

## MITRAL VALVOTOMY IN PREGNANCY

by

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Mitral valve stenosis is a common heart disease during childbearing age in women and this forms a common and important complication during pregnancy. Hamilton (1954) analysed 1335 cases of heart disease during pregnancy and found 93% of them rheumatic in nature. Predominant or pure mitral stenosis is by far the most common individual lesion. In India, incidence of rheumatic nature of heart disease is 85.3% as reported by Masani (1957), 87.8% by Devi (1957) and 82.3% at V.S. Hospital, Ahmedabad.

Many patients even with moderate stenosis become significantly symptomatic as a result of extra circulatory burden imposed by pregnancy, and those with critical stenosis who may have only few symptoms before pregnancy may be in danger of acute pulmonary oedema, which may come on suddenly after exertion, specially in a patient who is not aware of the valve lesion and has not been restricting physical activity. Pulmonary oedema resulting from mitral stenosis in pregnancy is the most im-

portant cardiac cause of death in pregnancy. (Jones, 1951).

Mitral valvotomy in pregnancy is remarkably well tolerated by both mother and foetus and if indications are present, there should be no hesitation in advising operation. Pregnancy does not appear to increase the risk of mitral valvotomy as suggested by Boyte *et al* (1964) and the indications for mitral valvotomy are same as in non-pregnant patient. The operation has a very definite place as an emergency operation in cases who continue to be in failure inspite of adequate trial of medical treatment and Marshall and Pantridge (1957) find the operation preferable to termination of pregnancy.

### *Material and Method*

Present study comprises of 23 cases of mitral valvotomy during various trimesters of pregnancy done at K.M. School of Post-Graduate Medicine and Research and V.S. General Hospital, Ahmedabad during the period of December, 1961 to 31st June, 1974.

### *Analysis of Data*

During the last twelve and half years, 507 mitral valvotomies were carried out, out of which 217 were on male patients and 290 were on female patients. Out of these 290 valvotomies, 23 (7.93%) were performed on pregnant women.

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All these 23 patients were in effort intolerance grade III to IV. In one patient there was acute pulmonary oedema and one patient had an attack of hemiplegia in the past.

Out of 23 cases, 17 patients (73.92%) were operated during the second trimester including 5 cases which were operated just on completion of three months of pregnancy. Three cases (13.04%) were operated during the third trimester and 3 cases (13.04%) were operated during the first trimester.

In all the cases, a transventricular mitral valvotomy by Tubb's dilator was performed after adequate pre-operative preparation which included mainly digitalization, diuretic therapy and pre-operative as well as post-operative hormonal cover.

Out of 23 operated patients, 20 showed uneventful recovery. Three patients expired in post-operative period out of which one died due to ventricular bleeding which has no relation with pregnancy, one due to hypofibrinogenaemia and generalised bleeding on first post-operative day, while third one expired on 11th post-operative day due to refractory cardiac failure. All these deaths have no relation with association of pregnancy and mitral valvotomy.

As two patients expired one during operation and second on first post-operative day, this study is made in the remaining 21 cases. Out of 21 cases, 2 patients aborted in post-operative period and one third trimester patient delivered a stillborn baby giving foetal loss 14.28%.

On long follow up of 18 cases, 1 had caesarean section twice for contracted pelvis, 2 patients delivered more than once without any effect on cardiac status, 1 had full term twin delivery and 14 had full term normal delivery.

### Discussion

Indications for mitral valvotomy during pregnancy are, (1) Tight mitral stenosis, as in this type of stenosis, with advancement of pregnancy cardiac failure is likely to be precipitated, (2) In second trimester, when there are evidences of congestive cardiac failure. At this stage the placental circulation calls for an increase in cardiac output. (3) As an emergency procedure at any stage of pregnancy, if pulmonary oedema develops. (4) Those with progressive cardiac disability during first and second trimesters with mitral stenosis and who refuse for interruption of pregnancy. (5) those with mitral stenosis who are refractory to medical treatment. (6) Effort intolerance grade III and IV patients with mitral stenosis who become pregnant. (7) History of any embolic episode.

Most ideal time for performing mitral valvotomy is 18 to 24 weeks of gestation. In present series majority of patients i.e. 73.92% were in the second trimester. During the first trimester, as placental circulation has not established, chances of foetal loss are more if valvotomy is performed, during the first trimester. During the third trimester, valvotomy should be performed only if complications like acute pulmonary oedema set in which do not respond to routine medical treatment. In present series, all the 3 cases operated during the third trimester were cases of refractory cardiac failure and pulmonary oedema. As during the third trimester there is maximum load on the heart, operative risk is higher. In present series one patient could not stand the procedure and expired on 11th post-operative day due to refractory cardiac failure. However, several authors (Glover *et al* 1955; and Baily and Bolton, 1956) have recom-



mended that when surgery is likely to be required, it should be undertaken as early as possible in pregnancy.

In present series out of 23, 3 patients expired. One had ventricular bleeding which is a preventable complication. One died due to hypofibrinogenaemia and one had refractory cardiac failure. None of them had relation with presence of pregnancy. Thus, surgical procedure does not enhance mortality due to presence of pregnancy. Wade *et al* (1963) likewise find that operation is not made more dangerous by pregnancy. Same is reported by Mendelson (1955).

Foetal loss due to mitral valvotomy in present series is 14.8%. Foetal mortality is little higher in cases of mitral stenosis without operation that is 20% as reported by Devi (1957). Cause of high foetal mortality in present series may be due to inadequate hormonal cover, inadequate Oxygenation, or hypotension during operation in the earlier period of surgery (1961 to 1964). Wade *et al* (1963) also report that foetal chances are not worsened as compared with medically treated cases.

On long follow up all cases behaved well. Indication for caesarean section in subsequent pregnancy in one case was contracted pelvis. In none of them restenosis was reported.

Every case of mitral stenosis must be carefully individualised. Supportive therapy, therapeutic abortion and mitral valvotomy each play a definite role in our present concept of the problem. The obstetric ideal of obtaining a living mother and a living baby is most logically approached by improving the ability

of the diseased heart to withstand the burden of the pregnancy by performing mitral valvotomy.

#### Summary

1. Twenty-three patients who underwent mitral valvotomy during pregnancy were studied.
2. All cases were in grade III or IV.
3. 73.92% were operated during the second trimester of pregnancy.
4. Three patients expired but in none of them pregnancy was responsible.
4. Foetal loss was 14.8%.
6. Long follow up of such patients showed uncomplicated obstetric outcome, and without any deterioration in cardiac status.
7. Mitral valvotomy during pregnancy favourably influences maternal and foetal mortality.

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