www.jcimcr.org

JCIMCR OPEN ACCESS Journal of Clinical Images and Medical Case Reports

ISSN 2766-7820

Short Report

Open Access, Volume 5

Imaging of a giant ascending aorta aneurysm in a marfan patient

Gade Sandeep*; Subrata Kumar Singha

Department of Anaesthesiology, All India Institute of Medical Sciences, Raipur, India.

***Corresponding Author: Gade Sandeep**
Department of Anaesthesiology, All India Institute of Medical Sciences, Raipur, India.
Email: sandeepgade96@gmail.com

Received: Sep 04, 2024
Accepted: Sep 30, 2024
Published: Oct 07, 2024
Archived: www.jcimcr.org

DOI: www.doi.org/10.52768/2766-7820/3284

Introduction

A 39-year-old male patient presented to the cardiology OPD with complaints of chest pain, palpitations and dyspnoea on exertion for the past five months. On physical examination, the patient was found to have marfanoid features, water hammer pulse and positive Corrigan's sign. Chest X-ray was performed, and it showed an increased cardiothoracic ratio with the apex shifted down and out suggestive of left ventricular dilatation. A Two-Dimensional Transthoracic Echocardiogram (TTE) showed a dilated aortic root (86 mm) with an aortic valve annulus measuring 28 mm and severe aortic regurgitation with an ejection fraction of 30%. Subsequently, a computed tomography aortogram was done to confirm the findings of TTE and to look for the extension of the aortic root dilatation. CT Aortogram revealed an aneurysmal dilatation of the sinus of the Valsalva, sin tubular junction and ascending aorta for a total length of 10 cm, measuring 9.5cm in diameter. Cardiomegaly was noted with a cardiothoracic ratio of 0.78 (Figure 1). The patient was planned for an aortic valve replacement with ascending aorta reconstruction (Modified Bentall's procedure). The patient was cleared for the proposed procedure under the American Society of Anaesthesiologists Physical Status Classification IV. The patient was induced with titrated doses of fentanyl and propofol and the airway was secured with an 8.0 mm internal diameter polyvinyl chloride endotracheal tube. Two arterial cannulas were secured (one in the right radial artery and the other in the left femoral artery). The Transoesophageal Echocardiogram (TEE) probe was inserted post-induction. In pre-cardiopulmonary bypass TEE, a mid-oesophageal aortic valve long-axis view was obtained which showed an enlarged aortic root with an aortic annulus measuring 93 mm (Figure 2). In the mid-oesophageal aortic valve short-axis view, the valve area was calculated by planimetry which was found to be 10 cm^2 (Figure 3). On surgical exposure, the findings corroborated with that of preoperative CT aortogram and TEE (Figure 4). An ascending aorta aneurysm is an abnormal bulging and weakening of the wall of the aorta in its proximal part [1]. Marfan's syndrome is a multi-system connective tissue disorder caused by the mutation in the FBN1 gene of chromosome 15 [2]. Aortic regurgitation, dilatation and aneurysms are most common in the cardiovascular system. Progressive aortic root dilatation may lead to aortic regurgitation [3]. The rate of growth of aortic root in normal patients is 0.1 cm/year whereas in patients with Marfan's syndrome, the rate of progression is 0.26 cm/year. The diameter of the aortic root is a strong predictor of morbidity and mortality with an annual risk of developing

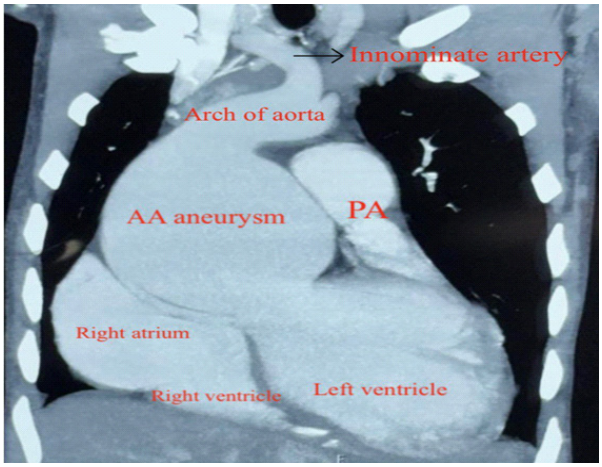

Figure 1: CT aortogram showing enlarged CT ratio and ascending aorta aneurysm.

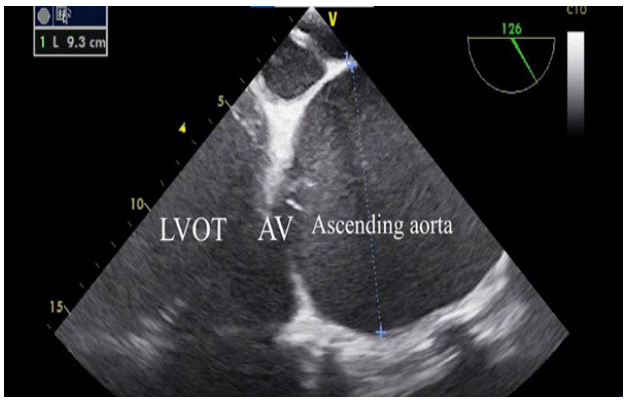

Figure 2: TEE image showing dilated ascending aorta and aortic annulus measuring 9.3cm.

