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INFECTIVE ENDOCARDITIS ON PATENT DUCTUS ARTERIOSUS: ABOUT A CASE

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ABSTRACT

Patent ductus arteriosus (PDA) is a relatively common congenital heart disease after ventricular and auricular septal defects. Infective endocarditis with vegetation in the pulmonary artery associated to a PDA, however, a very rare pathology. Some very rare cases treated surgically have been described. We report the case of infectious endocarditis on PDA in an 11-year-old girl hospitalized in the ward for high fever. The clinical examination at the entrance essentially found a fever at 39°C, regular rapid heart sounds, a left subclavicular continuous murmur, a normal pulmonary second heart sound. The electrocardiogram showed sinus tachycardia at 100 cycles per minute, left ventricular hypertrophy. The echocardiogram on admission showed large mobile vegetation in the trunk of the pulmonary artery and left-right shunt on a PDA with an enlargement on the left cavities and moderate pulmonary artery hypertension (PAH). In response to the persistence fever despite amoxicillin and clavulanic acid, we adjusted with bi-antibiotic therapy with Ceftriaxone (100 mg/kg/day for six weeks) and Gentamycin (3 mg/kg/day for two weeks). The evolution was favorable with the disappearance of fever and vegetation at the last echocardiographic check. PDA has been proposed for closure.

KEYWORDS: Patent ductus arteriosus, infective endocarditis, echocardiography, congenital heart disease, Dakar.

INTRODUCTION

Infective endocarditis (IE) is one of the serious complications in children with congenital heart disease. IE on PDA is rare, even more so if it occurs as the circumstance of discovery.[1] The management of an IE on persistent arterial canal can be medical and/or surgical. In our low-income countries, the prognosis of IE is poor, especially since the technical platform is limited. The systematic closure of PDA with a murmur reduces the risk of IE. This requires early detection through systematic auscultation of children, especially during the pre-school visit. However, in our countries, the diagnosis of non-complicated heart disease is late. We report the case of a PDA that was discovered after an IE. After a well conducted antibiotic treatment, we noticed a good evolution in our patient. The closure of the PDA was subsequently proposed.

OBSERVATION

This is an 11-year-old female child referred from a peripheral health center for a fever and a heart murmur who had no known medical history. She described a high day and night fever with sweat and chills that had been progressing for several days despite the prescription of antibiotic therapy. This fever is associated with a progressive alteration of the general state. The clinical examination at the entrance found hyperthermia at 39°C, normal colored conjunctives, some dental caries. Heart sounds were regular and fast, with a continuous left subclavicular murmur breath intensity 3/6. Second pulmonary heart sound was normal. The rest of the clinical examination was normal. In biology, we noted a hyperleukocytosis at 16,000/mm³ with a predominance of neutrophils, a high level of C-reactive protein at 98 mg/l. The blood cultures were negative. The electrocardiogram showed sinus tachycardia at 100 cycles per minute and left ventricular hypertrophy; the echocardiogram on admission showed large mobile vegetation in the trunk of the pulmonary artery, other vegetation on the pulmonary valve “Figure 1” and a 4 mm, left-right shunt PDA “Figure 2 a and b”, enlargement of left cavities and moderate PAH.

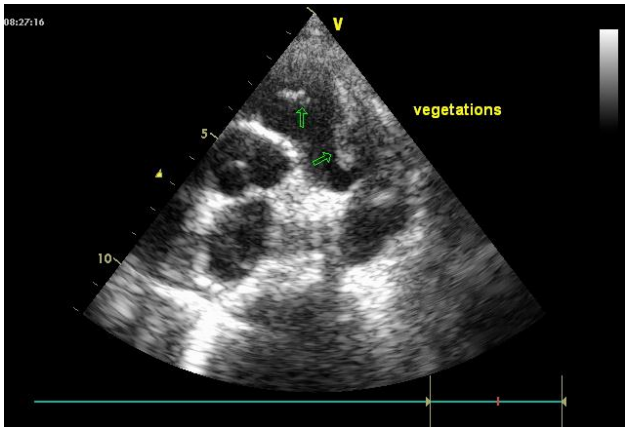

Figure 1: Image showing pulmonary valve, trunk of pulmonary artery and ductus arteriosus with vegetations in pulmonary tract (arrows).

