



Letter to the Editor

Severe staphylococcal sepsis in patient with permanent pacemaker



Giuseppe Mario Calvagna*, Salvatore Patanè

Cardiologia Ospedale San Vincenzo – Taormina (Me) Azienda Sanitaria Provinciale di Messina, Contrada Sirina, 98039 Taormina (Messina), Italy

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The use of implantable cardiac devices has increased in the last 30 years. The evolution of devices in serious cardiac rhythm pathology management has led progressively to the development of devices for the treatment of bradycardia, ventricular arrhythmia, and heart failure and for the prevention of sudden cardiac arrest [1–34]. Infection related to cardiovascular implantable electronic devices is a serious complication, necessitating removal of the device and prolonged antibiotic therapy. The infections are correlated with several causes such as host factors, perioperative period care, device factors, and causative microorganism. *Staphylococci* are the predominant organisms responsible for both early- and late-onset infections [35–46]. Since 2002, the transvenous lead extraction 'Bongiorni' technique has been used in our institution and it is very effective and associated with few serious complications [47–64]. We present a case of endocarditis in a 70-year-old Italian man with a DDDR pacemaker implanted anteriorly to the left pectoral muscle. The 70-year-old Italian man was admitted to the Cardiology Unit with a history of insulin-dependent diabetes, dyslipidemia, and hypertension treatment with ace inhibitors. The patient presented a predominantly light–moderate intermittent fever with strong elevations (39.5 °C), night-blooming, with a duration of about 3–4 h accompanied by profuse perspiration and marked asthenia. Presence of showy prepectoral area of sepsis (Fig. 1 panel A) with interest of the deep tissue layers with notable painful sensitivity to touch of the whole interested area and inflammatory affection of the small joints and averages (ankles, hands, wrists and elbows) (Fig. 1 panel B) that appear red, warm and slightly painful were observed. Laboratory examination

showed an elevated white blood cell count of 15,000/ μ l with an elevation in the neutrophil count, with a reduction of red blood cells (3,000,000/ mm^3) and hemoglobin (10 g/dl), elevated erythrocyte sedimentation rate and elevated antistreptolysin O titer. Chest X-ray revealed normal lead placement. A transesophageal echocardiography examination showed endocarditis vegetations (Fig. 1 panels C and D). One of these vegetations reached a diameter of 2 cm and it was on electrocatheter in the proximity of the tricuspid valve. Three sets of peripheral blood cultures were obtained from two different peripheral veins at intervals of 12 h during fever peaks (with higher peak temperatures). Waiting for the result of the peripheral blood cultures the patient was immediately started on local and general treatment of the infection with: povidone-iodine topical solution 2% once a day, amoxicillin/clavulanic acid 875 mg/125 mg every 12 h, ciprofloxacin 500 mg every 12 h, teicoplanin 400 mg every 12 h, and low-molecular-weight heparin (LMWH) 8000 units subcutaneously every 24 h.

After 3 days from the hospitalization the results of the blood cultures and antimicrobial susceptibility testing showed infection from *Staphylococcus epidermidis* with resistance to the commonly used antibiotic and the patient was started on a new antibiotic treatment with povidone-iodine topical solution 2% every 12 h, mupirocin topical ointment once a day, clindamycin 150 mg every 8 h, gentamicin i.v. every 8 h, teicoplanin 400 mg every 12 h, and low-molecular-weight heparin (LMWH) 8000 units subcutaneously every 24 h.

An ICU monitoring was performed. 5–6 days later, a slight improvement was observed: local symptomatology slightly attenuated, fever decreased (36.8 °C), and elevated white blood cell count of 14,000/ μ l remained with an elevation in the neutrophil count.

