


CLINICAL IMAGE**A rare complication of pacemaker implantation**

George Bazoukis¹  | Victor Panagiotakopoulos² | Michalis Tsamatsoulis² | Athanasios Saplouras¹ | Eleni Konstantinidou¹ | Konstantinos Tyrovolas¹ | Angelos-Michail Kolokathis¹ | Antigoni Sakellaropoulou¹ | Panagiotis Kitsoulis³ | Ioannis Lakoumentas¹ | Christos Charitos² | Antonios Sideris¹

¹Second department of Cardiology, Evangelismos General Hospital, Athens, Greece

²Department of Cardiothoracic Surgery, "Evangelismos" General Hospital of Athens, Athens, Greece

³Laboratory of Anatomy-Histology-Embryology, School of Medicine, University of Ioannina, Ioannina, Greece

Correspondence: George Bazoukis, Department of Cardiology, General Hospital of Athens "Evangelismos", Ipsilantou 47, Athens 10676, Greece (gbazoukis@med.uoa.gr; gbazoukis@yahoo.gr).

Key Clinical Message

Lead perforation is a life-threatening rare complication of pacemaker or defibrillator lead implantation. Clinical examination, electrocardiogram, device interrogation, echocardiography, chest x-ray, and chest computed tomography scan can help in the diagnosis. Clinicians should be aware because early diagnosis and treatment are the cornerstones for achieving a better outcome.

KEYWORDS

cardiac tamponade, devices complications, lead perforation, pacemaker complications

An 83-year-old male patient presented to the emergency department with a 4 days history of fever 38°C and dyspnea. His medical history included paroxysmal AF, hypertension,

surgically repaired abdominal aortic aneurysm, and a recent (1 month ago) dual-chamber pacemaker implantation because of complete atrioventricular block. At the emergency

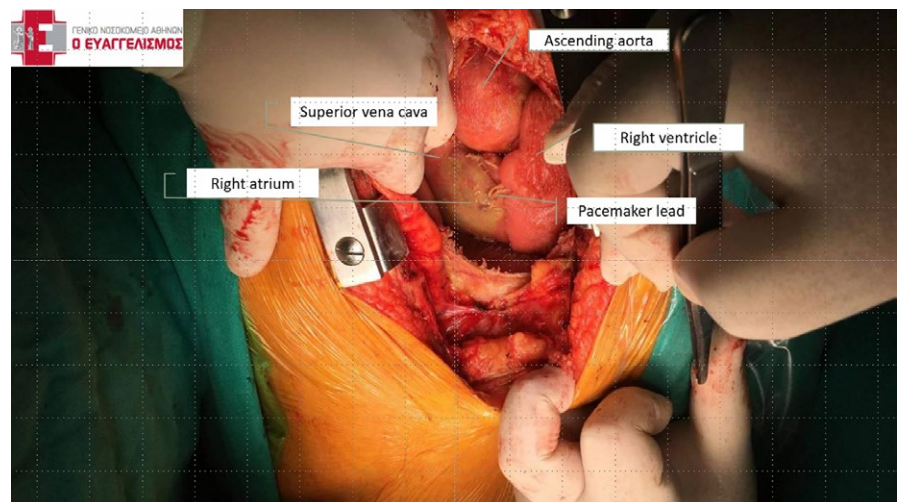


Figure 1. Lead perforation—A life-threatening complication of pacemaker implantation

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited and is not used for commercial purposes.

© 2018 The Authors. *Clinical Case Reports* published by John Wiley & Sons Ltd.

room, the patient was asymptomatic and hemodynamically stable. The 12-lead electrocardiogram showed sinus rhythm with pacemaker rhythm at 70 pulses/min. Chest x-ray revealed a small right-sided pleural effusion without specific abnormal findings in the position of pacemaker leads. Cardiac ultrasonography showed circular pericardial effusion (1.4 cm) without echocardiographic findings of cardiac tamponade. Device interrogation revealed loss of capture of the atrial lead while impedance and sensing were within normal range. Chest computed tomography revealed pericardial effusion with attenuation close to that of water without other pathological findings. At the day 3 of hospitalization, the patient developed cardiac tamponade and he was transferred at the operating room. The atrial pacemaker lead was found to perforate the superior vena cava, the external wall of the right ventricle, and subsequently crossed through the wall of the right atrium (Figure 1). The cardiothoracic surgeons decided a conservative treatment with pericardial sac washing with water saline without lead extraction because the perforation was characterized as delayed (more than 1 month after implantation)¹ and the extraction was considered high-risk. The device was programmed in VVD mode. At 3 months follow-up, the patient was asymptomatic while repeated echocardiography exams did not reveal pericardial effusion.

CONFLICT OF INTEREST

None declared.

AUTHORSHIP

GB, VP, MT, AS, EK, KT, A-MK, AS, IL, CC, AS: involved in management of the patient, major revision, final approval. PK: involved in major revision, final approval.

ORCID

George Bazoukis  <http://orcid.org/0000-0003-1009-9772>

REFERENCE

1. Hirschl DA, Jain VR, Spindola-Franco H, et al. Prevalence and characterization of asymptomatic pacemaker and icd lead perforation on ct. *Pacing Clin Electrophysiol*. 2007;30:28-32.

How to cite this article: Bazoukis G, Panagiotakopoulos V, Tsamatsoulis M, et al. A rare complication of pacemaker implantation. *Clin Case Rep*. 2018;6:1891–1892. <https://doi.org/10.1002/ccr3.1715>