CASE REPORT

Bentall-Bono procedure for aortic endocarditis with a very large vegetation. A case report

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Infective endocarditis (IE) is a rare entity in the pediatric population. We present the case of a 14-year-old female, with no relevant history, diagnosed by transthoracic echocardiogram of IE with large and mobile vegetation that conditions severe aortic stenosis and that also extends from the aortic valve to the beginning of the 3rd supra-aortic arch. An urgent Bentall-Bono procedure was performed with adequate postoperative evolution.

***Key words:** Bentall-Bono procedure; Infective endocarditis; Large Vegetation.*

La endocarditis infecciosa (EI) es una entidad poco frecuente en población pediátrica. Se expone el caso de una femenino de 14 años, sin antecedentes de importancia con diagnóstico por ecocardiograma transtorácico de EI con vegetación grande y móvil que producía estenosis aortica severa, y que además se extiendía desde válvula aórtica hasta inicio de 3er arco supraórtico. Se realizó de manera urgente procedimiento de Bentall-Bono con adecuada evolución posoperatoria.

***Palabras clave:** Procedimiento de Bentall-Bonno; Endocarditis infecciosa; Vegetación grande.*

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Infective endocarditis (IE) It is a rare entity in the pediatric population. The estimated annual incidence in the United States ranged from 3.3 per 100,000 per year in infants <1 year of age to 0.3 to 0.8 per 100,000 per year in older children and adolescents. [1,2]. Medical treatment is part of the initial treatment, however in patients with large vegetations (>10 mm), early surgery (within the first week of antibiotic therapy) is indicated as mortality is reduced from 90% to 25% [3]. We present the case of a 14-year-old female, with no relevant history, diagnosed by transthoracic echocardiogram (TTE) of IE with large and mobile vegetation that conditions severe aortic stenosis and that also extends from the aortic valve to the beginning of the 3rd supra-aortic arch.

CLINICAL CASE

This is a 14-year-old female patient with no pathological history. The condition began 4 months prior to hospitalization with presentation of fatigue and progressive dyspnea. A week before, he presented palpitations accompanied by fever, for which he sought medical attention and was admitted to his general hospital where a grade II/IV murmur was identified in aortic area

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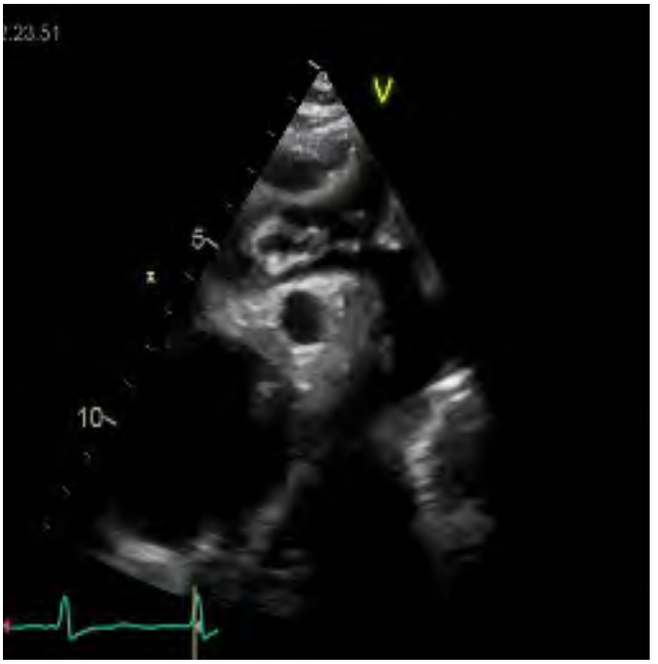

Figure 1. Sagittal section in suprasternal view where an image of vegetation attached to the walls of the ascending aorta with extension to the first supra-aortic is visualized.

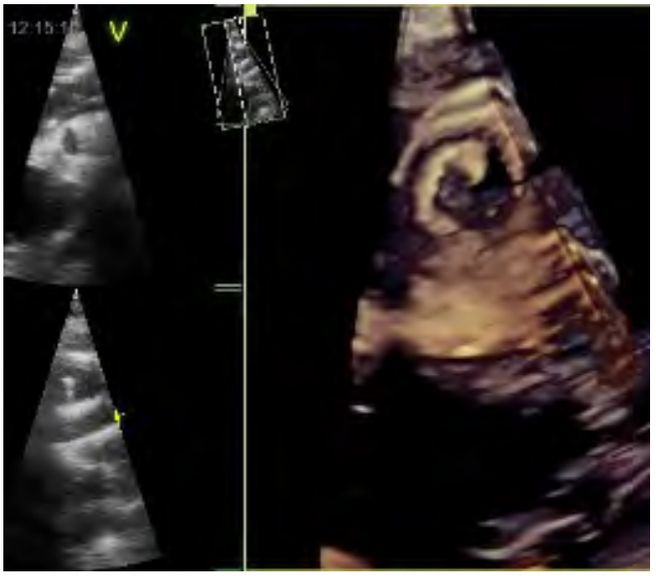

Figure 2. A) Sagittal view, B) coronal view, superimposition of the three planes showing intraluminal vegetation at the level of the ascending aorta.

