

Cardiomegaly in 2-month-old-baby. Anomalous origin of the left coronary artery from the pulmonary trunk (ALCAPA)

Clinical Case Portal

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Case Report

Anomalous origin of the left coronary artery from the pulmonary trunk (ALCAPA) is a rare congenital anomaly. We report a 2-month-old baby girl in whom a significant cardiomegaly in radiological examination was found.

She presented with pallor, irritability and paroxysms of distress after feeding. In ECG signs of anterolateral infarction and in ECHO-2D features of dilated cardiomyopathy were found.

The correct diagnosis was established due to transthoracic echocardiography with color Doppler imaging.

Patient history prior to current observation :

2-month-old-girl was admitted to the Department of Cardiology after X-ray chest examination, in which significant cardiomegaly had been found.

She was born from second term pregnancy, second normal delivery with the Apgar score of 10 points, body weight of 2650g.

From the first month of life feeding difficulties, dyspnea, paroxysms of distress and the murmur over the heart were observed.

Clinical findings on admission, evolution and outcome :

At the time of admission, she was in poor general condition, with the signs of heart failure, tachypnea and sweating. In physical examination increased limits of cardiac dullness, pulsation of the precordial region, tachycardia, systolic murmur of mitral incompetence over the apex and hepatomegaly were found.

Laboratory tests were within limits.

In chest X-ray the cardiac silhouette was considerably enlarged fig. 1.

In ECG the signs of left ventricular hypertrophy and myocardial infarction were present: deep Q waves with T wave inversions in I, avL, and deep Q waves with ST elevation in the left precordial leads fig. 2.

Echocardiographic examination revealed increased left ventricular dimensions (LVDD 37 mm) with decreased global contractility (EF 25%) and segmental contractility disturbances fig. 3.

The increased echogenicity of anterolateral papillary muscle was demonstrated.

Right coronary artery was dilated.

An anomalous origin of the left coronary artery from the pulmonary artery was visualized fig. 4 fig. 5.

Color Doppler imaging clearly showed the diastolic retrograde flow from the left coronary artery to the main pulmonary artery fig. 6 and systolic-diastolic flow through septal collateral circulatory vessels fig. 7.

The diagnosis of ALCAPA was established and the patient was referred to cardiosurgery for reimplantation of the left coronary artery to the aorta.

Discussion

Anomalous origin of the left coronary artery from the pulmonary trunk (Bland-White-Garland syndrome) must be ruled out in children with dilated cardiomyopathy or isolated severe mitral regurgitation.

In the presented case, the clinical course of ALCAPA was typical. The symptoms occurred at the second month of life, when pulmonary arterial pressure had diminished. The coronary steal from the left coronary artery into the pulmonary trunk resulted in malperfusion of left ventricular muscle and myocardial infarction.

The child demonstrated angina like spells and signs of heart failure. In chest X-ray examination cardiomegaly and in ECG signs of myocardial infarction were found.

In Echo - 2D the following features of ALCAPA were demonstrated:

- dilated cardiomyopathy: increased left ventricular dimensions with decreased contractility,

- significant mitral regurgitation,
- a prominent right coronary artery,
- visualization of the left coronary artery from the pulmonary trunk,
- detection of the diastolic retrograde flow in the pulmonary artery and systolic-diastolic flow through the septal intercoronary collaterals with color Doppler imaging.

In most of cases echocardiographic examination enables the diagnosis of ALCAPA. If the origin of the left coronary artery can not be identified with certainty, aortography may be necessary. fig. 8, fig. 9 show the aortograms of a child with ALCAPA in whose the echocardiographic examination appeared doubtful.

Conclusion

We would like to emphasize that in infants with cardiomegaly in chest X-ray, and features of ischemia or myocardial infarction in ECG anomalous origin of the left coronary artery from the pulmonary trunk should be suspected. Close examination of the coronary arteries is mandatory in all children with mitral regurgitation.

Color Doppler imaging is of great value to establish the diagnosis of ALCAPA.

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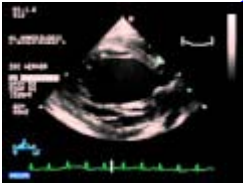
Fig. 1 :
[ALCAPA Chest X-ray.](#)



Fig. 2 :
[ALCAPA ECG](#)



Video 1 :
[ALCAPA TTE parallax LV enlargement](#)



Video 2 :
[ALCAPA TTE 2D Parsax Anomalous left coronary artery from the pulmonary trunk](#)

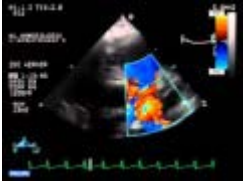


Video 3 :
[ALCAPA TTE 2D Parsax Anomalous left coronary artery from the pulmonary trunk](#)



Video 4 :

[ALCAPA TTE 2D CFM Parsax](#)



Video 5 :

[ALCAPA TTE CFM 2D Parsax Intercoronary collaterals](#)

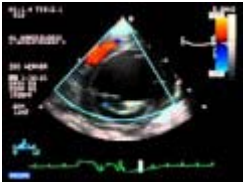


Fig. 3 :

[ALCAPA Aortogram. Normal origin of RCA](#)

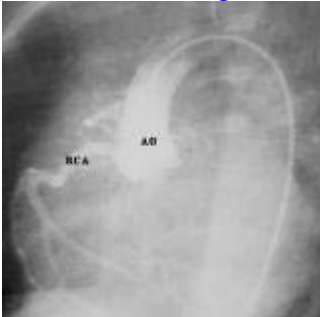


Fig. 4 :

[ALCAPA Aortogram. Anomalous origin of LCA from MPA](#)

