

Cardiology Images

SIXTY-FOUR SLICE MDCT EVALUATION OF PROSTHETIC METALLIC VALVES

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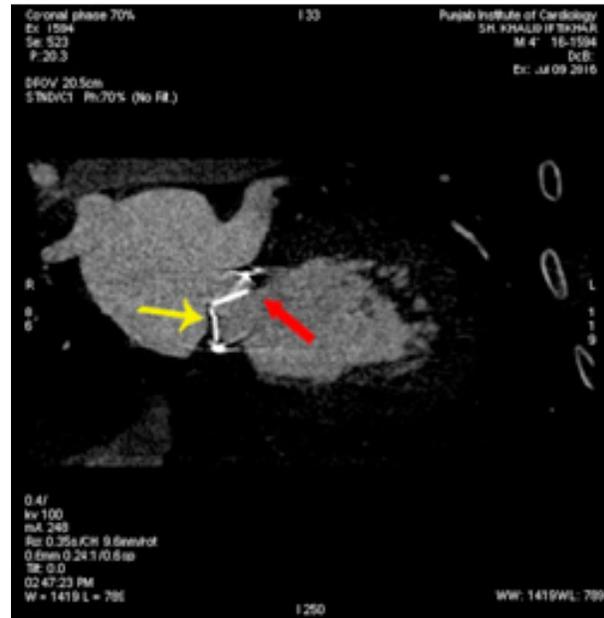
A forty-one-year-old man who had double valve replacement (DVR) due to rheumatic heart disease (RHD) 10 years back, presented with gradu-

bility of anterior disc of the mitral valve prosthesis. On the assessment of aortic valve prosthesis, the peak, and mean gradient across aortic valve was



A. Two chamber MDCT image of prosthetic bi leaflet mitral valve in systole showing closed position of bi leaflet mitral valve (red arrow)

ally progressive shortness of breath for the last two months with a functional class of III-IV. His pulse was 80/minute regular, and blood pressure was 110/70 mmHg. On auscultation, the intensity of the metallic first heart sound was reduced and second heart sound was normal in intensity. There was no added sounds. The transthoracic echo showed increased gradient across mitral valve with a peak gradient of 52 mmHg and mean gradient of 34 mmHg. On two-dimensional parasternal long axis imaging on echo, the posterior disc of the bi-leaflet valve was immobile and limited mo-



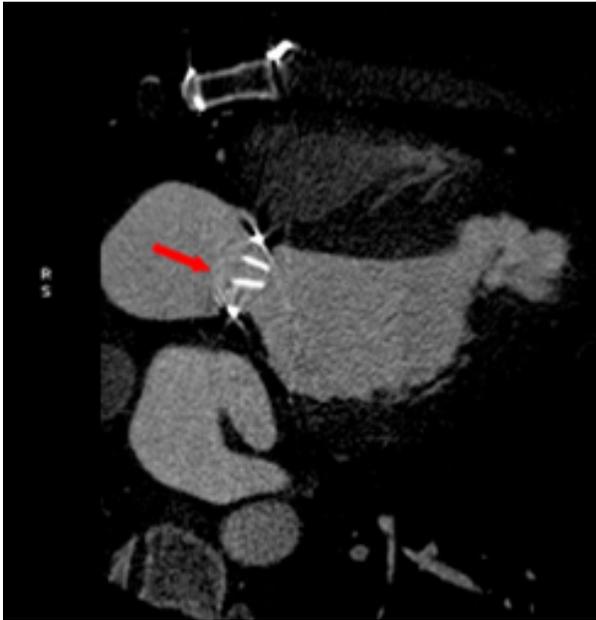
B. Two chamber MDCT image of prosthetic bi leaflet mitral valve in diastole showing bi leaflet mitral valve with fixed Posterior disc (Yellow arrow) and limited movement of anterior disc (red arrow)

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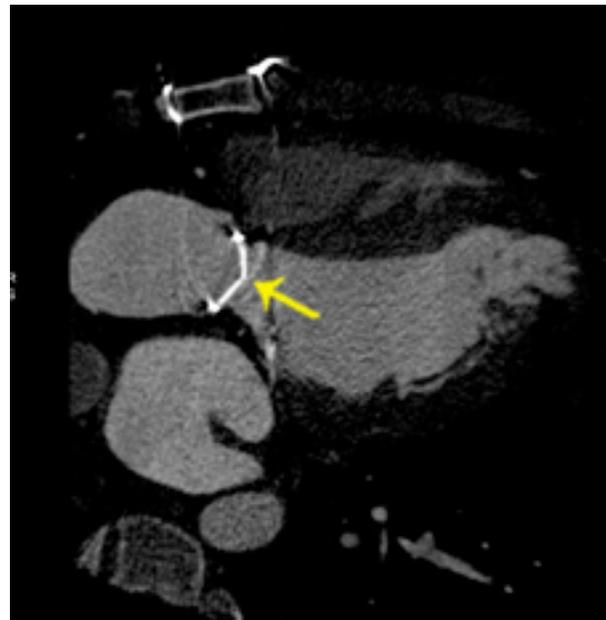
18 and 09 mmHg respectively with an adequate mobility of both discs. Redo mitral valve replacement was decided because of his symptoms and he underwent 64 slice MDCT for coronary artery evaluation before surgery.

Above are shown the 64 slice MDCT images for metallic valves at the aortic and mitral position. The mitral valve prosthesis is shown in Image A and B during systolic and diastolic phases respectively. The Image A shows the discs of the mitral valve in a closed position during systole. The Image B shows restricted movement of the anterior disc (yellow arrow), and the posterior disc is fixed (red arrow) resulting in increased gradient across mitral valve prosthesis. The image C and D show

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C. Two chamber MDCT image of Bi leaflet metallic aortic valve in systole showing adequate movement of both discs (Red arrow)



D. Two chamber MDCT image of Bi leaflet metallic aortic valve in diastole showing both discs in closed position (yellow arrow)

the systolic and diastolic phases of bileaflet aortic valve movement. There is adequate mobility of both discs of aortic valve prosthesis during systole and diastole.

Prosthetic heart valves (PHV) are assessed on routine basis by transthoracic echo cardiography, transesophageal echocardiography, and fluoroscopy. These modalities have an additional advantage of determining the gradients across the PHV¹. Incorrect echocardiographic diagnoses in patients

with mechanical valve prostheses can occur and special care should be taken when assessing patients in whom prosthetic valve dysfunction is suspected.²

Recently MDCT has shown great potential in the evaluation of PHV. It acquires the systolic and diastolic data set for adequate functional assessment of PHV.³ The MDCT has the additional advantage of assessment of coronary arteries for patients undergoing valve surgery.⁴



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