

Images in
Cardiovascular Medicine



Effective Antitachycardia Therapy by Temporary External Defibrillator Utilized as Bridge to Reimplantation

Giulio Falasconi , MD¹, Giuseppe D'Angelo , MD², Luigi Pannone , MD¹,
Alessandra Marzi, MD², Andrea Radinovic, MD², and Patrizio Mazzone, MD²

¹Clinical Cardiology Unit, IRCCS San Raffaele University Hospital, Milan, Italy

²Department of Cardiac Electrophysiology and Arrhythmology, IRCCS San Raffaele Hospital and Vita-Salute University, Milan, Italy



Received: Sep 6, 2021

Revised: Oct 5, 2021

Accepted: Oct 12, 2021

Published online: Oct 29, 2021

Address for Correspondence:

Giulio Falasconi, MD

Clinical Cardiology Unit, IRCCS San Raffaele University Hospital, Via Olgettina 60, 20132 Milan, Italy.

Email: giuliofalasconi@gmail.com

A 52-year-old man presented for cardiac implantable electronic device (CIED) pocket infection (**Figure 1A**). His past medical history was significant for mitral valve repair plus annuloplasty with complete ring complicated by periprocedural myocardial infarction, followed by dual chamber Implantable Cardioverter Defibrillator (ICD) implantation for primary prevention of sudden cardiac death. After two uneventful years, one month before the index hospitalization, the patient experienced a first appropriate ICD shock subsequent to antitachycardia pacing (ATP) failure for ventricular tachycardia (VT). During the hospitalization multiple appropriate ICD interventions for VT were detected.