with cardiomegaly on chest X-ray. With these findings, TTE is performed reporting: severe aortic stenosis at the valvular and supravalvular level generated by accessory valve tissue vs vegetation, which is mobile, extending from the anterior aortic valve (**Fig. 1**) (**Fig. 2**) to the beginning of the 3rd supra-aortic trunk generating a maximum gradient of 160 mmHg and a mean gradient of 97 mmHg.

Due to the risk of complications and embolic phenomena, a Bentall Bono procedure was performed with a mechanical valve graft #21, finding a 5mm supravalvular aortic stenosis, with an unstructured aortic valve and a large vegetation attached to the aortic valve that extends through the wall of the ascending aorta (**Fig. 3**) to the 3rd supra-aortic trunk.

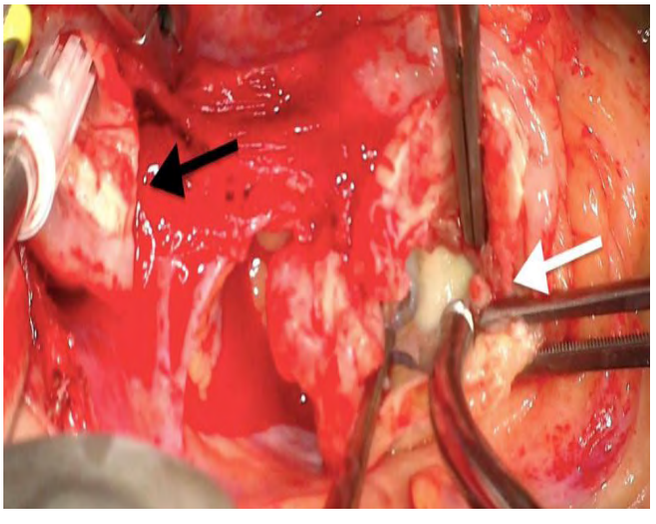

Figure 3. Intraoperative view after aortotomy. Black arrow: vegetations attached to the wall of the ascending aorta. White arrow: vegetation attached to the aortic root.

COMMENT

Patients with IE are rare in the pediatric population. Diagnosis and treatment require a multidisciplinary team, since this reduces IE mortality by comprehensively considering surgical risk and the optimal timing of surgery [4-6].

According to the recommendations of the guidelines established by the cardiology societies of the United States and Europe and the American Association of Thoracic Surgery for patients with large vegetations, an individualized risk-benefit evaluation is performed to compare early surgery (within the first week antibiotic therapy) with expectant management depending on multiple factors, including the diameter and volume of the vegetation, the change in size of the vegetation with appropriate antibiotic therapy, history of prior systemic embolization , likelihood that the patient will soon require valve surgery (e.g. due to severe valve dysfunction), and the patient's age and life expectancy (which affects the choice of prosthetic valve and exposure to the long-term risks of valve replacement) [5,7]. In the case of our patient, although she had no history of embolic phenomena, the size of the vegetation and the proximity of the supra-aortic vessels led us to make the decision of urgent surgery.

Ideally, surgery should be performed as soon as signs and symptoms of heart failure appear and before hemodynamic instability occurs, in fact, before valve replacement or repair for the treatment of endocarditis, approximately 90 % of deaths among IE patients were attributable to heart failure. In our case, functional class deterioration could be attributable to severe aortic stenosis rather than to the infectious process. Which would also indicate an early intervention [8].

When IE is complicated and presents paravalvular and supravalvular extension, it is often fatal and requires complex repair procedures by an experienced surgeon. The extended damage of the aortic valve, together with the vegetation adhered to the wall of the aortic root and ascending aorta, forced the performance of an aortic root replacement with reinsertion of coronary buttons [9].

Despite the high surgical and embolic risk, our patient underwent surgery without trans- or postoperative complications. We are struck by the presence of a large vegetation with only a few months of onset of symptoms in a patient who was known to be apparently healthy.

In conclusion, IE in pediatrics is a rare condition. This patient presented an unusual presentation but with high mortality. The decision for early surgery contributed to the adequate clinical evolution despite the extension of the lesion and the complexity of the procedure performed.

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