Hugely Dilated Atria Distorting Normal Heart Anatomy

Sir,

A 45-year male patient was referred to us by the cardiologists with symptoms of shortness of breath, NYHA-3, for the last 4 years. Echocardiogram showed mitral valve prolapse with severe mitral regurgitation (MR) and tricuspid regurgitation (TR). There was moderate pulmonary artery hypertension (PAH) with pulmonary artery systolic pressure (PASP) of 45 mmHg, left atrial volume index (LAVI) of 438 ml/m², right atrium diameter of 98 mm, ejection fraction (EF) of 35%, and tricuspid annular pulmonary systolic excursion (TAPSE) of 15 mm. Left heart catheterisation was normal, and was reported as non-obstructive coronaries. X-ray of the patient showed a hugely dilated heart (Figure 1A).

The case was taken to the heart valve team where it was planned to proceed for mitral valve replacement with tricuspid repair. Sternotomy was done in the usual manner. After the pericardectomy, there was a strange appearance of the heart with nothing visible except a massively dilated superior vena cava (4 cm) and right atrium (Figure 1B). The aorta was pushed towards the extreme left and a thin-cord-like structure, the brachiocephalic artery, was at the front (which is normally high-up) (Figure 1C). The right atrium was not even fully visible as some part of it was extended to the left of the midline. The team spent some time identifying the normal anatomy as the pulmonary artery was shifted downwards and on the extreme left, the only farthest structure visible was the aorta. With careful dissection, the tape was passed around the aorta to bring it into view. The left atrium was enlarged to the extent that it was giving a morphological appearance of the left lung rather than a heart.

Transesophageal echocardiography (TEE) was done before proceeding with the surgery. TEE showed massively dilated atrias (Figure 1D and E), TAPSE of 15 mm, EF of 25%, severe MR, and severe TR. A team of cardiac surgeons and anesthetists was involved in the final decision making and it was decided to proceed as a high-risk surgery. The patient was put on cardiopulmonary bypass and the right atrium and fossa ovalis were incised via going through the trans-septal approach. After the table positioning and adequate retraction, the mitral valve was found to be completely degenerated with a small left ventricle cavity visible through a degenerated valve. The mitral valve was replaced with a 33 mm mechanical valve. The tricuspid annulus size was 42 mm and a 36 mm ring annuloplasty was done. The patient came off cardiopulmonary bypass smoothly and TEE was done again which showed a normally functioning mitral valve with a peak-pressure gradient (PPG) of 4 mmHg, mean pressure gradient (MPG) of 2 mmHg, and mild TR. The left ventricle function was 25% and the right ventricular function was also depressed.

There are few case reports in the literature with isolated dilatation of the left atrium. This is a rare case of bilateral giant atria secondary to rheumatic heart disease (RHD), which has not been presented in the literature so far. It is better to operate on these patients before they reach this stage of severely dilated cardiomyopathy and pose a demand for higher inotropic support, the use of mechanical assist devices, and a multidisciplinary team approach for the smooth recovery of patients.

COMPETING INTEREST:
The authors declared no competing interest.

AUTHORS’ CONTRIBUTION:
WS: Contributed to the concept, acquisition of data, and assisted the case as the first assistant.
FR: Primary surgeon of the case and presented the design of research.
FI: Drafting of the manuscript.
All authors approved the final version of the manuscript to be published.
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Received: May 09, 2023; Revised: June 24, 2023; Accepted: June 26, 2023
DOI: https://doi.org/10.29271/jcpsp.2023.12.1463