



Presence of Endocarditis on the Patch in the Left Ventricular Outflow Tract Successful Treated with Daptomycin

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Authors' contributions

This work was carried out in collaboration between all authors. Author QC wrote the draft of the manuscript. Authors QC and CM performed the transesophageal echocardiography, provided the case and the figures. Author BV supervised the work. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

We present a rare case of endocarditis on the patch in the left ventricular outflow, in a 42 year-old man patient that had undergone surgical correction of tetralogy of Fallot and definitive closure with Dacron patch of a ventricular septal defect and, after 21 years, aortic valve replacement with mechanical valve, for the presence of severe aortic regurgitation, *Blood cultures* demonstrated the presence of methicillin-resistant *Staphylococcus aureus* and transesophageal echocardiography demonstrated on the LV face of the *previous* Dacron patch the presence of pathological vegetation, with complete resolution after Daptomycin.

Keywords: Endocarditis; methicillin-resistant *Staphylococcus aureus*; tetralogy of fallot; dacron patch.

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1. AIM

Role of Daptomycin in endocarditis of left heart

2. PRESENTATION OF CASE

A 42 year-old man arrived in hospital for fever at least 5 days, associated with the presence of chills.

He started at home broad spectrum antibiotic therapy, without resolution of the fever, with increase of dyspnea.

When he was 5 years old had been subjected to intervention of *modified Blalock-Taussig aortopulmonary shunt* for a tetralogy of Fallot and, at age of 14 years old he had undergone complete surgical correction of tetralogy of Fallot and definitive closure with Dacron patch of a ventricular septal defect.

At age of 35 years he underwent to aortic valve replacement with mechanical valve, for the presence of severe aortic regurgitation, and ascending aorta banding for aortic dilatation.

At clinical examination, patient had dyspnea, high body temperature (fever, 40°C), without pulmonary and legs aedema. *The patient did not show typical signs of endocarditis (i.e. splinter hemorrhage, osler nodes, janaway lesions).*

The blood examination showed an increase in reactive protein C (PCR: 15 mg/dl) and *leukocytosis (WBC 11.500 mm³)*. The cultural blood examinations demonstrated the presence of methicillin-resistant *Staphylococcus aureus* (MRSA). During transesophageal echocardiography we found, on the LV face of the Dacron patch in the LV outflow tract (previous closure of interventricular defect), pathological vegetation (see Fig. 1A) with diameters of 31 and 24 mm and area of 2.3 cm². *The prosthetic aortic valve did not show pathological vegetation, with normal mean gradient (12 mmHg) e normal function of moving disks.*

The patient was considered high risk for previous surgeries, and despite the size of the vegetation surgical option was rejected in favor of medical treatment.

The patients started specific antibiotic therapy using Daptomycin (8 mg/kg) according to clinical guidelines for the treatment of MRSA [1].

After 24 hours the fever disappeared and the clinical condition of the patient improved shortly.

After 40 days of continuous antibiotic therapy with Daptomycin, patient did not show fever, with normalized PCR, the patient underwent transesophageal echocardiography, that showed the completely resolution of vegetation on the ventricular face of the patch present in the LV outflow tract (Fig. 1B).

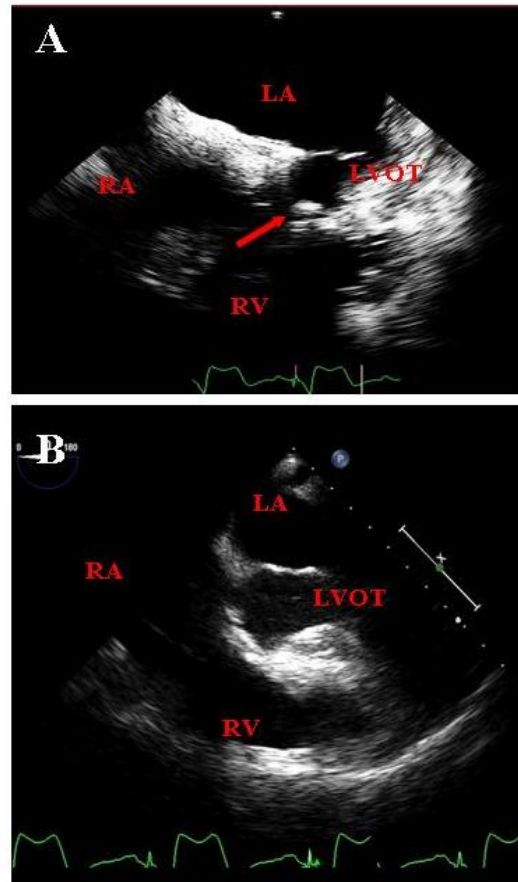


Fig. 1A. Pathological vegetation (arrow) on the left ventricular face of the Dacron patch in the LV outflow tract (LVOT). 1B. Completely resolution of vegetation LA (left atrium) RA (right atrium) RV (right ventricle)

3. DISCUSSION

Endocarditis and bacteremia are devastating infections associated with a high mortality [2-3]. The antibiotics with bactericidal activity represent the gold standard for the treatment of endocarditis with bacteremia. Daptomycin is a lipopeptide antibiotic with potent bactericidal

activity towards Gram-positive organism, including strains with multiple antibiotic resistances [4-6]. The daptomycin has a new mechanism of action: insertion and disruption of the functional integrity of the plasma membrane of the Gram-positive, which results in a rapid loss of membrane potential, cessation of macromolecular synthesis and cell death [5-7].

4. CONCLUSION

Daptomycin may be useful and has to be considered as primary treatment for high risk left sided infective endocarditis.

CONSENT

Not applicable.

ETHICAL APPROVAL

Not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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