted due to suspected infection at the EV-ICD implantation site. The entire EV-ICD system was extracted during this admission, after which the patient was transferred to the cardiac surgery department for further management.

Conclusion: This case illustrates the challenges of managing suspected recurrent device-related infection in a patient with ischemic cardiomyopathy, particularly following incomplete lead extraction and subsequent device reimplantation. Predominantly negative microbiological findings and unremarkable CRP levels did not eliminate the clinical concern regarding infection. The case highlights the importance of comprehensive clinical assessment, careful monitoring of the implantation site, multidisciplinary decision-making and individualized planning of device extraction and subsequent arrhythmia protection. Nursing surveillance and timely recognition of local changes are integral to the early identification and management of potential device-related complications.

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