

# Closed Mitral Valvotomy (as a Surgical Treatment Option) – Does it has any Medico Legal Bearings in the Present Scenario

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## Abstract

**Introduction-** A prospective study of closed Mitral Valvotomy in 104 patients

**Method and Result-** From December 2012 to December 2019, 104 patients underwent CMV. 94 Patients become symptom free after surgery and only 7 patients required Mitral valve replacement surgery on follow-up

**Conclusion-** Closed Mitral Valvotomy represents a satisfactory technique in terms of lower cost, high efficacy, simplicity and reproducibility

**Key words:** closed mitral Valvotomy (CMV), Mitral stenosis(MS)

## Introduction

The mitral valve in essence a funnel shaped structure with the apex within the left ventricle is the valve most frequently damaged by rheumatic carditis. Rheumatic heart disease remains a major cardiac problem in developing countries like India as the consequence of rheumatic fever<sup>1</sup>. Mitral valve stenosis is the most common complication of valvular heart disease and it results in increase in pulmonary hypertension, heart failure, pulmonary vascular disease over a period of time and if untreated death ensues. Treatment of rheumatic mitral stenosis ranges from conservative medical management to closed mitral Valvotomy and the more recent ballon mitral valvoplasty<sup>2-4</sup>. Cardiac Surgery started in Department of CVTS from December 2012. Closed Mitral Valvotomy was the first surgical procedure to be performed in our CVTS department.

**Aim:** The aim of this study was to evaluate the clinical status of patients with mitral stenosis following closed mitral Valvotomy

**Material and Methods:** All Patients with the Diagnosis of Severe Mitral Stenosis admitted in the department of CardioVascular & Thoracic Surgery , at Uttar Pradesh University of Medical Sciences , Saifai , Etawah , UP. The suitable patients were selected according to echocardiographic criteria: (1) pliable anterior Mitral leaflet, (2) Absence of significant Mitral Subvalvular disease, (3) Absence of significant calcification and (4) the Mitral valve orifice area less than (1.1 cm<sup>2</sup>). Excluded patient were those not giving consent for closed Mitral Valvotomy

**Surgical Technique :** All patients had general anaesthesia. Patients were positioned in right lateral recumbent position, the thoracic cavity was approached through Left Antero-Lateral Thoracotomy, through 4th Intercostal space. Purse string at LA Appendage , finger guidance through it to the Mitral Valve & Dilatation was done gradually using Hegar's dilator ( through LV Apex) while monitoring the systemic pressure that was noted to dramatically increase and improve in waveform .

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## Results

104 CMV Surgeries performed over period of 7 years, mostly in 3<sup>rd</sup> decade of life, table 1, female outnumber males, table 2

**Table -1 Age distribution of patients**

Age in years	Number of patients	Percentage
11-20	06	5.7
21-30	45	43.2
31-40	31	29.8
41-50	14	13.4
51-60	08	7.6

**Table 2 Sex distribution of the patients**

Sex of patients	Number of patients	Percentage
Females	73	70.1
Males	31	29.8

Breathlessness was the most common symptom, table 3, and diastolic murmur the common clinical sign, table 4.

**Table -3 Clinical presentation of patients with mitral stenosis\***

Symptomatology	Number of patients	Percentage
Palpitations	79	75.9
Breathlessness	82	78.8
Easy fatigability	64	61.5
Edema	56	53.8
Decreased urinary output	34	32.6

\*More than one symptom was present in a patient

**Table -4 Clinical signs in patients with MS**

Clinical signs	Number of patients	percentage
Diastolic murmur	92	88.4
Anaemia	81	77.8
Atrial fibrillation	59	56.7
Hepatomegly	45	43.2
Lost first heart sound	38	36.5

Transesophageal echocardiography (TTE) was done in all and all had features of MS

CMV was done in 104 patients. Only 7 patients required Mitral Valve Replacement surgery on follow up because of symptoms became severe (2 patients after 4 months , 5 patients after 1 Yr )

94 patient became symptom free after surgery and can perform more than ordinary daily activities, most of them on regular follow up. Post procedure mortality in closed mitral Valvotomy was one due to severe icterus and renal failure. This patient had pre-operative icterus. After 17th day of procedure she developed anuria and could not be saved inspite of vigorous try. Two patients lost for follow up

**Discussion**

Rheumatic fever is the most common cause of mitral stenosis. Although the attack rate for rheumatic fever is equal among genders, MS is 2 to 3 times more common in women<sup>5</sup>, and similar observations have been made in present study. Elevated C- protein levels, indicative of ongoing generalized inflammation, were found in many patients before Valvotomy, which supports an inflammatory origin of MS<sup>6</sup>. Symptomatology in the present study is in accordance to other reports<sup>5</sup>

95 patient became symptom free after surgery in our study. CMV should be the procedure of choice for MS in patients with non- calcified pliable valves, the result and cost of operation comparing favourable with those of open heart procedures<sup>7</sup>

Only 7 patients required Mitral Valve Replacement surgery on follow up because of symptoms became severe

Definitive treatment is mitral valve replacement, either by Biological or Mechanical prostheses. Biological Prosthesis is not recommended in young age as it undergoes degeneration fast due to ongoing rheumatic activities. Mechanical prosthesis will require life-long oral anticoagulation and therefore close monitoring for International Normalizing Ratio (INR) is required<sup>8</sup>. Though the operative mortality has to be around 1% our figures of 0.96% are in similarities to others<sup>7,9</sup>

Palliative Surgical treatment has been recommended in developing countries ( if Valve replacemnt / Repair is not feasible due to Economical reasons or expertise) as a simple, economical and safe procedure with a good outcome as this does not require life time anticoagulation<sup>7</sup>( provided patient has given consent specifically for this procedure )

**Conclusion**

CMV should always be done in patients who have only pure mitral stenosis, non calcified pliable valve, expert hands, and in such patients in such centres, where facilities for cardiopulmonary bypass are not available. Closed Mitral Valvotomy represents a satisfactory technique in terms of lower cost, high efficacy, simplicity and reproducibility. **We conclude that CMV does not pose any Medico legal bearing as an surgical treatment option for pure**

**non calcified severe Mitral Stenosis provided that :**

\*All patients and patient party should be clearly counselled regarding all the treatment option available ( Valve replacement , Valve repair , Closed Mitral / open mitral valvotomy ) as well as cost for the different procedures ,major intra and postoperative risk factors , as it is the patient who should choose and decide regarding the operative procedure so as to prevent and medico legal bearings later on.

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**Ethical Clearance:** Clearance was taken from ethical committee

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