

A Recurrent Allergic Reaction of a Pacemaker, A Case Report and Literature Review

Moustapha Atteyeh Sougal^{1*}, Fatouma Mohamed Aden¹, Sahal Djama¹, Mohamed Charti¹, Ibtissam Fellat¹, Aatif Benyass²

¹Service de cardiologie B, CHU Ibn Sina, Rabat, Morocco

²Cardiology Center, Mohammed V Military Instruction Hospital of Rabat, Mohammed V University, Rabat, Morocco

DOI: <https://doi.org/10.36347/sjmcr.2026.v14i07.029> | Received: 09.06.2026 | Accepted: 20.07.2026 | Published: 29.07.2026

*Corresponding author: Moustapha Atteyeh Sougal
Service de Cardiologie B, CHU Ibn Sina, Rabat, Morocco

Abstract

Case Report

The pacemaker pocket infection is a known and expected complication after a pacemaker implementation in patients suffering from cardiac rhythm abnormalities. But Allergic reactions to pacemaker device components are uncommon and they usually mimic pacemaker infection. We report the case of 65 years old male patient, a chronic smoker with a known case of hypertension since 2022 on antihypertensive monotherapy, dyslipidemia on statins, who was admitted twice for a suspicion of PM infection, and finally a suspected allergic reaction was posed.

Keywords: Pacemaker allergy, Pacemaker infection, Hypersensitivity reaction, Contact dermatitis, Device removal, Eosinophilia.

Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

A permanent pacemaker (PM) implementation is world widely used as the treatment of choice for bradyarrhythmia [1]. Allergic reactions to implanted materials occur, but implanted cardiac pacemakers rarely have been suspected [2]. Clinical evaluation and patch tests have an important place in its diagnosis. In the literature, it has been reported that the allergic reaction occurs few days to few weeks after the pacemaker implementation, but in our case, it occurs twenty months later. There are very few reported cases in the literature that occurred too late [3]. Although the etiology is unknown, it is likely related to genetics and the most commonly allergens were the metallic or plastic components. The diagnosis of a pacemaker component allergy requires awareness of the problem and then thorough allergy testing with appropriate components [4]. Clinical presentation can mimic a PM infection and, therefore, can lead to multiple device replacements and repositions and to unnecessary prolonged antibiotic therapy. Total replacement of the pacemaker is the only effective therapy. The clinical presentation of an allergic reaction of the implemented pacemaker can present with inflammatory changes at the local site, including erythema, swelling, pain, warmth, drainage, purulence, erosion and dehiscence.

However, a PM infection is a relatively more common and serious complication, which should be excluded before considering PM allergy. Unlike infection, the clinical presentation of a hypersensitivity reaction does not present with fever and neutrophilic leukocytosis, unlike the PM infection, whereas it often manifests with eosinophilia and negative cultures from blood, removed leads, and pocket materials [5].

For the diagnosis, the investigations show normal complete blood count, but an eosinophilia can be observed. Final diagnosis can be reached after a skin patch testing [6].

Although there are no clear guidelines to follow and there are cases reported in the literature that have been treated in completely different manners, the treatment relay on the removal of the PM. Topical corticosteroids which permanently resolved the skin reaction, an intramuscular with clinical benefit are reported in some literature [7].

The use of A gold-coated PM in place of titanium was used in the subsequent replacement of PM. In another case, however, the allergy was effectively treated with a coating with antibiotic-coated envelopes [8].

Citation: Moustapha Atteyeh Sougal, Fatouma Mohamed Aden, Sahal Djama, Mohamed Charti, Ibtissam Fellat, Aatif Benyass. A Recurrent Allergic Reaction of a Pacemaker, A Case Report and Literature Review. Sch J Med Case Rep, 2026 Jul 14(7): 1736-1738.



Figure 1



Figure 2

DISCUSSION

We report the case of 65 years old male patient, a chronic smoker with a known case of hypertension since 2022 on antihypertensive monotherapy, dyslipidemia on statins, who was admitted twice for a suspicion of PM infection.

