

METHODS Six-hundred-eighty-four consecutive patients with severe aortic stenosis who underwent TAVI in our institution between 2012 and 2014 with available pre-procedural MSCT were included. For adjudication of the leaflet phenotype, diastolic (70%) and systolic (30%) reconstructions were used. Genuine BAV was diagnosed according to Sievers *et al.* (type 0: purely bileaflet; type 1: trileaflet anlage, 1 raphe; type 2: trileaflet anlage, 2 raphes). Functional BAV was defined as tricuspid configuration with symmetric geometry of all three cusps and commissures in diastole - assuming a trileaflet anlage - and bicuspid configuration during systole unmasking a fusion of two adjacent cusps. Device success according to VARC II criteria was compared between BAV and non-BAV patients.

RESULTS Mean age was 82.2± 5.9 years, logistic Euro score was 24.3 ± 12.2%, and 54.2% were female. With echocardiography only 15 (2.1%) cases were classified as BAV, whereas MSCT revealed a congenital BAV in 40 (5.8 %) cases (type 0, 1, and 2 in 7.5%, 77.5%, and 20% respectively). A trileaflet anlage with functional bicuspid anatomy was present in 13 (1.9%) patients. The overall incidence of functional and genuine BAV was much higher than diagnosed with pre-procedural echocardiography (p = 0.001).

In patients with BAV, the combined endpoint of device success according to VARC 2 was non-significantly lower than in those with tri-leaflet aortic valves (90.8% vs. 83.0%; p = 0.07). However, the rate of device-related procedural complications including device malpositioning, embolization and/or valve-in-valve implantation, was significantly higher in the BAV-group (11.3% vs. 3.2%; p = 0.01).

CONCLUSION MSCT facilitates the identification and classification of genuine or functional BAV in TAVI patients. Given a higher rate of procedural failures, a more attentive appreciation of a bicuspid phenotype should be encouraged.

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Effect of Successful Percutaneous Transvenous Mitral Commissurotomy for Mitral Stenosis on Pulmonary Function

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BACKGROUND Rheumatic Mitral valve stenosis still is an important cause of mortality and morbidity in certain parts of the world. Mostly the morbidity is manifested through pulmonary function limitations causing shortness of breath and poor tolerance to physical demands. These in turn is caused by chronic pulmonary circulatory changes from accumulation of water, proteins and proteoglycans in pulmonary interstitium. The degree of pulmonary involvement is directly manifested by the changes of pulmonary function test (PFT) and repair of mitral valve pathology shows significant improvement in PFT parameters as well as in symptoms. Percutaneous Transvenous Mitral Commissurotomy (PTMC) is an option to repair pure mitral stenosis with relatively less risk and economic burden.

METHODS A prospective study involving 58 patients of mitral stenosis having New York Heart Association (NYHA) II-IV class symptoms was done. Patients with favorable valve morphology (Wilkin’s score <10) were selected for PTMC. Echocardiographic evaluation and PFT were done before and 7 days after PTMC and compared using paired student’s T test and correlation between variables were established with Pearson’s correlation analysis.

RESULTS Two patients died from procedural complication. Others showed significant improvement in symptoms and hemodynamic measurements after successful PTMC.

Before PTMC, 19 patients (33.9%) were in NYHA class III, 36 patients (64.3%) were in class II. After PTMC, majorities (37 patients, 66.1%) were switched over to NYHA class I and remaining 18 patients (32.1%) were in class II. Pulmonary artery systolic pressure did not show any correlation with forced vital capacity.

Echocardiographic Parameter	Group		p value
	Before PTMC	After PTMC	
Mitral valve area (square cm)	0.764 ± 0.1257	1.404 ± 0.1194	<0.001
Transmitral peak pressure gradient (mmHg)	26.43 ± 5.62	11.36 ± 2.4000	<0.001
Left atrial diameter (mm)	47.23 ± 5.350	40.18 ± 5.557	<0.001
Pulmonary artery systolic pressure (mmHg)	57.73 ± 17.03	31.27 ± 8.30	<0.001
Pulmonary function test findings			
FEV1 (% of predicted value)	60.18 ± 13.054	78.32 ± 11.874	<0.001
FVC (% of predicted value)	53.80 ± 12.313	68.57 ± 11.662	<0.001
FEV1/FVC	112.64 ± 16.292	114.98 ± 12.714	0.33
PEF (L/min)	223.75 ± 62.3215	372.05 ± 62.200	<0.001

CONCLUSION Patients with severe mitral stenosis have impaired pulmonary function which is of restrictive type. Symptom often does not correlate with the severity of the disease. Successful PTMC improves pulmonary function, as well as, clinical status. PTMC should be done in suitable cases to reduce morbidity in mitral stenosis. Also, assessment of lung function in patients with mitral stenosis may aid in timely decision-making before adopting the interventional strategy of treatment.

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Immediate and In-Hospital Outcome of Percutaneous Transvenous Mitral Commissurotomy in Patients with Mitral Restenosis After Previous Surgical Commissurotomy

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BACKGROUND Rheumatic fever and rheumatic heart disease continue to be the major health problem in all developing countries including Bangladesh. Percutaneous Transvenous mitral Commissurotomy (PTMC) is an established non-surgical modality for the treatment of severe rheumatic mitral valve stenosis. The purpose of this study was to evaluate our immediate and in-hospital results of Percutaneous Transvenous Mitral Commissurotomy (PTMC) in patients with restenosis with previous mitral surgery (CMC).

METHODS The study group included 880 consecutive patients who underwent PTMC at the National Institute of Cardiovascular Diseases (NICVD), Dhaka and Al -Helal Heart Institute, Mirpur, Euro-Bangla Heart Hospital, Lalmatia, Dhaka between May 2003 and December 2012. Safety, efficacy and in-hospital results of percutaneous transvenous mitral commissurotomy were analyzed in 800 patients underwent PTMC without previous CMC (group 1) and compared with 60 those of with previous CMC (group 2).

RESULTS Baseline demographic and clinical characteristics were similar in the 800 patients without previous CMC (group-1) and the 80 patients with previous CMC (group-2) during the procedure. In the whole study group mitral valve area (MVA) was 0.85 ± 0.09 cm² prior to PTMC, and increased to 1.76 ± 0.07 cm² after the procedure (p = 0.0001). The mean increase in MVA was 0.78 ± 0.31 cm² in the group-1 and 0.79 ± 0.41 cm² in the group-2 (NS). During the procedure or in-hospital after PTMC, embolic events were recorded in 3 patients in group-1 and 2 patients in group-2 (NS). The frequency of minor hematomata at puncture site in 15 patients in group-1 vs. 13 patients in group-2 and the development of pericardial tamponade and urgent pericardiocentesis in 3 patients in group-1 vs. 3 patients in group-2 were similar in both groups.

CONCLUSION PTMC in selected patients with mitral restenosis after previous surgical commissurotomy (CMC) can be performed safely and with similar immediate efficacy and in-hospital outcome in patients with Mitral stenosis.