

Rescue percutaneous balloon mitral valvotomy before caesarean section

Sir,

The cardiovascular demands of pregnancy may not be tolerated in women with severe mitral stenosis (MS) due to physiological changes and are at increased risk of complications. The maternal and perinatal outcome depends upon the severity of mitral stenosis and functional capacity.^[1] We report a case of emergency percutaneous balloon mitral valvotomy (PBMV) before lower segment caesarean section (LSCS) in a patient with severe MS with severe pulmonary artery hypertension in incipient pulmonary oedema, which resulted in good maternal and foetal outcome.

A 28-year-old woman (gravida 2, para 0, abortion-1) presented at 37 weeks gestation with increasing breathlessness for 3 days. She was a known case of rheumatic heart disease (RHD) with severe MS, who was lost to follow up after the first trimester, only to return at the end of the III trimester when she was unable to sleep in the supine position.

On admission, the patient was breathless at rest with a New York Heart Association (NYHA) functional status III–IV, heart rate (HR) of 73/min, blood pressure of 98/66 mm Hg, bilateral wheeze, and mid-diastolic murmur on auscultation. Echocardiography revealed severe non-calcific MS [mitral valve area (MVA) 0.6 cm²], severe pulmonary arterial hypertension (PAH), right ventricular systolic pressure (RVSP) >80 mm Hg, moderate tricuspid regurgitation (TR), with normal biventricular function. An electrocardiography showed sinus rhythm, and metoprolol and furosemide doses were escalated. The obstetric evaluation revealed intrauterine growth restriction (IUGR) and oligohydramnios, and lower segment caesarean section (LSCS) was planned for foetal salvage. A multidisciplinary team looking after her, took a decision for emergency PBMV followed by LSCS, in view of her deteriorating health condition. PBMV with one balloon was successful, and the mitral valve area dilated to 1.5 cm², the patient was shifted back to the labour room after full reversal of heparin. As the mean left atrial pressure decreased from 30 to 10 mmHg, there was a dramatic relief in the patient's symptoms, and she was returned to the labour room

in the supine position, the patient went into labour 5 h after PBMV. The patient was transferred to the operating room, standard monitoring and invasive blood pressure monitoring were established. She was considered for combined spinal-epidural anaesthesia. Bupivacaine heavy (0.5%) 6 mg and fentanyl 25 µg were administered in the sub-arachnoid space (L4–L5), and an epidural catheter was kept 5 cm inside the space. The mild hypotension following spinal anaesthesia was managed with 25–50 µg boluses of phenylephrine. A female baby (1.95 kg) was delivered, and oxytocin infusion was started at 1 mg/h. The patient was observed in the intensive care unit (ICU) for 2 days and discharged to the ward.

RHD is the leading cause of MS in underdeveloped and developing countries.^[2] The maternal and perinatal mortality for pregnant women with mitral stenosis in NYHA III–IV functional status is 6.8% and 30%, respectively.^[1] Interventions may be required for those not responding to conservative management, especially in the second trimester of pregnancy. PBMV is the preferred, safe and effective therapy in patients who have suitable mitral valve anatomy with a success rate of nearly 100% when performed as an elective procedure,^[3] and 89% when performed as an emergency procedure, a mortality rate of 11% attributed to septic shock or multiorgan failure despite a technically successful PBMV, unsuccessful PBMV or the development of acute MR.^[4] Our patient was in sinus rhythm, with no risk factors for a bad outcome.

The efficacy and safety of PBMV during pregnancy were evaluated in large case series with no maternal and foetal complications, and there are no long-term adverse effects either on the mother or children.^[5] PBMV when compared to open surgical commissurotomy has less foetal and neonatal mortality (4.8 Vs 37.9%).^[6]

The ideal time for PBMV is the antenatal period but can also be performed any time during pregnancy if indicated,^[7] with appropriate radio-protective measures. The patient presented here underwent PBMV at the end of the third trimester as an emergency, just before LSCS as both lives were in jeopardy. PBMV was used as an emergency rescue measure before LSCS and resulted in a good outcome in both the mother and foetus.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the

patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship
Nil.

Conflicts of interest

There are no conflicts of interest.

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Submitted: 13-Aug-2020

Revised: 22-Sep-2020

Accepted: 26-Feb-2021

Published: 10-May-2021

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Access this article online	
Quick response code	Website: www.ijaweb.org
	DOI: 10.4103/ija.IJA_1032_20

How to cite this article: Talawar P, Rajeshwari S, Kumar S, Bhoi D. Rescue percutaneous balloon mitral valvotomy before caesarean section. Indian J Anaesth 2021;65:92-3.

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