Salvage of Exposed or Infected Cardiac Electrical Devices with Pocket Revision and Relocation

W. Tyler Rockwell, BA, Roger Freedman, MD, W. Bradford Rockwell, MD

Purpose: The treatment of infected or exposed cardiac pacing and defibrillator devices is evolving. The long standing and widely accepted treatment calls for removal of leads and the electrical device[1,2,3] , with subsequent replacement on the opposite side of the chest. Success in resolving infection is 98% but lead extraction carries a 0.5-1% mortality rate.

Methods: The patients were divided into 4 study groups – 1) Atrophic skin, intraoperative cultures negative, 2) Atrophic skin, intraoperative cultures positive, 3) Perforated skin, exposed hardware, no macroscopic pus, 4) Perforated skin, exposed hardware, macroscopic pus. All 18 patients were treated with aggressive surgical resection of the entire lining of the device pocket, and relocation of the pocket to a new supramuscular or submuscular pocket on the same side of the chest. All patients received a minimum of 4 weeks of antibiotics postoperatively.

Results: 15 of the 18 cardiac electrical devices were salvaged.

Study group	Number salvaged	Average follow up (months)
1	3/3	73 (55-96)
2	5/6	31 (6-76)
3	5/5	28 (7-61)
4	2/4	49 (33-62)

The 3 patients who were not salvaged developed recurrent infection. They were treated with device and lead removal (ave. 8 months) and subsequent successful replacement (100%) on the opposite side of the chest.

Conclusion: Aggressive pocket lining excision and device relocation is an appropriate procedure for infected or exposed cardiac electrical devices or leads. Patients with macroscopic pus had a salvage rate of 50%. All other groups combined had a salvage rate of 92%. Patients with atrophic skin overlying the device should be treated. 7/9 patients with atrophic skin had positive cultures from the device pocket.

1. Sohail MR, Uslan DZ, Khan AH et al. Management and outcome of permanent pacemaker and implantable cardioverter-defibrillator infections. J Am Coll Cardiol 49:1851, 2007.
2. Margey R, McCann H, Blake G et al. Contemporary management of and outcomes from cardiac device related infections. Europace 12:64, 2010.
3. Johansen JB, Jorgensen OD, Moller M, et al. Infection after pacemaker implantation: infection rates and risk factors associated with infection in a population-based cohort study of 46299 consecutive patients. Eur Heart J 2011 (Epub ahead of print).

The authors have no financial disclosures.