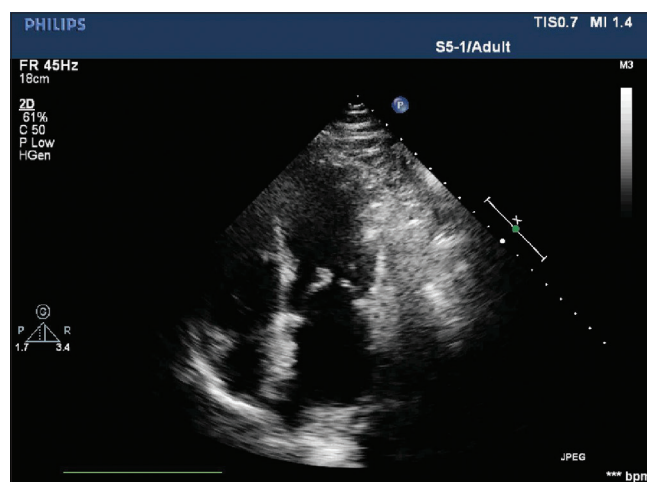


## Acute respiratory failure and pulmonary edema during peri-partum period in normotensive parturient – diagnosis and management

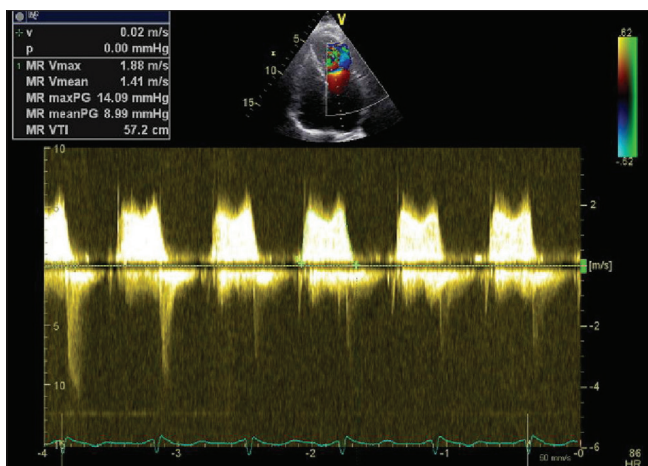
Dear Editor,

A 25-year-old primigravida, 34 weeks pregnant with spontaneous onset of labour, was referred to our hospital for anticipated neonatal intensive care support. She had history of breathlessness during second trimester, for which she received salbutamol inhaler intermittently. On arrival in our obstetric unit, she complained of breathlessness on lying down, her pulse rate was 128/min and BP was 82/52 mmHg. with decreased air entry bilaterally. Oxygen therapy with nasal prongs was administered but breathlessness and hypoxia worsened (SpO<sub>2</sub> = 90%). Emergency LSCS was planned in view of maternal respiratory distress and foetal bradycardia. Rapid sequence induction was performed. Pink frothy sputum appeared in the endotracheal tube, suggesting pulmonary oedema. Mechanical ventilation was initiated. Due to persistent hypotension, arterial line was placed and injection Noradrenaline was started to achieve a mean arterial pressure of >60 mmHg. A viable baby of 2.4 kg was delivered. Injection

morphine 9 mg was given after delivery of the baby. A central line was placed and central venous pressure of 14 mmHg was recorded. In view of unanticipated pulmonary oedema, the attending anaesthetist performed a Point Of Care Cardiac Ultrasound. Which revealed enlarged left atrium, thickened mitral valve with decreased mobility [Figure 1], and turbulent antegrade flow through the stenotic valve [Figure 2] with a mean gradient of 9 mmHg. A diagnosis of acute cardiogenic pulmonary oedema secondary to mitral stenosis (MS) was established. Injection furosemide 40 mg was given. The patient was shifted to intensive care unit after surgery. She was extubated uneventfully the next day and inotropic support



**Figure 1:** Enlarged left atrium and thickened mitral valve with decreased mobility on transthoracic echocardiography



**Figure 2:** Continuous wave doppler across mitral valve

was tapered. She was discharged home on postoperative day six. The patient underwent percutaneous balloon mitral valvotomy (PBMV) 6 months later.

Acute respiratory failure affects only 0.1-0.2% of pregnancies.<sup>[1]</sup> The common causes of peripartum respiratory failure include acute exacerbation of asthma, pulmonary infection, thromboembolism, amniotic fluid embolism and pulmonary oedema. The incidence of acute pulmonary oedema in pregnancy is rare and varies from 0.08% to 0.5%.<sup>[2]</sup> The most common associated factors for acute pulmonary oedema without hypertension are sepsis, pre-existing cardiac disease, pregnancy associated cardiomyopathy, ischaemic heart disease, and aspiration. Though peripartum pulmonary oedema is usually due to altered capillary permeability, use of tocolytic agents such as  $\beta$ -antagonists, calcium channel blockers, magnesium sulphate and corticosteroids may also lead to acute pulmonary oedema.<sup>[3,4]</sup> Mild respiratory distress in second trimester secondary to the physiological changes of pregnancy superimposed on moderate mitral valve stenosis may have been misdiagnosed as bronchial asthma in the primary health centre as both can present with common symptoms. Sinus tachycardia combined with fluid administration for suspected hypovolemia in the absence of definitive diagnosis of cardiac disease precipitated acute pulmonary oedema. The point of care cardiac ultrasound established the diagnosis of MS. The main hemodynamic goal in MS is to avoid tachycardia, optimize left ventricular diastolic filling and maintain normal to high preload, afterload, and contractility.<sup>[5]</sup> Formal training in point of care cardiac ultrasound may help obstetric anaesthesiologist to provide goal directed management once the cause is identified.

### 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.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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