Who presented with dizziness and syncopal attack, his electrocardiogram (ECG) revealed a complete heart block. At 02/2022 in a different cardiology department other than our hospital, he had got a dual chamber pacemaker in right side and he was discharged in good medical condition.

Twenty months later, the patient was hospitalized the department of cardiology-B of Ibn Sina university hospital of Rabat that he presented with a suspected infectious pacemaker exteriorization with normal transesophageal echocardiography and lab investigations and blood culture did not detect any cause which could explain the exteriorization, the pacemaker and leads were extracted with an external pacemaker, two weeks of antibiotics were received, then another dual pacemaker in the contralateral side (left side) was implanted and was discharged in a good condition. Twenty-one months later, he was readmitted for a suspected infectious pacemaker exteriorization of the left side (Fig.1, Fig.2). Like the previous time, also the lab

investigations, blood culture and transesophageal echocardiography could not detect the cause of the exteriorization this time also. Four weeks of antibiotics, extraction of the pacemaker and leads and sent for a histopathological examination, which showed a subacute inflammatory reaction with the absence of any signs of malignancy. An epicardial pacemaker was implemented.

CONCLUSION

The PM allergic is a rare condition, which can mimic the infection of the implemented PM and paying attention can help in the diagnosis and hence treatment of complications and avoiding similar complications in the future.

Conflict of Interest

No financial support was received and none of the authors has any conflict of interest.

REFERENCES

1. Mond HG, Irwin M, Ector H, Proclemer A., The world survey of cardiac pacing and cardioverter-defibrillators: calendar year 2005 an International Cardiac Pacing and Electrophysiology Society (ICPES) project, *Pacing Clin Electrophysiol*, 2008, vol. 31(pg. 1202-1212).

2. Klaus E. Andersen, Cutaneous Reaction to an Epoxy-Coated Pacemaker,
3. Ferudun Akkuş , Gökay Taylan, Too Late Allergic Reaction in a Patient with Permanent Pacemaker.
4. Kathy Loesl, David L. Hayes & Kathy Loesl, Pacemaker Component Allergy: Case Report and Review of the Literature.
5. Shinagawa Yoko , Yuka Kobayashi , Takao Iiri , Hitoshi Kitazawa , Masaaki Okabe , Hiroshi Kobayashi , Etsuo Okazaki , Yoshifusa Aizawa, Pacing Lead-Induced Granuloma in the Atrium: A Foreign Body Reaction to Polyurethane.
6. Ermenegildo De Ruvo, Mattia Petrungaro, Lucia De Luca, Edoardo Bressi, Giuseppe Bruni, Alessandro Fagagnini, Domenico Grieco, Anna Maria Martino, Marco Panuccio, Alessandro Politano, Marco Rebecchi, Leonardo Calò ,Cardiac implantable electronic devices (CIEDs) and allergy.
7. Bryan F. Stringer, Lucie F. Henry, Sheena Mago, William H. Perucki, Jacqueline A. Savage, Paras S. Bhatt, FHRS, Severe erythroderma secondary to permanent pacemaker allergy.
8. Thomas Syburra, Ulrich Schurr, Mariette Rahn, Kirk Graves, Michele Genoni, Gold-coated pacemaker implantation after allergic reactions to pacemaker compounds. Khaldoun
9. G. Tarakji, Suneet Mittal, Charles Kennergren, Ralph Corey, Jeanne. Poole, Edward Schloss, Jose Gallastegui, Robert A. Pickett, Rudolph Evonich, François Philippon, Janet M. McComb, Steven F. Roark, Denise Sorrentino, Darius Sholevar, Edmond Cronin, Brett Berman, David Riggio, Mauro Biffi, Hafiza Khan, Marc T. Silver, Jack Collier, Zayd Eldadah, David J. Wright, Jeff D. Lande, Daniel R. Lexcen, Alan Cheng, and Bruce L. Wilkoff, Antibacterial Envelope to Prevent Cardiac Implantable Device Infection.