

### Echocardiographic evaluation of left ventricular outflow tract hemodynamics in healthy children with anomalous left ventricular band

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**Basis or Objectives:** The anomalous left ventricular band is considered the most common innocent cardiovascular phenomenon in healthy children. Except for its role in the genesis of cardiac murmur, ventricle geometry and/or architecture changes, there are still no relevant clinical data confirming its pathologic cardiovascular significance. We hypothesized that high interventricular septal diastolic stretching due to anomalous left ventricular band may cause abnormal subaortic left ventricle outflow tract relaxation and subsequent aortic regurgitation.

**Methods:** To test this, we performed complete transthoracic echocardiography screening on 100 consecutive children with midsystolic vibratory murmur suggestive of anomalous left ventricular band presence. All children were referred to our clinic for the murmur etiology clarification and none of them had history as well clinical finding suggestive for any kind of pediatric disease. Definitely we included in the study 94 children who were found not to have structural cardiac abnormality after the echocardiography examination.

**Results:** According to the position where the anomalous left ventricular band attached the septum, children were conventionally divided into two groups: those with proximal (high third) and those with distal (low or middle third) interventricular septum attachment. Anomalous band was found in 83 children (88.3 percent). Of them, 45 children (54.2 percent) had high (proximal) and 38 children (45.8 percent) had mid or low (distal) anomalous band septal attachment. Aortic regurgitation was found in eight children (17,8 %) with proximal anomalous band attachment, of whom 6 children (13,3 percent) had trivial aortic (Ao) regurgitation and 2 children (4,4 percent) mild Ao regurgitation (Fig). Distal anomalous band septal attachment was accompanied by trivial aortic (Ao) regurgitation in only one child (2,6 percent). Ao regurgitation was found more prevalent in children with proximal vs. children with distal anomalous left ventricular band septal attachment ( $p < 0,01$ )

**Conclusions:** Our results show for the first time that anomalous left ventricular band may cause aortic regurgitation in apparently normal hearts. Apart from the need of periodic echocardiographic evaluation, the results of our study might have potential importance in a number of diagnostic dilemmas, especially in cases of aortic valvular regurgitation with absence of aortic root dilatation or other structural aortic valve abnormalities.

