

Letter to the Editor

A complete bicameral pacemaker pocket decubitus

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The management of patients with implantable cardiac devices has become an increasing integral part of the cardiology in the last 30 years [1–6]. Research has led progressively to the development of devices for the treatment of bradycardia, ventricular arrhythmia, and heart failure and for the prevention of sudden cardiac arrest with the delivery of pacemakers, implantable cardioverter-defibrillators (ICD)s and cardiac resynchronization therapy (CRT) plus ICD (CRT-D) [1–22] and to the recent subcutaneous implantable cardioverter-defibrillator (S-ICD) [23–27]. Infectious complications leading also to endocarditis [1,6,8,28–36] and noninfectious complications [9,21,23,37–40] often necessitating removal [1,2,8,40–46] affect patients' wellbeing also leading to an increase of psychological difficulties [47–53] in the emerging scenario of concomitant problems and diseases [54–80] and in patients also needing device revision and upgrade. Moreover, the electric shock delivered in difficult patients cannot be sufficiently effective to suppress life-threatening ventricular arrhythmias and

thus, in addition to the ICD, devices may be used that facilitate cardioversion such as epicardial cardioverter-defibrillation patches or a subcutaneous single-finger cardioverter-defibrillator (ICD) system [81]. Epicardial patches are placed at the sides of the heart through *cardiac surgery* approach under general anesthesia, while the subcutaneous single-finger cardioverter-defibrillator (ICD) system is placed through subcutaneous tunneling technique in general or local anesthesia by interventional cardiologist but also in this case, complications are demonstrated necessitating removal and the subcutaneous *finger* system removal has been performed successfully too [81]. In addition, the improved patients' survival, the progressively younger implanted population and the increase in device and procedure complexity have raised the risk of the system component structural failures [82–87]. For these reasons, the necessity of extraction has become increasingly higher and the development of specific techniques and tools to reduce morbidity and mortality associated with pacing devices' removal have played an important role representing the cornerstone of the modern clinical cardiac electrophysiology as well as the efficacious cardiac device implantation and management. Nowadays cardiac rehabilitation in pacing patients' complications is an increasing scenario and it represents a serious challenge as well as its optimal management. Mechanical technique (transvenous lead extraction) is effective and with few complication techniques, but a collaborative vision of a multi-disciplinary treatment team [53,72] is required for patient's safety and complete rehabilitation [84–87]. Research suggests that *Staphylococcus aureus* initiates cardiac device-related infection (CDI) by the binding of fibronectin binding protein A (FnBPA) to the device's surface and that FnBPA, specific “binding enhancing” amino acid alterations are associated with CDI [88] also suggesting that sequence analysis of FnBPA, as well as the bacterial genotype, may be used to predict the risk for device-related infection [89]. We present a case of a complete bicameral pacemaker pocket decubitus (pulse generator and leads) (Fig. 1) in a man with a *S. aureus* infection with initial local and general treatments with: povidone-iodine topical solution 2% once a day for 15 days, topic mupirocine once a day for 10 days, clyndamicine every 8 h, and ciprofloxacin 500 mg every 12 h. After the results of the antimicrobial susceptibility pacemaker lead tip testing the patient was treated with teicoplanin 400 mg once a day for 21 days and trimethoprim/sulfamethoxazole every 12 h for 21 days with complete recovery. Also this case focuses on the safety and effectiveness of transvenous lead extraction and on the importance of the antimicrobial susceptibility pacemaker lead tip testing.

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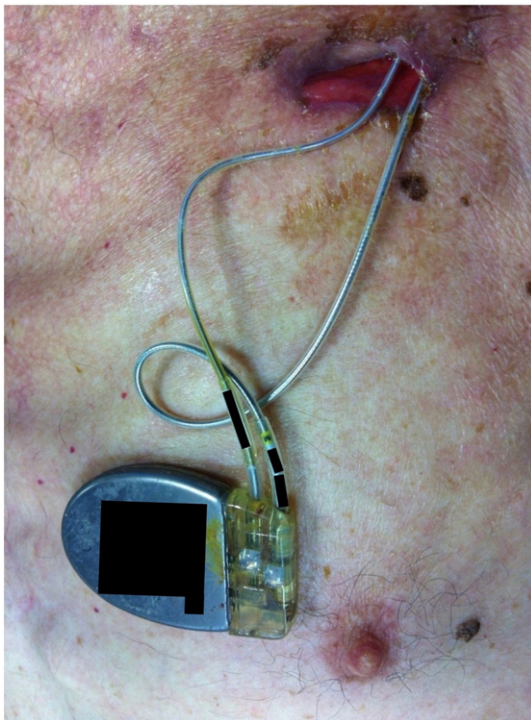


Fig. 1. The complete bicameral pacemaker pocket decubitus (pulse generator and leads).

Conflict of interest statement

The authors report no relationships that could be construed as a conflict of interest.

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