CASE REPORT

Successful Outcome of Eisenmenger with Term Pregnancy

Chakraborty Somajita · Mukherjee Sucheta ·
Datta Arnab · Banerjee Subir

Received: 6 April 2010 / Accepted: 25 July 2012 / Published online: 5 February 2013
© Federation of Obstetric & Gynecological Societies of India 2013

Introduction

Eisenmenger consists of a congenital communication between the systemic and pulmonary circulation, with resultant pulmonary arterial hypertension (PAH) and reversal of flow through the defect. PAH carries grave prognosis during pregnancy [1].

Eisenmenger pregnancy is associated with a high maternal mortality (30–50 %) [2, 3] and overall fetal wastage is reported to be up to 75 %. Termination of pregnancy is preferred for women with ES who present early in the pregnancy.

Case Report

A 24-year-old female presented with class IV dyspnoea (at rest) and cyanosis in the emergency room on 17.10.09. She was a primigravida with 36 weeks 2 days of gestation and was a known case of muscular VSD and Rheumatic mitral

regurgitation, who was on regular prophylactic penicillin therapy.

On examination, she had central and peripheral cyanosis, Grade III clubbing, tachycardia, tachypnoea, and a BP of 160/90 mmHg. Her neck veins were engorged and a JVP of 12 cm of water was recorded. She had bilateral diffuse wheeze with bibasilar crackles over the lung fields. Precordial palpation revealed a parasternal heave and on auscultation of the heart, a loud P2, an early systolic murmur of grade III/VI intensity at the apex, and a short high pitched diastolic murmur of grade II/VI at the left upper sternal border were present.

On obstetric examination, the fundal height was 32 weeks (lag of 4 weeks). The patient was not in labor.

A complete blood count showed an Hb concentration of 18 gm/dl and a hematocrit of 54 %. All metabolic parameters, RFT, LFT, and uric acid were normal. A routine urine examination showed 1 + proteinuria. An ABG analysis was done which showed mild metabolic acidosis, severe hypoxia PaO₂ 52 mmHg, SpO₂ 84 % with 6 lit of O₂, a low normal PCO₂, and a raised hematocrit. ECG showed sinus tachycardia right axis deviation of QRS axis in the frontal plane, a P pulmonale, and right ventricular hypertrophy.

Chest X-ray was done which showed cardiomegaly, mild LA enlargement, hugely dilated pulmonary artery, and increased hilar vascular markings with peripheral pruning.

A transthoracic echocardiography revealed a small apical muscular VSD with no flow demonstrable across it. Dilated LA, RA, RV, high normal LV cavity size, normal LV systolic function, mild RV systolic dysfunction, and

Chakraborty S., Associate Professor · Mukherjee S.,
Sr. Resident · Datta A., RMO cum Clinical Tutor ·
Banerjee S., RMO cum Clinical Tutor
Department of Obstetrics and Gynecology,
Medical College and Hospital, Kolkata, India

Chakraborty S. (✉), Associate Professor
83/1/1, Ballygunge Place, Kolkata 700 019, India
e-mail: mimodoc@yahoo.com

severe pulmonary artery hypertension with a peak pulmonary arterial systolic pressure of 150 mm of Hg and moderate TR were seen. There was mild thickening of the mitral valve leaflets with mild subvalvular fibrosis, moderate eccentric MR, trivial AR, dilated PA, severe PR, and a gradient of 25 mm Hg across RVOT; the pericardium was normal on examination (Figs. 1, 2).

She was advised complete bed rest in a 45° propped up position, and a continuous high flow of moist oxygen by ventimask (6–8 l/min) was given. She was also given IV antibiotics, frusemide, and opiates. Anticoagulation was withheld in anticipation of a quick delivery. The patient improved clinically and a termination of pregnancy by CS was decided on the fourth day of admission (October 21, 2009).

Before the anesthesia procedure was begun, all routine monitors were attached. The patient was preloaded with ringer lactate over 20 min along with CVP monitoring. An epidural injection was given in the sitting position at L3–4 space with the catheter technique. The catheter position was checked using a test dose of 3 ml of 1.5 % lidocaine with 1:2,00,000 epinephrine. The block was given using 2.5 ml preservative-free bupivacaine (0.5 %) + 7 ml of normal saline and 0.5 ml of fentanyl (25 mg). A total dose of 10 ml was injected in the epidural space. After performing the block, the patient was placed in a 15° propped up position with left uterine displacement. Oxygen was administered with a ventimask at a rate of 3 l of flow; spo_2 was maintained around 80 %.

