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Late CRT-D generator extrusion following generator replacement: a case report and the role of nursing care

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Introduction: Cardiac resynchronization therapy with defibrillation (CRT-D) improves outcomes in appropriately selected patients with heart failure; however, device replacement and reintervention increase the risk of cardiac implantable electronic device (CIED) infection. Pocket erosion or generator exposure represents definite CIED infection even in the absence of systemic inflammatory signs.[1-3] This case highlights the importance of early recognition of local changes and nursing care throughout diagnosis, extraction, and follow-up.

Case report: 69-year-old man with dilated cardiomyopathy, left bundle branch block, arterial hypertension, and dyslipidemia underwent CRT-D implantation in 2018 for primary prevention after syncope, a left ventricular ejection fraction (LVEF) of 27%, and non-sustained ventricular tachycardia during exercise testing. During follow-up, LVEF improved to 45–50%. The generator was replaced in April 2025 because of battery depletion. In July 2026, after noticing progressive skin thinning over the device pocket for approximately seven days, he presented with complete extrusion of the generator through the left pectoral skin. He was afebrile and clinically stable, without systemic symptoms or elevated inflammatory markers. Blood cultures remained sterile, and transesophageal echocardiography showed no lead-associated vegetations. Pocket cultures yielded skin flora, including coagulase-negative staphylococci and *Corynebacterium* spp. Empirical vancomycin and ceftriaxone were initiated. Complete transvenous extraction of the CRT-D system, including all three leads, and extensive pocket debridement were performed under general anesthesia without complications. Oral clindamycin was prescribed for 10 days after discharge. Newly diagnosed type 2 diabetes mellitus (HbA1c 12.3%) required additional treatment and education. Nursing care included telemetry, monitoring of vital signs and laboratory parameters, antibiotic administration, aseptic wound care, and education regarding wound surveillance, signs of infection, and prompt reporting of pocket changes. Following clinical stabilization, improved LVEF, multidisciplinary reassessment, and the patient's preference, reimplantation was deferred and clinical follow-up was planned.

Conclusion: Late generator extrusion may occur without fever, systemic symptoms, or a marked inflammatory response. Early recognition of pocket changes, prompt referral, complete system extraction when indicated, and structured nursing surveillance and education are essential for safe CIED care. Reinforcing patient self-observation after generator replacement may facilitate earlier recognition of threatened erosion and timely contact with the healthcare team.

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