Fluttering of the Interventricular Septum* 

The Result of Truncal Insufficiency

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We present a child with truncus arteriosus and truncal insufficiency who had diastolic fluttering of the anterior mitral valve leaflet and left ventricular surface of the interventricular septum on echocardiogram. Although the fluttering has been previously described in patients with aortic insufficiency, it has not been reported with truncus arteriosus.

Diastolic fluttering of the anterior leaflet of the mitral valve is frequently seen on the echocardiograms of patients with aortic insufficiency.1,3 Recently, similar diastolic movements of the left ventricular surface of the interventricular septum have been demonstrated in such patients.4,6 This report describes a child with truncus arteriosus, type 2,4 and severe truncal insufficiency who had simultaneous diastolic fluttering of the anterior mitral valve leaflet and posterior interventricular septal surface.

CASE REPORT

The patient, a six-year-old girl, was noted to have a heart murmur, cyanosis, and cardiac failure in the neonatal period. Cardiac catheterization at 28 months of age at another medical center established the diagnosis of truncus arteriosus, type 2, with mild to moderate truncal insufficiency. Bilateral pulmonary artery banding was attempted, but the left band had to be loosened because of bradycardia.

The patient remained cyanotic and in chronic cardiac failure; and at age three years, she had repeat cardiac catheterization and angiocardiography at a second medical center. This demonstrated severe truncal insufficiency, mitral insufficiency, tight right pulmonary artery band, and no filling of the left pulmonary artery. Banding of the left pulmonary artery was again attempted, but only a slight drop in the mean arterial pressure could be achieved. A transverse metal band was placed across the anterior thoracic wall at the level of the fifth and sixth ribs in hopes of stabilizing the patient’s severe pectus excavatum. Despite these measures and intensive medical therapy, there was gradual progression of cardiac failure and cyanosis.

Recently the patient was seen at the Medical College of Virginia Hospitals, Richmond, Va. She weighed only 14.5 kg (32 lb); she had moderate cyanosis and clubbing of the digits and loud murmurs of truncal and mitral insufficiency.

Echocardiography (Unirad 100 series diagnostic echoscope system) was performed using a 3.5-MHz transducer of 10-mm diameter focused at 5 cm; the echocardiogram was recorded on a strip chart recorder (Tektronix 174). On the echocardiogram the large truncus arteriosus appeared to arise primarily from the left ventricle (Fig 1). What seemed to be...

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CHEST, 69: 1, JANUARY, 1976

Fluttering of Interventricular Septum 119
continuity of the anterior truncal wall and interventricular septum on the scan was probably an artifact resulting from the marked angulation of the transducer from the sixth left intercostal space required to avoid the interference of the transverse metal band. Truncal insufficiency was suggested by failure of the valve leaflets to meet in diastole. The left ventricular and right ventricular end-diastolic dimensions were increased. Diastolic fluttering of the anterior leaflet of the mitral valve and the left ventricular surface of the interventricular septum were demonstrated (Fig 2).

DISCUSSION

Truncus arteriosus is a relatively uncommon congenital cardiac malformation in which only a single arterial trunk emerges from the heart. The truncal valve is often thickened and abnormal, and there is a tendency to develop insufficiency.

Published reports of echocardiograms in patients with this cardiac anomaly describe the truncus straddling the interventricular septum to a varying degree, and our experience has been similar. There also may be failure of the truncal valve leaflets to meet in diastole, thereby reflecting the insufficiency.

It has been suggested that the fluttering of the anterior mitral valve leaflet is produced by the aortic regurgitant flow striking it directly or is a reflection of turbulence produced by the confluence of the aortic regurgitant and mitral inflow streams. Cope et al relate the diastolic interventricular septal fluttering to the effect of the aortic regurgitant jet striking the septum. Presumably, similar echocardiographic features in our patient with a deformed truncal valve and truncal insufficiency are indicative of the same pathophysiology.

REFERENCES


Figure 1. Echocardiogram with scan from dilated truncus arteriosus to ventricles. During diastole, leaflets of truncal valve (TV) fail to meet. Interventricular septal (IVS) motion is paradoxic at level of mitral valve (MV). LV, left ventricle; and RV, right ventricle.

Figure 2. Echocardiogram at level of mitral valve. Arrows point to diastolic fluttering of anterior mitral valve leaflet (AML) and left ventricular surface of interventricular septum (IVS).