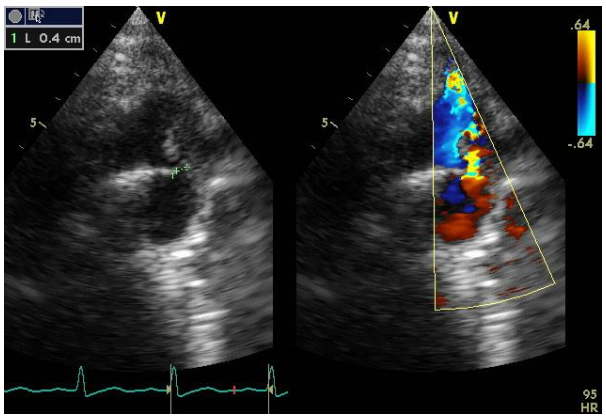

Figure 2a: Image showing the patent ductus arteriosus with left to right shunt on color Doppler

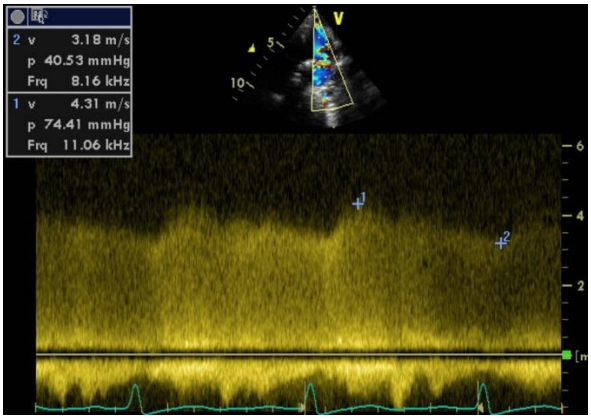

Figure 2b: Image showing the continuous flow of the left to right shunt in the patent ductus arteriosus on continuous-wave Doppler

The diagnosis of infective endocarditis was made despite the incomplete Duke criterion due to negative blood culture. The presence of a major criterion which is vegetation on echocardiography and two minor criteria which are fever above 38°C and predisposition to underlying heart disease led to the diagnosis of infective endocarditis. A therapeutic adjustment was made with Ceftriaxone (100 mg/kg/day for six weeks) combined with Gentamycin (3 mg/kg/day for 2 weeks) and the evolution was favorable with the disappearance of fever and vegetation at the last echocardiographic control two months after admission "Figure 3 a and b". PDA has been proposed for closure.

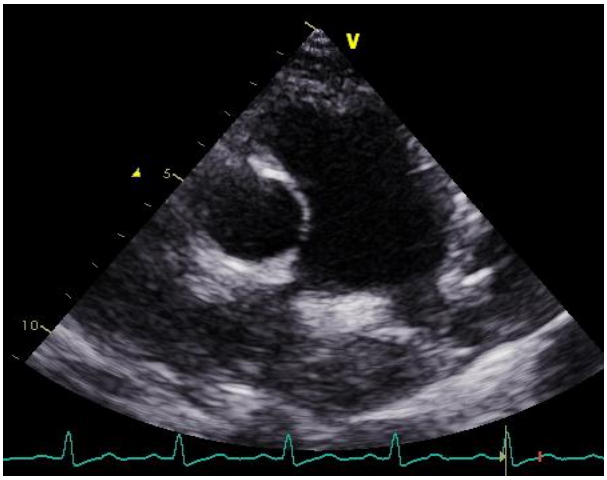

Figure 3a: Image of the pulmonary artery and its branches showing the disappearance of the vegetations after therapeutic adjustment.

