



A Murmur with Pectus Excavatum May Not Be Ominous

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Abstract

Background: *Straight Back Syndrome (SBS) is the absence of normal dorsal curvature in the thoracic part of the spine, resulting in reduced AP diameter of the chest causing compression of the heart and great vessels.*

Case Characteristics: *14-year-old Male child complains of chest pain. CVS-Pectus excavatum, S1,S2 normal; Pulmonary area-S2 wide, fixed/ejection systolic murmur, Grade-3/6.*

Observation: *Chest X-ray: Prominent main Pulmonary artery, loss of normal thoracic kyphosis, narrowing of AP diameter.*

Outcome: *The murmur provisionally thought to be from an ASD was diagnosed to be flow murmur of SBS.*

Message: *Murmurs in Pulmonary area associated with pectus excavatum should arise a suspicion of a murmur of SBS.*

Introduction

Murmurs occur due to the turbulence caused by either an increased flow through anormal or stenosed valve or a normal flow through a stenosed valve or orifice. Thoraxis a closed cage, with heart and lungs lying inside. Among many abnormal chest findings includes chest deformities such as pectus carinatum, pectus excavatum, barrel shaped chest, bell shaped chest and short sternum.¹ This article primarily aimsthat all murmurs with chest deformity may not be ominous. Straight Back Syndrome(SBS) is one such condition.

SBSis the absence of the normal dorsal curvature (physiological kyphosis) in the thoracic part of the spine, resulting in the reduced AP diameter of the chest causing compression of the heart and great vessels. Symptoms such as cardiac murmurs,

palpitations, chest pain and shortness of breath will be present.² In cases of Atrial septal defect, the symptoms can resemble that of SBS.^{3, 4} Present etiology is unknown. Prognosis is good, unless associated with cardiac and respiratory problems.

14-year-old Male child, born out of non-consanguineous marriage, 1st in birth order was brought by father presented withcomplaints of chest pain for 4 months. Chest pain- squeezing pain, non-radiating, not aggravated by breathing or exercise. Palpitations were present. No dyspnea, no orthopnea, no PND. No fever, no cough, no syncope, no vomiting,no swelling of feet. No joint pains / arthralgia.

Past history had no similar complaints.

Normal milestones.

Height- 154 cm (expected 161cm); Weight -40kgs (expected 51.5kgs).

On examination- The child was thinly built.No pallor, no icterus, no clubbing, no cyanosis, no generalized lymphadenopathy, no edema feet.

Vitals- Temperature-Normal, Pulse rate- 82/min (both femorals felt, all peripheral pulses present) Respiratory rate- 22/min, Blood pressure- 110/70mm Hg (right upper limb).

Head to toe examination- Pectus excavatum, small AP diameter of chest.

On examination of the cardiovascular system

Inspection: Pectus excavatum present, no precordial bulge, no engorged veins, apical impulse-seen in 5th intercostal space inside the mid clavicular line.

Palpation: Trachea- central, apex beat- normal, no thrill, noperasternal heave.

Percussion: Heart borders are within normal limits.

Auscultation: S1 S2 normal intensity; pulmonary area- S2 wide & fixed/ ejection systolic murmur, Grade-3/6. Other areas- normal

Respiratory System: chest deformity present, bilateral air entry present, lungs clear,no adventitious sounds, chest expansion is 1.5 cm.

GIT - Normal.

CNS- Normal.

Provisional diagnosis was Atrial Septal Defect.

Investigations:

Chest X-ray-

PA view- Prominent main Pulmonary artery

Lateral view- loss of normal thoracic kyphosis, narrowing of AP diameter from T8 to sternum.

Diagnosis: Frontal and lateral chest radiographs, based on twodiagnostic criteria.

In 1956 De Leon et al.⁵ first proposed the diagnostic criteria as follows: the anteroposterior diameter "a" is defined as the distance from the anterior border of T8 to the posterior border of the sternum on the lateral radiograph and the lateral diameter "b" is defined at the level of the diaphragm on the frontal radiograph. SBS is diagnosed when a/b is 1/3 or less.

In 1980, Davies et al.⁶ modified the diagnostic criteria to evaluate a larger proportion of the chest diameter. They proposed that the lateral chest radiograph should be used to measure the distance, from the middle of the anterior border of T8 to a vertical line connecting T4 (top of anterior border) and T12 (bottom of anterior border). SBS is diagnosed when distance is smaller than 1.2cm.

This child met the criteria for SBS according to both De Leon et al and Davies et al.

ECG and 2D ECHO- Normal

Key message

Murmurs when detected in the pulmonary area associated with pectus excavatum should arise a suspicion of a benign flow murmur of Straight Back Syndrome rather than any serious cardiac conditions such as Atrial septal defect.





Chest X-ray PA view and Lateral view.

6. Davies MK, Mackintosh P, Cayton RM, Page AJF, Shiu MF, Littler WA. The straight back syndrome. *Q J Med.* 1980;49:443–460. [PubMed]

References

1. Steven R. Boas, Nelson textbook of Pediatrics, first south asia edition, 20 edition, Robert M. Kliegmann, Bonita F. Stanton, Joseph W. St Geme³ and Nina F. Schor, 2016;417.1:2144
2. Grillo HC, Wright CD, Darteville PG, Wain JC, Murakami S. Tracheal compression caused by straight back syndrome, chest wall deformity, and anterior spinal displacement: techniques for relief. *Ann Thoracic Surg.* 2005;80:2057–62. [PubMed]
3. Serrato M, Kezdi P. Absence of the physiologic dorsal kyphosis, cardiac signs and hemodynamic manifestations. *Ann Internal Med.* 1963;6:938–945. [PubMed]
4. Ansari A. The “straight back” syndrome: current perspective more often associated with valvular heart disease than pseudoheart disease: a prospective clinical, electrocardiographic, roentgenographic, and echographic study of 50 patients. *Clinical Cardiology.* 1985;8:290–305. [Pub Med]
5. De Leon AC, Jr, Perloff JK, Twigg H, Majd M. The straight back syndrome – clinical cardiovascular manifestations. *Circulation.* 1965;32:193–203. [PubMed]