



Correction of aortic coarctation with tube interposition in a 12 years-old child

Correção de coarctação de aorta com interposição de tubo em criança de 12 anos

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CLINICAL DATA

12-year-old female child, 53 kg, brown, from Palestina, SP.

She was referred to our hospital's pediatric service presenting hypertension (240/140 mmHg) during surgery to remove a synovial cyst in the right hand.

The anamnesis of admission to the Pediatric Cardiology Service identified holocranial headache identified as single symptom, not using any medication.

Physical examination showed the pressure difference between upper and lower limbs, and 190/140 mmHg in the left arm, 190/140 mmHg in the right arm, 130/100 mmHg in the left lower limb and 130/90 mmHg in the right leg, in addition to lower pulse diminished. The heart sounds were normal with systolic murmur +/6+ in the left lower sternal border. Murmur was not noted on the back.

ELECTROCARDIOGRAM

Sinus rhythm, frequency of 70 beats/min, SÂP + 60°, SÂQRS + 60°, PR 0,16 s, QRS 0,10 s, QT 0,40, QTc 0,42. Left ventricular overload and alterations of ventricular repolarization (Figure 1).

RADIOGRAPHY

Visceral *situs solitus* in levocardia. Coastal erosion in the lower edges. Slightly increased cardiac area, reduced transparency in the right lung base due to possible injuries of airspace.

ECHOCARDIOGRAPHY

Situs solitus in levocardia, aortic coarctation of segment with hemodynamic repercussion, minimal muscular

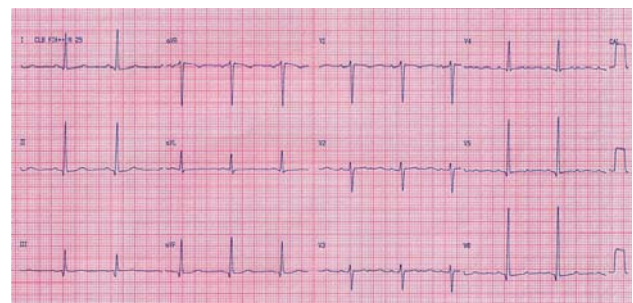



Fig. 1 – Eletrocardiograma pré-operatório com sobrecarga ventricular esquerda

trabecular interventricular communication detected only by Doppler echocardiography and without bicuspid aortic valve dysfunction [1].

Ascending aorta with 29 mm, arch before the innominate artery 22 mm between the brachiocephalic trunk and left subclavian artery 7 mm. The ejection fraction was 68.1%.

MULTI-DETECTOR COMPUTED TOMOGRAPHY

Reduction target size of aortic arch in the descending portion of about 2.2 cm long. It is also noted collateral vessels distal to the affected region (Figure 2 / Video 1). 

DIAGNOSIS

Fundamentally, it should be noted that the diagnosis could easily have been performed in the city of origin with the simple blood pressure measurement in the four limbs. It should also be emphasized the fact that a serious disease was present with little or no symptoms until adolescence [2].

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The additional tests confirmed the diagnosis, and appropriate drug treatment and medical operation to correct the defect were indicated.

OPERATION

Children in the lateral position, lateral-posterior thoracotomy, opening of the pleura, wide dissection of the aortic arch, the coarcted area, descending aorta, left subclavian artery and careful isolation of the intercostal arteries.

Observed long segment of the aorta with reduction in size between the left subclavian artery and descending aorta (Figure 3).

Lateral clamping of the descending aorta below the affected region, lateral incision and end-to-side anastomosis of polytetrafluoroethylene (PTFE) tube no.16. Sectioning the other end of the tube in bezel, this was also anastomosed (end-to-side) in the aorta near the origin of the LSA, which was also clamped laterally. The ischemic times for the anastomoses were respectively 10 and 12 minutes, without cardiopulmonary bypass [3]. The sutures were performed using polypropylene 5-0 yarn (Figure 4 / Video 2).

The tremor observed in the tube after the anastomoses indicated high blood flow, which was confirmed by postoperative echocardiography.

The patient was discharged after 35 days of hospital stay due to suture dehiscence, need for antibiotic therapy and hyperbaric oxygen therapy.



Fig 2/Video 1 (<http://www.rbccv.org.br/video/v25n4b/>) Picture in sagittal cutting showing the aortic coarctation segment obtained by multi-detector computed tomography

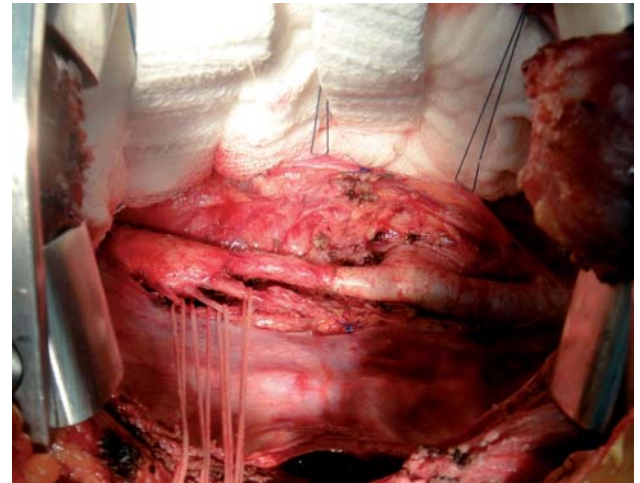


Fig. 3 – Aortic segment compromised after extensive aortic dissection. It is noted the presence of intercostal arteries repaired with cotton thread

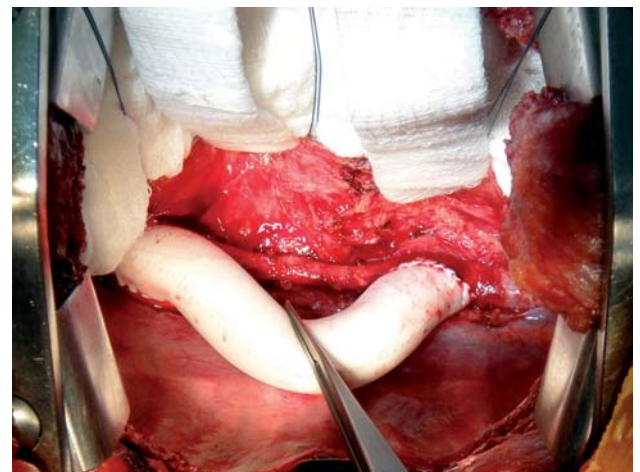


Fig 4/Video2 - Polytetrafluoroethylene tube no. 16 implanted between the aorta near the left subclavian artery and descending aorta below the compromised segment

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