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**“MRSE bacteremia via PICC line with AICD lead vegetation
in heart failure patient on ambulatory milrinone”**

Introduction: In patients with PICC lines, bacteremia occurred in 5.2% of hospitalized patients and 0.5% of outpatients.ⁱ Electrode lead endocarditis was reported in less than 1% of over 4000 implanted pacemakers and implantable cardio-defibrillators (AICD).ⁱⁱ

Case: A 37-year-old female was transferred from an outside hospital after being treated for 3 to 4 days of fever, chills, nausea with non-bloody emesis and persistent tachycardia. Her past medical history included four-vessel CAD, requiring a DES of circumflex artery, and postnatal cardiomyopathy. Her LVEF was 15%. She had an AICD and had been on milrinone for four months. Her working diagnosis was sepsis secondary to an infected PICC line. Blood cultures at the transferring hospital were positive for methicillin-resistant *S. epidermidis* (MRSE). Blood pressure was 91/55, pulse was 92 bpm, and WBC was 14.2K/uL. Chest x-ray and CT suggested infection or neoplasm in the right lower lung. Repeat blood cultures grew MRSE. A transthoracic echocardiogram showed a large, highly mobile vegetation, about 1cm x 2cm, on one AICD lead. She was maintained on IV vancomycin. Her PICC line was exchanged for a midline. Her AICD and leads were removed. She was placed on a Zoll LifeVest. Transesophageal echocardiogram one week later showed no valvular vegetations. Blood cultures at time of extraction were negative after 5 days. The infiltrate on chest x-ray was determined to be septic emboli. Prior to discharge, the midline was exchanged for a double port PICC line for milrinone and four weeks of IV vancomycin.

Discussion: The incidence of lead endocarditis while on long-term inotropes is not widely reported. One study of 200 patients found endocarditis in four patients. However, not all subjects underwent a TEE to evaluate for lead endocarditis.ⁱ This case demonstrates the need to evaluate for sequelae of bacteremia such as lead endocarditis in patients with implanted devices. Device-related infections increase mortality at five years in up to 35%.ⁱⁱⁱ In bacteremia caused by organisms such as MRSE, device and lead removal is recommended.ⁱⁱⁱ There is a 38% mortality at one year associated with device retention.^{iv} Evaluation of the possible source of infection, organisms involved, the device, and its leads are essential to reducing recurrence and death.

ⁱ Acharya D, Sanam K, Revilla-Martinez M, et al. Infections, Arrhythmias, and Hospitalizations on Home Intravenous Inotropic Therapy. *The American Journal of Cardiology*. 2016;117(6):952-956. doi:<https://doi.org/10.1016/j.amjcard.2015.12.030>

ⁱⁱ del Río A, Anguera I, Miró JM, et al. Surgical treatment of pacemaker and defibrillator lead endocarditis: the impact of electrode lead extraction on outcome. *Chest*. 2003;124(4):1451-1459. doi:[10.1378/chest.124.4.1451](https://doi.org/10.1378/chest.124.4.1451)

ⁱⁱⁱ Toriello F, Saviano M, Faggiano A, et al. Cardiac Implantable Electronic Devices Infection Assessment, Diagnosis and Management: A Review of the Literature. 2022;11(19):5898-5898. doi:<https://doi.org/10.3390/jcm11195898>

^{iv} Lakkireddy DR, Segar DS, Sood A, et al. Early Lead Extraction for Infected Implanted Cardiac Electronic Devices: JACC Review Topic of the Week. *Journal of the American College of Cardiology*. 2023;81(13):1283-1295. doi:<https://doi.org/10.1016/j.jacc.2023.01.038>