

## CASE REPORT

# Carditis due to rheumatic fever and its difficulty in aortic and mitral valve replacement

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*Antimicrobials have decreased cases of rheumatic fever worldwide. Even with these measures, rheumatic fever continues to cause rheumatic heart disease in children. Rheumatic valve disease is a very common complication. Based on the symptoms, treatment can be surgical. We present the case of a 14-year-old male diagnosed with aortic and mitral valve insufficiency secondary to rheumatic fever, requiring valve replacement.*

**Key words:** Acute heart failure; Acute rheumatic fever; Heart valves; Valve replacement.

*Los antibióticos han disminuido los casos de fiebre reumática en todo el mundo. Incluso con estas medidas, la fiebre reumática sigue provocando cardiopatías reumáticas en niños. La valvulopatía reumática es una complicación muy frecuente. Según los síntomas, el tratamiento puede ser quirúrgico. Presentamos el caso de un varón de 14 años diagnosticados de insuficiencia valvular aórtica y mitral secundaria a fiebre reumática, que requirió recambio valvular.*

**Palabras clave:** Falla cardíaca aguda; Fiebre reumática aguda; Válvulas cardíacas; Reemplazo valvular.

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Rheumatic heart disease is the most common cause of childhood cardiac morbidity globally [1]. As the countries included and unified medical criteria established by Jones in the years of 1944, the understanding and management of this disease were clarified.

The World Health Organization estimates that rheumatic fever affects at least 33 million people rheumatic fever affects and is the cause of more than 300,000 deaths each year. Estimating that 60 % of people with rheumatic fever will develop rheumatic heart disease [2]. Factors such as poverty and poor socioeconomic conditions increase the risk of suffering from acute rheumatic fever.

Despite the decrease in its incidence, rheumatic fever continues to cause consequences in the cardiovascular system, especially in those patients who suffer from group A streptococcus with poor medical management.

For an infection to occur at the cardiac level, the influencing factors are the interaction of the rheumatogenic strains, the person's immune system, and the susceptibility of the host [3]. The diagnosis is based on symptoms, and they are classified

into minor and major criteria, electrocardiogram data, laboratory results, and echocardiographic data of subclinical carditis and valve affections. Factors such as poverty and poor socioeconomic conditions increase the risk of suffering from acute rheumatic fever [4]. The most frequent cardiac complications due to rheumatic fever are heart failure, pericardial effusion, mitral regurgitation, and aortic regurgitation, leading to stenosis, which requires mitral valve repair, commissurotomy, and replacement of the mitral or aortic valve [5].

### CLINICAL CASE

The case of a 14-year-old male, native and resident of the State of Mexico, is described. No history of importance. Complete immunization schedule for age. Weight of 47 Kg (percentile 10-25) a body surface of 1.47 m<sup>2</sup> and a height of 156 cm (percentile 10 - 25).

One-month history of chest pain, orthopnea, fever, and polyarthralgia in the elbow, ankle, and phalanges. On physical examination, he presented data of acute heart failure, being intubated, and requiring ventilatory management for 7 days. His electrocardiogram showed an increase in the "T wave" and data of ventricular hypertrophy. Furthermore, a transthoracic echocardiography found data of severe aortic insufficiency and severe mitral insufficiency, dilatation of left cavities, and LVEF 56 % (Fig. 1).

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Figure 1. Transthoracic echocardiography showing data of severe aortic insufficiency and severe mitral insufficiency, with dilatation of left cavities.

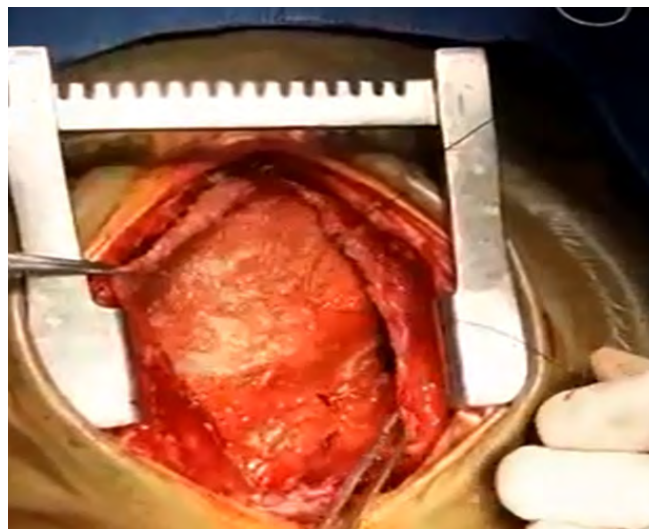


Figure 2. During the intervention it was observed bleeding, and evidence of active infection, for which biopsies were taken and it was decided to defer the procedure.

Finally, due to data of pulmonary hypertension and persistence of left heart failure spironolactone, captopril and cefepime were administrated. Also, management with levosimendan at a dose of 0.1 mcg/Kg/min.

Paraclinical laboratories reported coagulation times PT: 14.7 seconds, INR: 1.30, PTTp: 23.2 seconds, hemoglobin 10.6 g/dL, hematocrit 31.6%, platelets 284,000 thousand cells/ $\mu$ L, leukocytes 14,000 thousand cells/ $\mu$ L, lymphocytes 1680 thousand cells/ $\mu$ L, neutrophils 11760 thousand cells/ $\mu$ L, urea 15.3 mg/dL, creatinine 0.87 mg/dL, normal serum electrolytes, ESR 30 mm/hr, antistreptolysin O (ASLO) 7340 U/mL, negative pharyngeal secretion culture, elevated antistreptolysin and isolation by group A Streptococcus B blood culture.

Eighteen days later, he was admitted to the operating room and the approach revealed friable tissues, bleeding, and evidence of active infection, for which biopsies were taken and it was decided to defer the procedure. Pathological study reported myxoid degeneration and fibrosis (Fig. 2).

After 49 days, a second surgical procedure was performed for aortic and mitral valve replacement. St Jude mitral valve 27 mm and St Jude Aortic valve 17 were installed without complications.

## COMMENT

Rheumatic fever continues to be a medical problem that causes rheumatic heart disease in children. Most frequently seen between 5 to 15 years, with a predominance of male gender [6].

In 2015, the American Association of Cardiology added two criteria for diagnosis: one sociodemographic, such as risk stratification based on the population and the presence of carditis and valvular disease detected by echocardiography. The

echo findings of valvular involvement are valvular thickening and aortic valve nodules, mitral regurgitation, and aortic regurgitation [7].

The rheumatic mitral valve should be repaired when technically feasible. The surgical techniques consist in annular placcation, commissurotomy, reconstruction of commissural leaflet, placcation, and reattachment of the aortic cusps. Mixed mitral lesions and residual postoperative mitral regurgitation are predictive factors for reoperation in a patient undergoing repair [8].

Mitral valve regurgitation alone is most likely to recur, whereas when the aortic valve is involved, it rarely shows complete resolution. When it is not possible to carry out the repair, valve replacement is indicated.

In conclusion, rheumatic fever continues to be a current public health problem. Multidisciplinary management of rheumatic fever is essential to obtain an optimal result, as well as deciding the precise moment for surgical intervention. If there are data of carditis and heart failure associated with aortic and mitral valve insufficiency, they must be repaired or replaced.

Aortic valve disease is the most frequent indication for valve replacement in patients with rheumatic fever; secondarily, carditis is a risk factor that makes it difficult to perform the procedure. Currently, valve replacement for rheumatic heart disease has shown good long-term results.

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