To-and-fro murmur in the young due to major congenital cardiac defects: Is cardiac auscultation obsolete?

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To-and-fro murmur in the young due to major congenital cardiac defects: is cardiac auscultation obsolete?

Keywords: Physical examination; diagnostic studies; congenital cardiac defect

Dear Sir,

Cardiac auscultation is becoming a dying clinical art. The balance between cardiac physical examination and imaging modalities in the diagnosis and delineation of congenital cardiac disease has changed significantly since the introduction of echocardiography, and more recently computed tomography, and magnetic resonance imaging, and is now leaning towards a mechanistic approach while the art of cardiac examination is losing its pivotal role.

To-and-fro murmur in the young emphasises the importance of cardiac auscultation. It comprises a low-pitched crescendo decrescendo systolic component and a decrescendo diastolic component with a short pause between the two, best heard at the mid-left parasternal border. Its presence indicates a major congenital cardiac defect and requires initiation of intensive cardiorespiratory monitoring in an intensive care unit setting as well as prompt diagnostic evaluation. The differential diagnosis must include the following major cardiac lesions: aortic-left ventricular tunnel\(^1,2\) (Fig 1), absent pulmonary valve syndrome\(^3\) (Fig 2), and truncus arteriosus with truncal valve incompetence (Fig 3). The aortic-left ventricular tunnel may be confused with other more common lesions as the coronary artery-left ventricle fistula and ruptured sinus of Valsalva\(^4\) (Fig 4). These lesions can occur in infants but have a diphasic murmur, often without the characteristic pause. The echocardiographic evaluation of children with coronary artery fistula reveals normal coronary artery anatomy. Both transthoracic and transoesophageal echocardiography reveal the aneurismal dilatation associated with the ruptured sinus of Valsalva, the site of rupture, and the length of the diverticulum.\(^5,6\) Ventricular septal defect with aortic regurgitation is associated with a to-and-fro murmur but is rare in young children. Echocardiographic evaluation of congenital absence of the pulmonary valve permits visualisation of the anterior misaligned ventricular septal defect with overriding aorta and a

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patent right ventricular outflow tract (in the para-
sternal short- and long-axis views). Delineation of the
stenotic pulmonary valve annulus reveals in most cases
an immobile rudimentary valve tissue. The character-
istic aneurismal dilatation of the main and proximal
branch pulmonary arteries may cause bronchomalacia
due to external compression by the pulmonary arteries
and may require plication at the time of reconstruc-
tive cardiac surgery. The third major cardiac lesion
associated with to-and-fro murmur is truncus-arteri-
ous with incompetent truncal valve.7 Echocardiogra-
dy discerns this conotruncal lesion as a constellation
of malaligned ventricular septal defect, overriding
aorta, absent right ventricular outflow tract, and a
common trunk giving rise to both great arteries.

Doppler colour echocardiography shows the severity of
stenosis and insufficiency of the truncal valve. Truncus
arteriosus and aortopulmonary window are sometimes
difficult to differentiate. The latter lesion is usually not
associated with a ventricular septal defect, and the
right ventricular outflow tract and pulmonary valve are
usually in the expected position. Direct visualisation of
an aortopulmonary window is possible using a high
parasternal short-axis view.

In summary, it is not our intention to put down
the importance of the state-of-the-art diagnostic
modalities; however, gaining expertise in these
techniques should not lead to the degeneration of
our basic clinical capabilities. These continue to be a
key component in planning the approach to the child with a congenital cardiac defect.

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