After confirming the block, LSCS was performed. Prophylactic forceps was used to deliver the head and a healthy female baby of wt. 2 kg was delivered. The liquor was thin meconium stained. Prophylactic 10 unit oxytocin was used to prevent PPH. The patient was shifted to the ICU for observation and transferred back to the postnatal ward after 48 h, after stabilization of vital parameters. She had an uneventful post-operative period and was discharged on the 5th post-operative day.

The patient came for a checkup 1 and 6 weeks after discharge at the gynae OPD; after that, she continued her

Fig. 2 ECHO shows right-sided cardiac enlargement

monthly checkup in the cardiology department and followed up for the next 6 months.

Discussion

For a patient who continues her pregnancy, hospitalization for the entire duration of pregnancy is often appropriate. Third trimester fetal surveillance with ultrasound and antepartum testing is important because at least 30 % of such babies will have growth retardation [2]. The diagnosis should be considered by obstetricians in all patients with a hemoglobin level of more than 15 gm% with cyanosis, or with clubbing or hemoptysis, and also in any patient who complains of dyspnoea or syncope [3]. Continuous administration of oxygen is mandatory [4]. Maternal arterial partial pressure of oxygen should be maintained at a level of 70 mmHg or above [5]. Pulmonary vasodilator agents have been useful in patients with PAH; for example, Epoprostenol infusion (long-term prostacyclin therapy) improves hemodynamics and oxygenation. Bosentan, an endothelin receptor antagonist, improves the oxygen saturation and NYHA class. Sildenafil and Tadalafil, other vasodilatory agents, have also been recently used with good effects in improving the oxygen saturation. Routine anticoagulation is still not recommended in ES as it may cause bleeding, cardiovascular instability, and even death in some patients. During the antepartum period, the decreased systemic vascular resistance associated with pregnancy increases the likelihood and the degree of right to left shunt. In such a patient, systemic hypotension leads to decreased right ventricular filling pressure and in the presence of fixed pulmonary hypertension, such decreased right heart pressure may be insufficient to perfuse the pulmonary arterial bed. This insufficiency may result in sudden profound hypotension, hypoxia, and death. Such hypotension can result from hemorrhage or complication of anesthesia and can lead to

Fig. 1 Small residual VSD

sudden death. Such an occurrence is the principal clinical concern in the intrapartum management of patients with pulmonary hypertension. Thromboembolic phenomena are associated with ES and contribute to 43 % of maternal mortality due to ES.

The timing of delivery will depend on a continuous assessment of maternal and fetal well-being during pregnancy. Different authors have different opinions on the best mode of delivery. A majority of patients described in the literature delivery vaginally [4]. Our patient delivered by CS as it was felt that an electively timed procedure with adequate anesthetic and monitoring facilities offered the safest management for the patient. Anesthesia for patients with pulmonary hypertension is controversial. The use of epidural anesthesia is perhaps best for the management of these patients.

Summary

The first month after delivery represents the period of the highest risk for patients. The reasons include an increased

tendency toward thromboembolism, an exaggerated pulmonary vascular reactivity, and/or a mismatch between declined myocardial contractility and a too sudden decrease in blood volume after delivery. Low dose combined oral contraceptives should be used by these women as their benefits outweigh the risks, although a permanent method of sterilization at the earliest should be the approach [5].

References

1. Clark SL, Cotton DB, Hankins GDV, et al. Critical care obstetrics. 2nd ed. Cambridge: Blackwell Science Ltd; 1991. p. 114–35.
2. Gleicher N, Midwall J, Hochberger D, et al. Eisenmenger's syndrome and pregnancy. *Obstet gynecol Surg.* 1979;34:721–41.
3. Dallentol L, Somervilde J, Presbitero P, et al. Eisenmenger syndrome, factors relating to deterioration and death. *Eur Heart J.* 1998;19:1845–55.
4. Lachelin GCL. The Eisenmenger syndrome and pregnancy. A report of two cases. *Eur J Obstet Gynecol Reprod Biol.* 1975;5/3:187–90.
5. Soprevilla LA, Cassinelli MT, Carcelan A, et al. Human fetal and maternal oxygen tension and acid base status during delivery at high altitude. *Am J Obstet Gynecol.* 1971;111:1101–18.