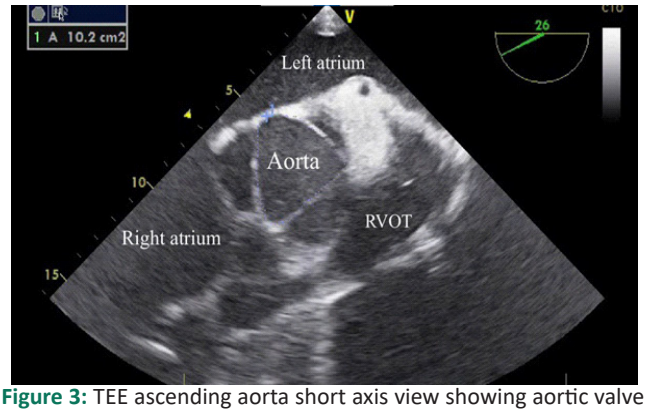

Figure 3: TEE ascending aorta short axis view showing aortic valve area by planimetry 10.2 cm^2.

complications like dissection at 13% when the diameter of the aortic root reaches 50 mm [4]. The timing for surgical intervention in patients with Marfan's syndrome is when the aortic root maximal diameter is more than 50 mm (Class of Indication I) [5]. The modified Bentall procedure involves the replacement of the aortic valve with ascending aorta reconstruction using a graft made of polytetrafluoroethylene and the implantation of ostial buttons into the newly attached graft [6]. The complications following the modified Bentall procedure are low cardiac output syndrome, bleeding, detachment of coronary ostia, arrhythmias, stroke, acute renal failure, mediastinitis and lower limb ischemia if peripheral cannulation is performed [7].

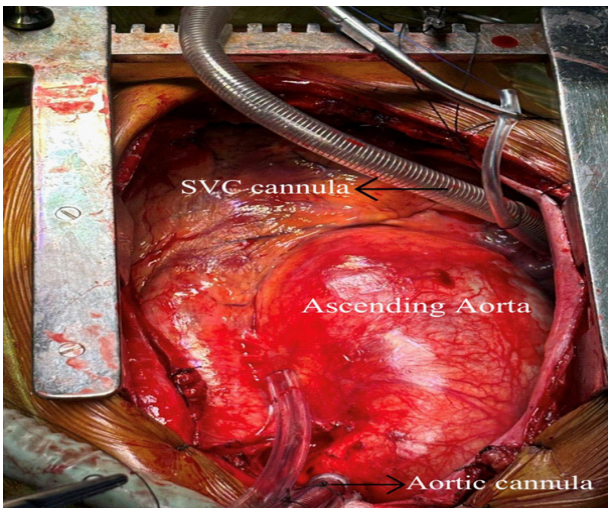

Figure 4: Surgical image showing dilated ascending aorta.

References

1. Saliba E, Sia Y, Dore A, El Hammams I. The ascending aortic aneurysm: When to intervene. Int J Cardiol Heart Vasc. 2015; 6: 91-100. doi: 10.1016/j.ijcha.2015.01.009.

2. Irim Salik, Prashanth Rawla. Marfan syndrome. Nih.gov. 2019. https://www.ncbi.nlm.nih.gov/books/NBK537339/.

3. Van Kanabec CD, Neff MS, Mulder BJ, Hanneke RC, Offringa M. Natural history of cardiovascular manifestations in Marfan syndrome. Arch Dis Child. 2001; 84(2): 129-137. doi:10.1136/adc.84.2.129.

4. Serageldin A, Zafar MA, Velasquez CA, et al. Natural history of aortic root aneurysms in Marfan syndrome. Ann Cardiothoracic Surg. 2017; 6(6): 625-632. doi:10.21037/acs.2017.11.10.

5. Falk V, Baumgartner H, Bex JJ, et al. 2017 ESC/EACTS Guidelines for the management of valvular heart disease Eury J Cardiothoracic Surg. 2017; 52(4): 616-664. doi:10.1093/ejcts/ezx324.

6. Cherry C, DeBord S, Hickey C. The modified Bentall procedure for aortic root replacement. AORN J. 2006; 84(1): 52-74. doi:10.1016/s0001-2092(06)60098-7.

7. Rashed A, Karoly Gombocz, Vigh A, Nasri Alotti. Total proximal anastomosis detachment after classical bentall procedure. International journal of surgery case reports. 2017; 37: 173-176. doi: https://doi.org/10.1016/j.ijscr.2017.06.019.