

## Congenital aneurysm of the muscular interventricular septum in a child

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**SUMMARY:** Başpınar O, Karaaslan S, Oran B, Baysal T, Keleş S. Congenital aneurysm of the muscular interventricular septum in a child. Turk J Pediatr 2005; 47: 82-84.

Congenital aneurysms of the muscular interventricular septum without ventricularseptal defect are extremely rare. We describe a five-month-old girl patient with congenital aneurysm, pathological ST changes and minimal right ventricular outflow tract obstruction. The electrocardiogram showed Wolf-Parkinson-White syndrome, pathological ST changes and combined ventricular hypertrophy criteria. The transthoracic echocardiography and cardiac catheterization demonstrated a septal aneurysm which was bulging into the right ventricle and systolic pressure gradients between the main pulmonary artery and right ventricle outflow tract with normal coronary arteries. The patient has shown no symptoms, but some rhythm disturbances may be expected because of her electrocardiographic anomalies. Therefore, these patients should be followed carefully because of possible complications.

**Key words:** congenital aneurysm, interventricular septum, childhood.

Left ventricular aneurysms are extremely rare in children and are most often acquired defects resulting from myocardial injury in adults. In childhood, the acquired causes of these include anomalous origin of the left coronary artery from the pulmonary artery, transient myocardial ischemia of the newborn, blunt trauma to the chest, various infections, postoperative cardiac surgery, cardiomyopathies, sarcoidosis, and Kawasaki disease<sup>1-6</sup>.

There have only been a few reports of congenital septal aneurysms since 1988, and their causes are unknown<sup>1-10</sup>. We report a case of congenital aneurysm in a five-month-old girl with ST-T changes, minimal right ventricular obstruction, and small atrial septal defect.

### Case Report

A five-month-old girl patient was referred for cardiac evaluation, following incidental detection of a precordial murmur. She was clinically well nourished and developed (length: 64 cm, 50-75%, weight 5.8 kg, 3-10%), and physical examination was normal. Delivery had been normal at term after a first pregnancy. The parents were first cousins. The patient did not

have any medical care previously. There was no family history of congenital heart disease. She had a pulse rate of 140/minute, blood pressure 90/50 mmHg, normal heart sounds and grade II/VI systolic ejection murmur at the apical region. Chest radiograph revealed cardiomegaly with a cardiothoracic ratio of 0.64. The electrocardiogram showed a large QRS complex, short PR interval, delta waves, and 2 mm ST depression in lead I and positive T waves in lead V<sub>1</sub>, abnormal small R/S ratio in right precordial leads (Wolff-Parkinson-White syndrome, pathological ST changes and combined ventricular hypertrophy (Fig. 1). The patient underwent transthoracic echocardiography, which demonstrated a small defect in the interatrial septum and septal aneurysm. The aneurysm was bulging into the right ventricle (Fig. 2). The left ventricular systolic function was normal, but diastolic functions were with impaired relaxations. At the cardiac catheterization, left ventriculography revealed aneurysmal formation of the left ventricle with normal coronary arteries, and right ventriculography showed filling defect because of the aneurysm (Figs. 3,4). There were 15 mmHg



Fig. 1: The patient's electrocardiographic findings a) Pathological ST depression, short PR intervals, larger QRS complexes with delta wave. b) Reciprocal ST changes and positive T wave, abnormal R/S ratio.

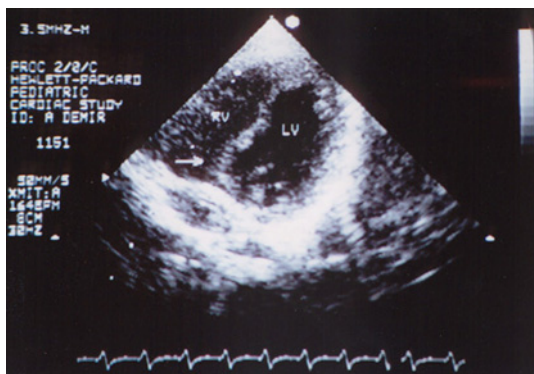


Fig. 2: Echocardiographic view of the congenital septal aneurysm bulging into the right ventricle cavity.

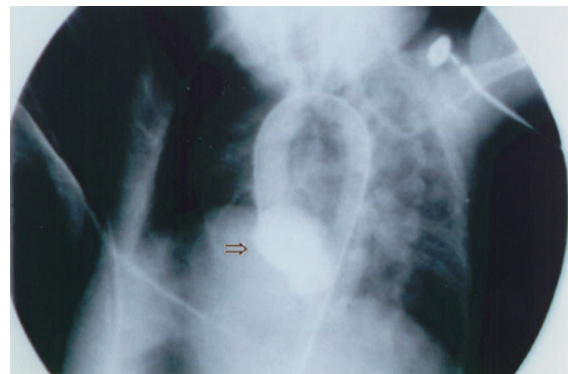


Fig. 3: Angiographic view of the congenital septal aneurysm bulging into the right ventricle cavity during the left ventriculography.



Fig. 4: Congenital septal aneurysm due to negative filling defect during the right ventriculography.

systolic pressure gradients between the main pulmonary artery and right ventricle outflow tract. Her hematologic, serum biochemistry parameters, blood culture results, acute phase reactants, and viral and bacterial serological studies were within normal limits. Since the patient was relatively asymptomatic, no drug therapy was advised. She was discharged there after and remained asymptomatic at her eight-month follow-up visit.

## Discussion

Congenital ventricular aneurysms are extremely uncommon. The diagnosis of the anomaly is based on the echocardiographic findings. These aneurysms are said to be congenital when no known etiology of acquired aneurysms can be found. We could not determine the etiology, in this case.

Eriksson et al.<sup>2</sup> postulated that the weakness may represent a genetic defect in mesenchymal cell migration from the atrioventricular and conotruncal regions of the cephalic portion of the developing interventricular septum. Four familial cases have been reported<sup>1,2,6,9</sup>. For this reason we investigated the parents of our case, but they showed no evidence of any anomalies of the cardiovascular system since the parents are first-cousins, the future pregnancies should be carefully monitored.

Forty percent of patients with congenital aneurysm are asymptomatic. Sixty percent may develop complications such as heart failure, a thromboembolic phenomenon, rupture, arrhythmias or endocarditis<sup>7,8</sup>. Donofrio et al.<sup>9</sup>

reported four patients with congenital septal aneurysms with atrial septal defect. Our patient also had a small defect of the interatrial septum. Treatment in asymptomatic patients with congenital septal aneurysm is controversial. Our patient has shown no symptoms to date, but some rhythm disturbances may be expected because of her electrocardiographic anomalies. Fasoli et al.<sup>4</sup> described a patient who presented with ventricular tachycardia. It will be necessary to follow up these patients carefully because of possible complications. Furthermore, it is difficult to recommend any form of therapy, except for prophylaxis against infective endocarditis<sup>10</sup>.

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