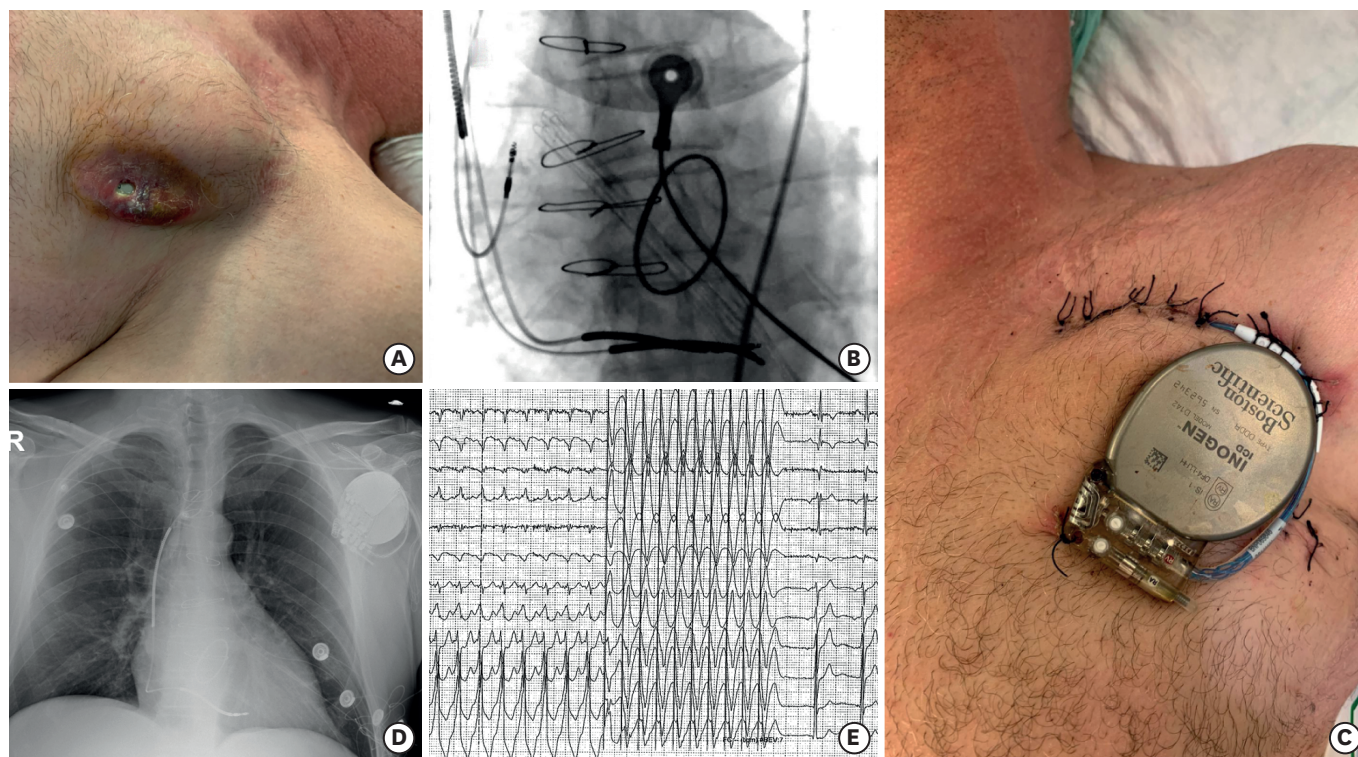



Figure 1. (A) Cardiac implantable electronic device pocket infection. (B) Fluoroscopic image of the implantation of a bridge system with an active-fixation dual-coil lead (Durata™; St. Jude Medical, Saint Paul, MN, USA). (C) Patient's generator (Boston Scientific) disinfected and fixed externally. (D) Post-procedural Radiography. (E) Episode of sustained VT, interrupted by a burst of antitachycardia pacing.

Copyright © 2022 Korean Society of Echocardiography
This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ORCID iDs

Giulio Falasconi 
<https://orcid.org/0000-0001-7128-9911>
Giuseppe D'Angelo 
<https://orcid.org/0000-0002-1198-9745>
Luigi Pannone 
<https://orcid.org/0000-0001-9769-1511>

Conflict of Interest

The authors have no financial conflicts of interest.

Author Contributions

Conceptualization: Falasconi G, D'Angelo G, Pannone L, Marzi A, Radinovic A, Mazzone P; Data curation: Falasconi G, D'Angelo G, Pannone L, Marzi A, Radinovic A, Mazzone P; Formal analysis: Falasconi G; Investigation: Falasconi G; Methodology: Falasconi G; Project administration: Falasconi G; Resources: Falasconi G; Software: Falasconi G; Supervision: Falasconi G, Mazzone P; Validation: Falasconi G, Mazzone P; Visualization: Falasconi G; Writing - original draft: Falasconi G; Writing - review & editing: Falasconi G, Mazzone P.

The patient underwent single-step procedure of generator removal and complete transvenous extraction of both leads, performed according to our hospital stepwise approach¹ by traction on a locking stylet (Lead Locking Device™, Spectranetics®) with contextual implantation of a bridge system with an active-fixation dual-coil lead (Durata™; St. Jude Medical, Saint Paul, MN, USA) (**Figure 1B**). This system was inserted through percutaneous puncture of left subclavian vein, attached to the skin with spaced silk stitches; finally, the lead was connected to the generator, disinfected, and fixed externally (**Figure 1C and D**). In the presence of an external pulse generator, “passive-can” shock configuration was set and the choice of a dual-coil lead was mandatory in order to correctly program the shock vector: the polarity was programmed from the right ventricular coil to the superior vena cava coil. For the remaining part, the previous programming of the VT therapy was maintained.

One week later, the patient developed one episode of sustained VT, interrupted by a second burst of ATP (**Figure 1E**). Blood cultures at the admission and two days after extraction were both negative and the patient was started on daptomycin plus ceftriaxone after *Staphylococcus warneri* isolation from catheter tips culture. A contralateral ICD was implanted after 15 days of specific antibiotic therapy and the remaining hospital stay was uneventful. The increasing number of CIED-carriers is leading to a growing need of transvenous lead extraction (TLE) of various levels of complexity. Although still little utilized for patients with CIED-related infection and concomitant history of VT, TLE with the following temporary external cardioverter-defibrillator implantation as a bridge to reimplantation is a safe and effective possibility.²

REFERENCES

1. Mazzone P, Tsiachris D, Marzi A, et al. Predictors of advanced lead extraction based on a systematic stepwise approach: results from a high volume center. *Pacing Clin Electrophysiol* 2013;36:837-44.
[PUBMED](#) | [CROSSREF](#)
2. Dębski M, Ząbek A, Boczar K, Urbańczyk-Zawadzka M, Lelakowski J, Małecka B. Temporary external implantable cardioverter-defibrillator as a bridge to reimplantation after infected device extraction. *J Arrhythm* 2017;34:77-80.
[PUBMED](#) | [CROSSREF](#)