

Images in
Cardiovascular Disease



Multiple Sub Annular Aneurysm in a Young Girl

Anil Kumar Singhi , MD, FNB¹, Soumya Kanti Mohapatra , DNB, FNB¹, and Ejaz Ahmed Bari , MD²

¹Department of Pediatric Cardiology, Medica Superspecialty Hospital, Kolkata, India

²Department of Radiodiagnosis, Medica Superspecialty Hospital, Kolkata, India

OPEN ACCESS

Received: Feb 23, 2021

Revised: Mar 30, 2021

Accepted: Apr 25, 2021

Published online: May 6, 2021

Address for Correspondence:

Anil Kumar Singhi, MD, FNB

Department of Pediatric Cardiology,
Medica Superspecialty Hospital, 127
Eastern Metropolitan Bypass, Nitai Nagar,
Mukundapur, Kolkata 700099, India.
Email: singhianil@gmail.com

Copyright © 2022 Korean Society of
Echocardiography

This is an Open Access article distributed
under the terms of the Creative Commons
Attribution Non-Commercial License (<https://creativecommons.org/licenses/by-nc/4.0/>)
which permits unrestricted non-commercial
use, distribution, and reproduction in any
medium, provided the original work is properly
cited.

ORCID iDs

Anil Kumar Singhi

<https://orcid.org/0000-0002-7429-6989>

Soumya Kanti Mohapatra

<https://orcid.org/0000-0003-4300-4944>

Ejaz Ahmed Bari

<https://orcid.org/0000-0003-3437-7466>

Conflict of Interest

The authors have no financial conflicts of
interest.

Author Contributions

Conceptualization: Singhi AK; Resources:
Singhi AK, Mohapatra SK, Bari EA; Software:
Mohapatra SK; Writing - original draft: Singhi
AK; Writing - review & editing: Bari EA.

A 4-year-old asymptomatic girl underwent cardiac evaluation for failure to thrive. The weight of the child was less than 5th percentile and height 10th percentile suggestive of significant failure to thrive. There was no phenotypic indicator of any genetic disorder. Cardiac evaluation showed normal heart sound with no significant murmur. Electrocardiogram showed sinus rhythm with prolonged PR interval (240 milliseconds), with no evidence of any ischemia. Transthoracic echocardiogram showed multiple sub annular aneurysms in the region of aortico-mitral curtain. They were wide mouthed, expansile with to and fro flow. There was no mitral or aortic regurgitation. The aneurysms were not compressing on any cardiac structures. (Figure 1, Movie 1). The coronary artery origin was normal. The left ventricle was significantly dilated with left ventricular internal diameter in diastole 45 mm (Z score+5.57) and left ventricular internal diameter in systole was 33 mm with (Z score+7.18) and ejection fraction of 53%. Cardiac magnetic resonance angiogram done outside revealed the aneurysm better. (Figure 2, Movie 2). Computed tomographic cardiac angiogram delineated the anatomy well in the delayed image acquisition. The aneurysms were clustered

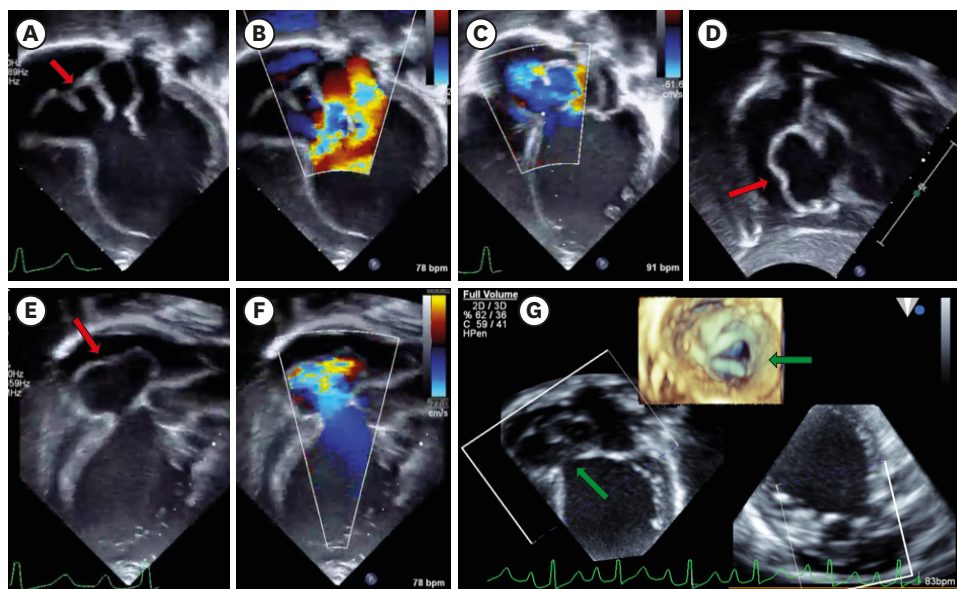


Figure 1. Echocardiogram showing multiple sub valvular aneurysms in (A) apical 4 chamber view with (B, C) to and fro flow and in the subcostal view (D). (E, F) The oblique view showing the large aneurysm close to aortic annulus (red arrow). (G) Three dimensional I crop view showing opening of the larger aneurysm from left ventricle side (green arrow).