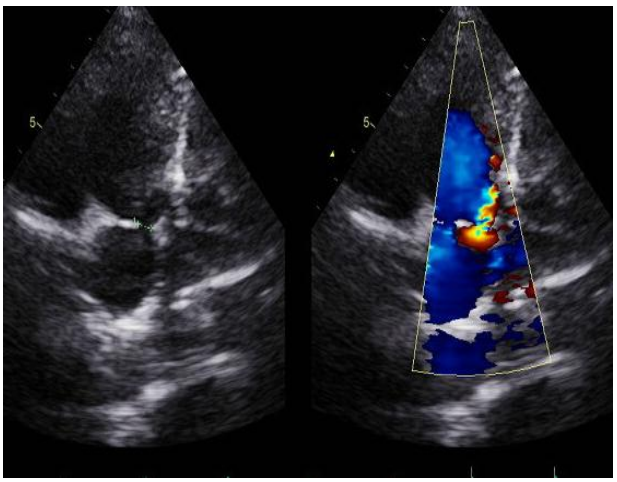

Figure 3b: Image of the patent ductus arteriosus with left to right shunt on color Doppler showing the disappearance of the vegetations after therapeutic adjustment.

DISCUSSION

Ductus arteriosus is a normal anatomical structure during fetal life. Its persistence beyond the third month after birth is considered pathological.[2] Patent ductus arteriosus (PDA) is a relatively frequent congenital heart disease after ventricular and auricular septal defects; its untreated course is the development of fixed pulmonary arterial hypertension (PAH) and the most threatening complication is infective endocarditis.[3,4] The occurrence of infective endocarditis on PDA has become rare in developed countries due to the systematic early therapeutic closure of patent ductus arteriosus at the time of diagnosis.[1] The dragging fever was the reason for our patient's consultation. It was an inaugural major sign of its infective endocarditis, which led to the discovery of

its PDA. This is in line with Masood S. et al. who reported 6 undiagnosed of their 14 cases of PDA before the advent of infective endocarditis.[5] The continuous murmur, as in our case, is constant in PDA except those with PAH where it becomes systolic only or even abolished with a strong second pulmonary heart sound.[4]

A biological inflammatory syndrome of hyperleukocytosis with predominantly neutrophils and increased CRP was present in our patient. The echocardiographic discovery of vegetations is important for diagnosis.[6,7,8] This was for our case with two vegetations: one hanging in the trunk of the pulmonary artery and the other at the expense of the pulmonary valve.

The management is medical for our case, with the introduction of a double antibiotic therapy made of Ceftriaxone 100 mg/kg/day for six weeks and Gentamycin 3 mg/kg/day for 2 weeks. The management of infective endocarditis on PDA with the presence of vegetations can be medical by double antibiotic therapy.[5,7,9] or surgical by vegetative excision and closure of the duct.[6,8] But surgical management is especially important in cases where medical treatment has not solved the problem, in patients with signs of congestive heart failure, conduction disorders, pulmonary embolism and in patients with prosthetic devices.[9] A closure of the PDA regardless of its size is also indicated as a preventive measure against infective endocarditis.[10] The evolution was favorable under medical treatment for our case, which also joins the 14 cases of Masood et al.[5] and has been proposed for a closure of his PDA.

CONCLUSION

Infective endocarditis is a serious complication of patent ductus arteriosus, although it is rare. Without treatment, it is fatal with septic pulmonary embolism and sepsis. Medical treatment with double antibiotic therapy guided by antibiotic susceptibility testing after blood culture is ideal and surgical treatment is reserved for cases with complications such as heart failure, conduction disorders, pulmonary embolism or carriers of prosthetic materials. Preventive closure of the arterial canal, regardless of its size, prevents the occurrence of infective endocarditis.

CONFLICT OF INTEREST: The authors declare that they have no conflict of interest.

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