



# Unusual Treatment of Pacemaker Pocket Infection: A Case Report

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## Abstract

*Pocket infection of a cardiac device is usually treated by removing the device and re-implanting it in a new site after complete treatment of the infection. This report illustrates a complicated case of pocket infection in the wake of the implantation of a permanent pacemaker (cardiac resynchronization therapy). The patient was treated conservatively through daily irrigation and dressing, broad-spectrum antibiotics, and debridement without the device being removed; the generator was kept out of the pocket for 5 weeks and then re-implanted in the same location successfully.*

*The method of treatment presented herein can be of value, not least in the elderly population who might experience life-threatening events following the replacement of their cardiac devices.*

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## Introduction

Pocket infection of pacemakers and implantable cardioverter defibrillators (ICD) is usually treated by removing the device and re-implanting it in a new site following treatment. We present a complicated case of pocket infection, treated without the removal of the device.

## Case Report

A 78-year-old man, a known case of hypertension, hyperlipidemia, and coronary artery bypass grafting (CABG) 8 years previously, presented with complete heart block plus unstable atrial and slow ventricular escape rhythm (left bundle branch block pattern) and received a permanent pacemaker (VVIR mode). He was subsequently admitted several times due to decompensated heart failure (left ventricular

ejection fraction = 20% and moderate mitral regurgitation), which led to his finally receiving a three-chamber cardiac resynchronization therapy (CRT) device. Afterwards, the patient developed a large hematoma around the pocket; the sutures were, therefore, removed for drainage. The removal of the sutures was followed by the development of extended skin necrosis with massive purulent secretions and cellulitis around the incision site (Figure 1).

The patient was afebrile and symptomless, white blood cell count was 10050/mm<sup>3</sup>, blood culture was negative, lab tests were normal, and there was no evidence for endocarditis. Surgical tissue debridement was performed and staphylococcus epidermis grew in its culture, suggesting contamination. Pocket infection being regarded as the primary diagnosis, the patient was treated with intravenous antibiotics (Vancomycin, Gentamicin, and Ciprofloxacin), which cleared the inflammation and resolved the cellulitis.

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Figure 1. Appearance of the wound (arrow) at the time of presentation (right pectoral region)

The existence of a massive soft tissue defect prompted the consultant surgeon to suggest relocating the generator and applying a tissue graft. Be that as it may, the patient was device-dependent and the generator could not be transferred to another place as it was impossible to re-implant the left ventricle lead. Additionally, further morbidity was reduced by eradicating the infection and curing the wound conservatively through keeping the generator outside the body (Figure 2).



Figure 2. Appearance of the wound following debridement and antibiotic therapy (2<sup>nd</sup> week)

The wound was thereafter irrigated with Zinc Sulfate lotion (1%) daily and dressed with Silver Sulfadiazine ointment and

Alginate Comfeel™ dressing. The generator remained out of the pocket for 5 weeks in a sterilized condition; and during the last 2 weeks, the edges of the wound were approximated gradually by sutures. After the wound had completely healed, the generator was successfully re-implanted in its prior location after sterilization with Decocept™. The surgical wound healed rapidly, the patient had no problem during a 10-month follow-up, and the CRT worked properly (Figure 3).



Figure 3. Complete healing of the wound after closure (end of week 10)

## Discussion

Infection of a medically inserted device is usually treated with appropriate antibiotics; and if there is not a rapid response, the removal of the foreign body is advocated. Otherwise, pocket infection carries a high risk of mortality and morbidity.<sup>1, 2</sup> However, some reports have suggested that conservative treatment can be successful too. In such instances, leads are preserved and the ICD is replaced following debridement, irrigation, and antibiotic therapy.<sup>3</sup> In the case of our patient, the removal of the entire pacing system could probably predispose the patient to unexpected events. He suffered from heart failure (New York heart association functional class III) and the coronary sinus lead was surgically implanted with difficulty in the first attempt; the patient was, as a result, considered a high-risk case for another re-implantation. On the other hand, skin graft could pose a risk of anesthesia and surgery, a risk which seemed to be too difficult for the patient to tolerate. Consequently, normal wound healing rather than skin graft application was opted for with a view to providing the patient with the opportunity to benefit from the CRT function.

We would posit that those who are susceptible to cardiac complications, especially the elderly population, can be



treated with a conservative method that includes broad-spectrum antibiotics, debridement, and modern dressing.

## ***Conclusion***

We would suggest that a conservative treatment of pacemaker pocket infection in those who have no signs of other infections such as endocarditis or septicemia could be a proper treatment, although it needs more time and medical care. Opting for such treatment must be at the doctor's discretion based on the patient's condition.

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