



An Unusual Cause of Palpitation: Pectus Excavatum

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Case Study

We recently encountered a 67 year old lady who was sent in by her GP in our Acute Medical Assessment Unit with complains of palpitations, which were significantly affecting her day to day activities. She described palpitations as a ‘thumping’ sensation in the chest with ‘skipping beats’ without any associated shortness of breath, pre syncope or collapse. The symptoms were prominent at lying flat and were very short lived and worsening in frequency.

She is a lifelong non smoker, known to have Hypertension and Hypothyroidism. She was on Acerycal 10/10 and Eltroxin 100 mcg OD. She was clinically and biochemically euthyroid. Her CVS exam was unremarkable. Her ECG showed frequent supra ventricular ectopics with P wave inversion in V1. Her transthoracic echocardiogram revealed structurally and functionally normal heart.

She had a 24 holter monitor which showed sinus rhythm with bundle branch pattern with frequent supraventricular and AV junctional ectopics. The burden of ectopics was 11,124 in 24 hrs. She had a cardiac MRI performed which showed modest sterna pectus excavatum and no myocardial abnormality. The pectus focally ran in close proximity to RV wall at mid ventricular level. Her symptoms were likely secondary to local irritant effect of the pectus on RV free wall during periods of RV filling.

She was subsequently commenced on low dose Bisoprolol as ectopic suppressant. A repeat Holter monitor was sinus rhythm throughout with very rare PACs. She had significant symptomatic relief and is currently doing well on Bisoprolol.

Discussion

Pectus excavatum is a congenital deformation of the chest, presenting as a funnel-shaped impression in the median frontal chest between the fourth and the seventh rib. Asymmetric presentation occurs, and the extent of deformation may vary from slight to serious. Exact numbers about prevalence are difficult to obtain, as the deformation is often not noted or when noted is not mentioned in the medical reports. Pectus excavatum is found in Europe in at least one in every 1000 births, mainly in men (70% to 85%) and often within the same families (35% to 45%). A correlation is mentioned between pectus excavatum and relatively rare syndromes as Ehlers Danlos Syndrome (EDS), Marfan Syndrome (MFS), or Poland syndrome [1-7]. Mitral valve prolapse occurs in 15% of patients with pectus excavatum [1,8]. In severe forms of pectus excavatum, the inward deformation of the sternum creates an impression on the right atrium or ventricle. This can cause cardiac compression [1,5,8].

Cardiac manifestations result from the posterior displacement of the sternum, producing an anterior indentation and deformity of the right ventricle. In severe cases, the heart may become rotationally displaced into the left hemithorax. This displacement can cause mechanical compression and obstruction to normal outflow which may impede normal stroke volume, especially during exercise. This diminished cardiac stroke volume has been well established, especially in a seated or upright position. Of note, stroke volume tends to normalize while supine (Figure 1 and 2).

Valvular abnormalities are common among patients with pectus excavatum, particularly mitral valve prolapse. In one series, systolic murmurs were auscultated in 46% of cases not associated with an underlying connective tissue disorder [4]. The prevalence of murmurs was independent of the degree of deformity in this study. Mitral valve prolapse is a well-recognized association and is thought to result from deformities of the mitral annulus produced by anterior compression of the heart. It occurs in 20% of patients with pectus excavatum. Resolution occurs in over 50% of

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Figure 1: Transversal CT of the chest.



Figure 2: Sagittal CT of the chest.

individuals following corrective surgery [7].

The change in cardiac position caused by the thoracic deformity in patients with pectus excavatum produces more or less constant characteristic electrocardiographic findings, which, although not pathognomonic, yet can be suggestive of this anomaly. These findings are - (a) S1S3 or S1Q3; (b) negative P waves in VI; and (c) qr or rsr' in VI [7].

Conclusion

Pectus excavatum is an uncommon cause of Cardiac Arrhythmias and Rhythm Disturbance in a structurally normal heart and no other risk factor or precipitating cause.

References

1. Fonkalsrud EW. 912 open pectus excavatum repairs: Changing trends, lessons learned: One surgeon's experience. *World J Surg.* 2009;33(2):180-90.
2. Goretsky MJ, Kelly RE, Croitoru D, Nuss D. Chest wall anomalies: Pectus excavatum and pectus arinatum. *Adolesc Med.* 2004;15(3):455-71.
3. Kelly RE, Shamberger RC, Mellins RB, Mitchell KK, Lawson ML, Oldham K, et al. Prospective multicenter study of surgical correction of pectus excavatum: Design, perioperative complications, pain, and baseline pulmonary function facilitated by internet-based data collection. *J Am Coll Surg.* 2007;205(2):205-16.
4. Creswick HA, Stacey W, Kelly RE, Gustin T, Nuss D, Harvey H, et al. Family study of the inheritance of pectus excavatum. *J Pediatr Surg.* 2006;41(10):1699-703.
5. Robicsek F, Watts LT, Fokin AA. Surgical repair of pectus excavatum and carinatum. *Semin Thorac Cardiovasc Surg.* 2009;21(1):64-75.
6. The electrocardiogram in pectus excavatum.
7. Crump HW. Pectus excavatum pathophysiology, clinical presentation, surgical repair. *Am Fam Physician.* 1992;46:173-9.
8. Malek MH, Berger DE, Housh TJ, Marelich WD, Coburn JW, Beck TW. Cardiovascular function following surgical repair of pectus excavatum: A metaanalysis. *Chest.* 2006;130(2):506-5.