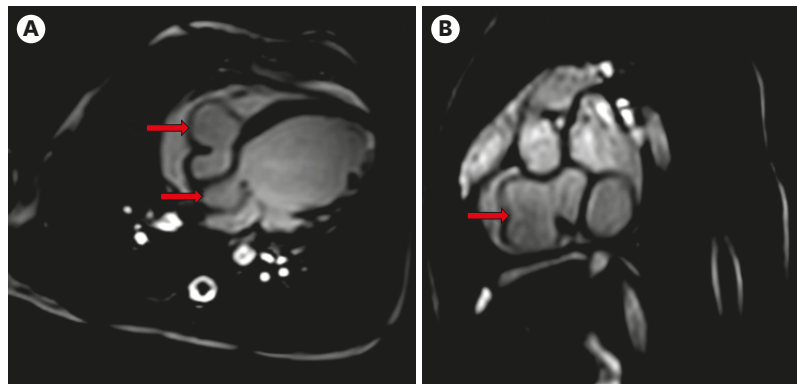


Figure 2. Cardiac magnetic resonance angiogram showing multiple sub annular aneurysm in (A) axial view and (B) sagittal view (red arrow).

in the sub aortic region in various shapes protruding in the atrium. (Figures 3 and 4, Movie 3) The patient was advised elective cardiac surgical intervention in view of possible future complications. The child was relatively asymptomatic and in the coronavirus disease 2019 pandemic time the family wished to remain in the medical follow up. Sub valvular aneurysm is a rare anomaly with varied aetiologies. It can be due to congenital weakness between valve annulus and myocardial wall. The acquired variants are attributed to sequel of bacterial endocarditis, tuberculosis, chagas disease etc. The aneurysm in our index case appeared to be congenital. They can cause significant valvular regurgitation and obstruction of cardiac structures thereby causing myocardial infarction, heart failure, thromboembolism, arrhythmia and sudden cardiac death. Echocardiogram is the key initial imaging to suspect and diagnose the anomaly. Detailed cardiac magnetic resonance angiogram and computed tomographic cardiac angiogram are essential for delineation of the anatomy, associated

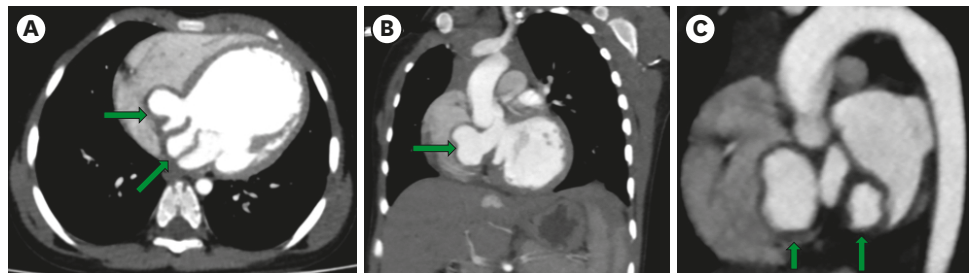


Figure 3. Computed tomographic cardiac angiogram showing multiple sub annular aneurysm in (A) axial view, (B) frontal, and (C) sagittal view (green arrow).

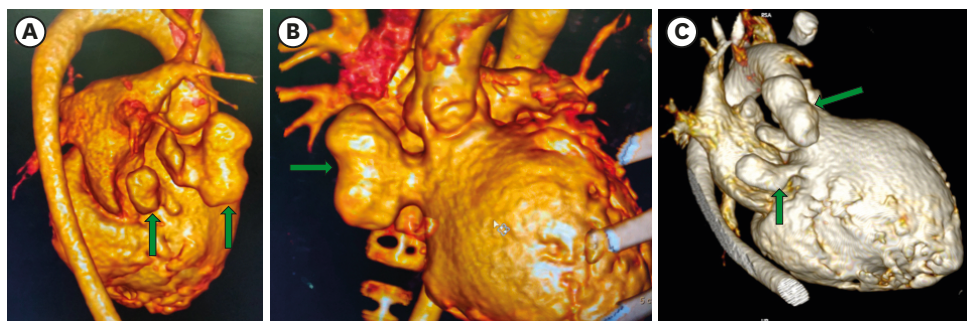


Figure 4. Three dimensional reconstruction of computed tomographic cardiac angiogram showing multiple sub annular aneurysm in different views (green arrow).

regurgitation assessment and evaluation of any compression effect. Surgical intervention is recommended for patients as therapy and prevention of future complication.¹⁻³⁾

SUPPLEMENTARY MATERIALS

Movie 1

Echocardiogram showing multiple sub valvular aneurysms in (a) apical 4 chamber with (b, c) to and fro flow. (d) Subcostal view. (e, f) oblique view showing the large aneurysm close to aortic annulus. (g) Three dimensional I crop view showing opening of the larger aneurysm from left ventricle side.

[Click here to view](#)

Movie 2

Cardiac magnetic resonance angiogram showing multiple sub annular aneurysm in (a) axial view and (b) sagittal view.

[Click here to view](#)

Movie 3

Computed tomographic cardiac angiogram showing multiple sub annular aneurysm in (a) axial view (b) frontal and (c) sagittal view.

[Click here to view](#)

REFERENCES

1. George N, Chowdhury UK, Singh S, et al. A review on the surgical management of subvalvular aneurysm. *World J Pediatr Congenit Heart Surg* 2020;11:325-37.
[PUBMED](#) | [CROSSREF](#)
2. Natarajan B, Ramanathan S, Subramaniam N, Janardhanan R. Idiopathic subvalvular aortic aneurysm masquerading as acute coronary syndrome. *BMJ Case Rep* 2016;2016:bcr2016215723.
[PUBMED](#) | [CROSSREF](#)
3. Meel R, Nethononda R, Peters F, Essop M. Efficacy of cardiac magnetic resonance imaging in a sub-aortic aneurysm case. *Cardiovasc J Afr* 2017;28:e1-3.
[PUBMED](#) | [CROSSREF](#)