



Enlargement of the neopulmonary after Jatene's operation

Ampliação da neopulmonar tardiamente à operação de Jatene

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CLINICAL DATA

7-year-old female child, 19 kg, height of 116 cm and asymptomatic.

Full-term baby with a diagnosis of transposition of the great arteries underwent Jatene's operation with Lecompte maneuver, at the first week of life. In the immediate postoperative period, presented endocarditis due to *Candida glabrata*, which was treated medically.

In outpatient treatment it was noted an increase in gradient between the right ventricle and neopulmonary in routine echocardiographic examinations.

With 7 years of evolution, further surgery was indicated, although the patient did not use drugs.

The physical examination was completely normal except for a systolic ejection murmur at the left sternal border of +4/6+.

ELECTROCARDIOGRAM

Sinus rhythm, rate of 100 beats/min, SÂP + 60°, SÂQRS + 120°, QT 0,23, QTc 0,37. Atrial and right ventricular overload and change in anteroseptal repolarization (Figure 1).

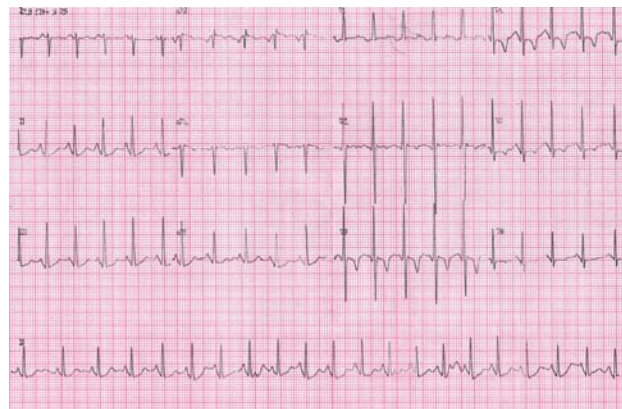


Fig. 1 – Preoperative electrocardiogram with significant right ventricular overload

RADIOGRAPHY

Visceral *situs solitus* in levocardia. Diaphragmatic dome elevated to the left due to gastric bubble. Cardiothoracic ratio of 0.50. Heart size and pulmonary vasculature within normal limits (Figure 2).

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Fig. 2 – Preoperative chest radiography with heart size within normal limits

ECHOCARDIOGRAPHY

Situs solitus in levocardia, late postoperative arterial Jatene's operation with stenosis of the pulmonary trunk (neopulmonary) located about 1 cm above the valve. The pulmonary valve annulus diameter was 17.2 mm, 13.8 mm pulmonary trunk, right pulmonary artery 6.3 mm and left 4.8 mm. On Doppler, the flow was turbulent and accelerated in the neopulmonary, compatible with maximum gradient of 116 mmHg and mean of 72.9 mmHg (Figures 3 and 4).

DIAGNOSIS

Reoperation was indicated by measurements made solely on the echocardiogram, which increased gradually, and the images of multi-detector computed tomography, which showed ring stenosis in the pulmonary trunk with discrete poststenotic dilatation. It is noteworthy that the child was totally asymptomatic, but there must always be concern to avoid the increase of the right ventricular mass, arrhythmias and sudden death [1,2].

OPERATION

The first arterial inversion procedure was performed at the beginning of our experience and occurred uneventfully in the operating room. Two points should be emphasized: the episode of endocarditis in the immediate postoperative period and the use of patches of bovine pericardium for reconstruction of the neopulmonary coronary sinus.

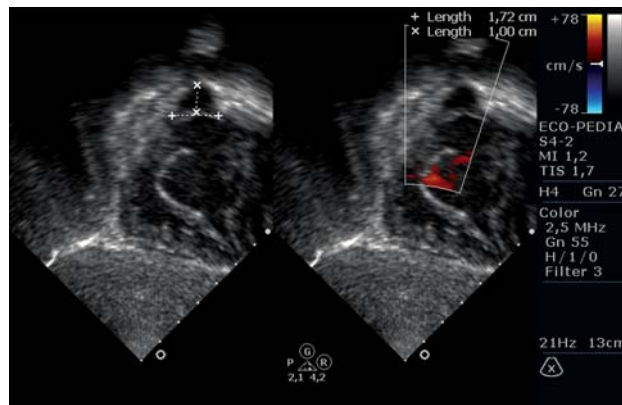


Fig. 3 - Preoperative echocardiogram in subcostal view showing the right ventricular outflow tract, pulmonary valve annulus and the reduction in size of the pulmonary trunk

