

Aortic Root and Ascending Aorta Replacement with Tricuspid Repair

Sir,

Connective tissue disorders present with a constellation of clinicopathological features. It is common to find aortic and multiple valve abnormalities in these disorders. Herein, a rare case is presented of a patient without any morphological features of connective tissue disorder and echocardiographic features of the aortic root and ascending aorta aneurysms and severe tricuspid regurgitation.

A 53-year male was referred from another city where he presented with complaints of shortness of breath (NYHA-3) and pedal oedema for 4 months. On examination of the patient, there were bilateral crepitation in both lungs, displaced apex beat in the 7th intercostal space, a diastolic murmur in the 2nd intercostal space, visible pulsations in carotids, and bilateral pedal oedema. Echocardiogram was done which showed dilated left atrium (LA) [Left atrial volume index (LAVI): 42 ml/m²], dilated right atrium (RA) (63 mm), dilated left ventricle [Left ventricle end-diastolic dimension (LVEDD): 70 mm, left ventricle end-systolic dimension (LVESD: 62 MM)], pulmonary artery systolic pressure (PASP): 50, dilated aorta with annulus: 30 mm, sinuses: 54 mm, ascending aorta, 80 mm, aortic arch, 30 mm, severe aortic regurgitation, severe tricuspid regurgitation (TR) with tricuspid annulus of 50 mm, ejection fraction (EF): 45%, tricuspid annular pulmonary systolic excursion (TAPSE): 15 mm.

CT aortogram of the patient showed the same findings of dilated aortic root and ascending aorta (Figure 1).

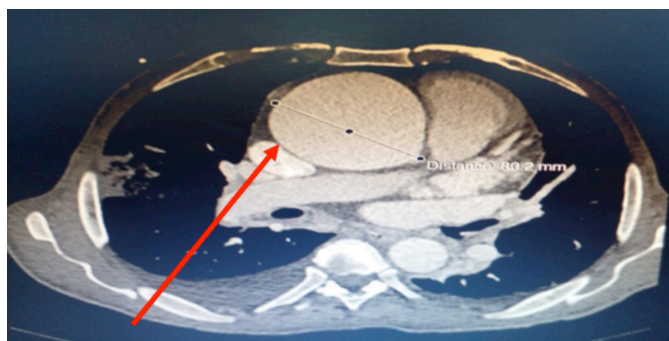


Figure 1: Aneurysm of ascending aorta.

Left heart catheterisation was done to rule out obstructive coronaries. The case was discussed with the heart-valve team and the patient was planned for aortic root and ascending aorta replacement with a modified Bentall procedure and tricuspid repair. Sternotomy and pericardiectomy were done in the usual manner. The tape was passed around the aorta (Figure 2 A).

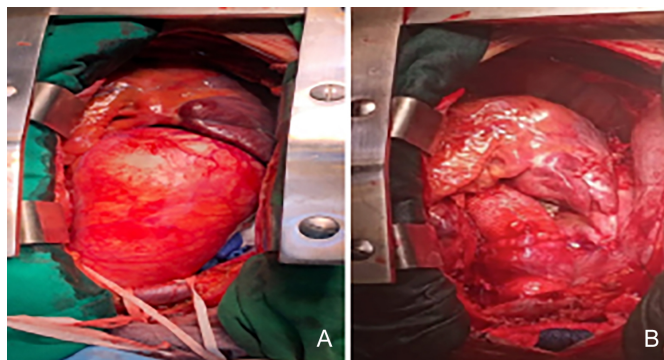


Figure 2: (A) Thin-walled dilated aorta; (B) Final picture after the modified Bentall procedure.

Distal aortic arch arterial cannulation and single-staged bicaval venous cannulation were done in superior vena cava and inferior vena cava, respectively. Antegrade direct ostial cardioplegia and retrograde cardioplegia were given. A 27 mm aortic valve-conduit was used for this patient. The aortic valve was implanted in a supra-annular fashion. The coronary buttons were attached and distal conduit-aortic anastomosis was done on cross-clamp. The right atrium was incised and tricuspid annuloplasty with a 36 mm tricuspid ring was done. The patient came off the cardiopulmonary bypass smoothly. Transesophageal echocardiography (TEE) was done which showed a normally functioning aortic valve with a peak-pressure gradient (PPG) of 12 mm, mild tricuspid regurgitation, EF: 40%, and depressed right ventricular function. A final picture was taken before closing the chest (Figure 2 B).

He was shifted on low inotropic support to the intensive care unit (ICU). The patient was extubated after 8 hours. The haematological results were normal except for the mildly deranged liver function tests on the 1st postoperative day. The patient had an uneventful recovery and was discharged on the 6th postoperative day.

The presence of aortic root and ascending aortic aneurysms and severe TR in a patient without any morphological features of connective tissue disorder has not been described in the literature to date. The case was managed according to American College of Cardiology (ACC) guidelines. It is a class 1 recommendation to operate ascending aortic aneurysm when the size increases more than 5.5 cm,¹ a class 1 recommendation to address severe TR when doing left-sided operation, and 2a recommendation to repair the tricuspid valve when the annulus exceeds 4.0 cm.² Modified Bentall procedure is an effective and safe strategy in such a scenario,³ and was combined with tricuspid repair for effective long-term results.

PATIENT'S CONSENT:

Informed consent was taken from the patient to publish the case.

COMPETING INTEREST:

The authors declared no competing interest.

AUTHORS' CONTRIBUTION:

WS: Contributed to the concept, acquisition of data and assisted the case as first assistant.

FR: Primary surgeon of the case and presented the design of research.

FI: Drafting of manuscript.

All authors approved the final version of the manuscript to be published.

REFERENCES

1. Otto CM, Nishimura RA, Bonow RO, Carabello BA, Erwin III JP, Gentile F, et al. 2020 ACC/AHA guideline for the management of patients with valvular heart disease: A report of the American College of Cardiology/American Heart Association Joint Committee on clinical practice guidelines. *Circulation* 2021; **143**(5):e72-e227. doi: 10.1161/CIR.0000000000000923.
2. David SB. 2022 ACC/AHA aortic disease guideline key perspectives: Part 2 of 2. American College of Cardiology. Available from: <http://www.acc.org/Latest-in-Cardiology/ten-points-to-remember/2022/11/01/12/21/2022-Guideline-on-Aortic-Disease-2-gl-ad>. (Accessed on 5/9/2023).
3. Saeyeldin, A, Zafar MA, Li Y, Tanweer M, Abdelbaky M, Gryaznov A, et al. Decision-making algorithm for ascending aortic aneurysm: Effectiveness in clinical application? *J Thorac Cardiovasc Surg* 2019; **157**(5):1733-45. doi: 10.1016/j.jtcvs.2018.09.124.

Wardah Saleem, Furqan Raheel and Fayaz Iqbal

Department of Cardiac Surgery, National Institute of Cardiovascular Diseases, Karachi, Pakistan

Correspondence to: Dr. Wardah Saleem, Department of Cardiac Surgery, National Institute of Cardiovascular Diseases, Karachi, Pakistan

E-mail: wardah.saleem@ymail.com

Received: May 09, 2023; Revised: June 24, 2023;

Accepted: June 26, 2023

DOI: <https://doi.org/10.29271/jcpsp.2023.12.1465>

• • • • •