A new transesophageal echocardiography examination showed a modest reduction of the diameter of the greatest vegetation. We decided to perform the transvenous extraction of the whole system of permanent cardiac stimulation PM and lead with surgical revision of the infected area. After a temporary transvenous pacemaker insertion, the transvenous extraction was performed and the cultures of the leads (Fig. 2 panel A) and of the PM were done. Removal of necrotizing and suppurating processes was also surgically performed (Fig. 2 panel B). Cultures on the distal intravascular lead segments confirmed the presence of *S. epidermidis*. The same therapy without topic mupirocin was confirmed. A peak fever [39 °C] was recorded 12 h after removal with profuse sweating treated with ASA and cortisone. Over the following days the patient felt better. After 7 days, a transesophageal echocardiography examination showed no vegetations. The patient was implanted with a DDDR pacemaker on the right side and the temporary pacemaker was removed. Antibiotic therapy was prolonged over another 24 days. On the third week of therapy the patient was asymptomatic, laboratory results were normal, and no signs of articular

* Corresponding author at: Cardiologia Ospedale San Vincenzo – Taormina (Me), Azienda Sanitaria Provinciale, di Messina, Contrada Sirina, 98039 Taormina (Messina), Italy. Tel.: +39 3474800260.

E-mail address: gicalvagna@tiscali.it (G.M. Calvagna).

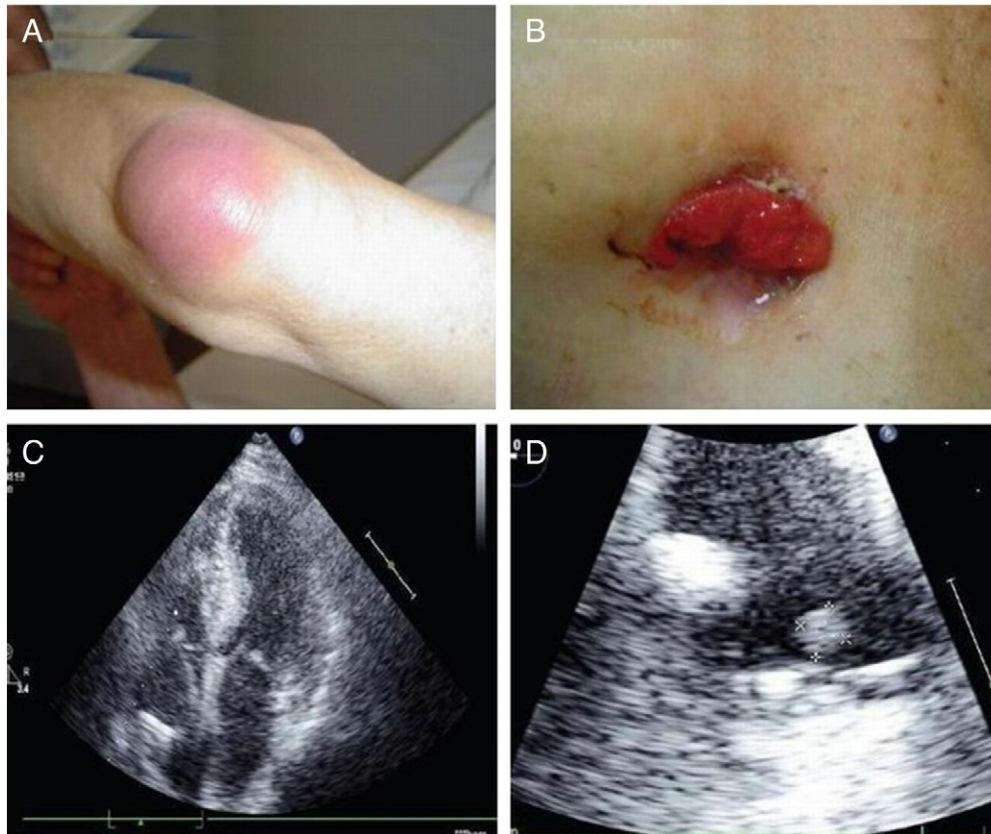


Fig. 1. Panel A: Presence of a remarkable prepectoral area of sepsis. Panel B: Inflammatory affection of the left elbow. Panels C and D: A transesophageal echocardiography examination showed endocarditis vegetations.

inflammation were shown. The follow-up performed (1 month, 6 months and 1 year later) showed the complete clinical recovery and the serum diagnosed some infectious trial. Also this case focuses its attention on the transvenous lead extraction “Bongiorni” technique and confirms the effectiveness and safety of this procedure.

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