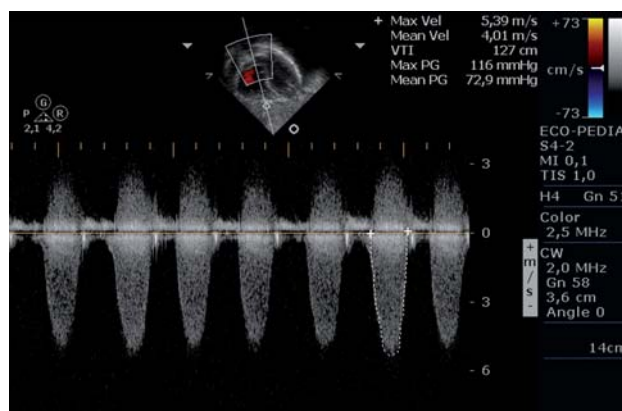


Fig. 4 - Continuous preoperative Doppler measuring the gradient at the local of supravalvular stenosis in the pulmonary trunk

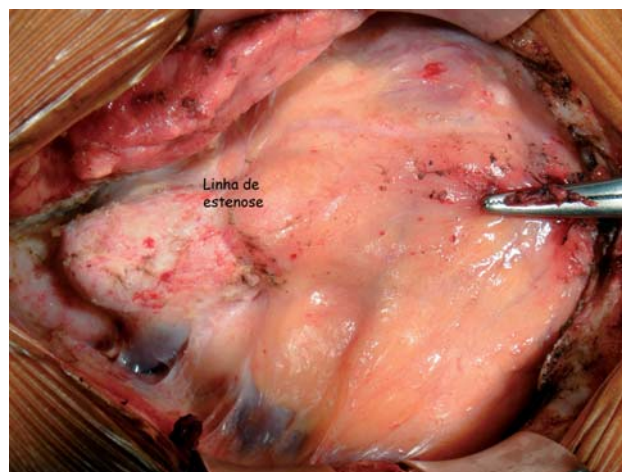



Fig. 5/ Video 1 - After sternotomy and dissection of adhesions locating the site of stenosis in the pulmonary trunk. In the video we can see indirectly the palpable thrill during the operation

At reoperation, we proceeded to the dissection of the adhesions and individualization of the structures, identifying the location of the thrill properly and hence the stenosis of the neopulmonary supra-avalvular trunk (Figure 5/Video 1). 

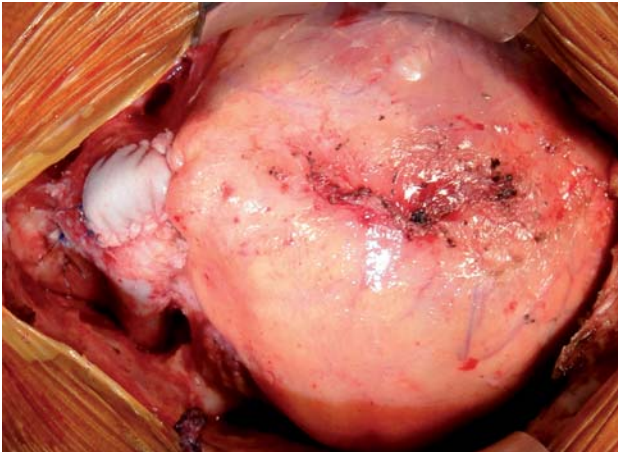




Fig.6/Video 2 – Patch of bovine pericardium used in the pulmonary artery to enlarge the stenotic site 

After adequate heparinization, an arterial cannula was inserted into the aorta and another (venous) into the right atrium. Cardiopulmonary bypass was started in normothermia without clamping the aorta and longitudinal

opening of the pulmonary trunk in the stenotic site. It was found a retraction ring in the site of the suture lines of the bovine pericardium patches with the autologous tissue of the native pulmonary artery. This ring was resected and a new bovine pericardium was previously implanted in the pulmonary trunk.

The CPB time was 18 minutes without myocardial ischemia. 

In the immediate postoperative period, the child was uneventful and was discharged on the fourth day of hospital stay without use of medications and with echocardiogram demonstrating excellent enlargement of the neopulmonary trunk.

REFERENCES

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2. Jatene MB, Jatene IB, Oliveira PM, Moysés RA, Souza LC, Fontes V, et al. Prevalência e abordagem cirúrgica da estenose supra-avalvular pulmonar pós-operação de Jatene para transposição das grandes artérias. Arq Bras Cardiol. 2008;91(1):17-24.