A case of cor triatriatum with pregnancy: An anaesthetic challenge

Sir,

A 28-year-old fifth gravida underwent emergency caesarean section at 35 weeks gestation due to severe pre-eclampsia. At 25 weeks gestation she was diagnosed as having cor triatriatum with ostium secundum atrial septal defect. Pregnancy-induced hypertension (PIH) was diagnosed at 26 weeks; she received alpha-methyldopa 250 mg 6 hourly until delivery.

Pre-anaesthetic evaluation revealed a 50 kg female with no obvious dyspnoea. Central cyanosis was present; heart rate was 136/min and blood pressure 130/90 mmHg. Her renal and liver function tests and coagulation profile were normal. 2D echocardiography with Doppler showed severe pulmonary arterial and venous hypertension with a left ventricular ejection fraction of 55%. Anti-aspiration prophylaxis and infective endocarditis prophylaxis were administered. Continuous ECG, non-invasive blood pressure and pulse oximetry (SpO\textsubscript{2}) in addition to central venous pressure (CVP) were monitored.

Baseline CVP was 10 cm of saline and SpO\textsubscript{2} on room air was 82%; it increased to 90-92% on pre-oxygenation. Anaesthesia was induced by modified rapid sequence technique with fentanyl 100\,µg, thiopentone 150 mg, lignocaine 80 mg and suxamethonium 100 mg; the trachea was intubated with a 7.0 mm endotracheal tube. Isoflurane 1% with vecuronium maintained anaesthesia. A 1.72 kg male baby was delivered with Apgar score seven and eight at one and five minutes, respectively. Uterine contraction was augmented with oxytocin 15 units i.v. At this point, ECG showed occasional ventricular ectopics, however there was no haemodynamic instability. Intraoperative haemodynamic parameters remained within the acceptable range. SpO\textsubscript{2} was 90-91% on 100% inspired oxygen. CVP varied between 10 and 17 cm saline. At the end of surgery, residual neuromuscular blockade was reversed with neostigmine and atroline and the trachea extubated. During surgery, a total of 250 ml of lactated Ringer’s solution was administered and the urine output was 100 ml.

The patient was monitored in an intensive care unit for 24 hours; there was no recurrence of ventricular ectopies. She was discharged on the fifth postoperative day.

Cor triatriatum is a rare cardiac anomaly, wherein the left atrium is divided into two chambers by an abnormal oblique fibromuscular membrane.\textsuperscript{1} It imposes great difficulties in anaesthetic management.\textsuperscript{2} The choice of anaesthesia in our patient was additionally complicated due to the presence of two conditions altering physiology viz. pregnancy and PIH. PIH is marked by contracted intravascular volume, increased systemic and pulmonary vascular resistance, increased afterload on the left ventricle (LV) and decreased colloid oncotic pressure, thereby predisposing to pulmonary oedema. Owing to pulmonary venous obstruction, pressure in the pulmonary capillary bed, pulmonary artery and right ventricle is increased. Though the pressure in the left ventricle is normal, the systemic cardiac output is low or borderline due to decreased preload.

When the two conditions coexist, the left ventricle has increased afterload and decreased preload—a combination that tends to worsen the cardiac output. Prevention of tachycardia and atrial dysrhythmias is vital to ensure adequate LV preloading along with avoiding sudden decrease in systemic vascular resistance. Digoxin may be considered to optimise the patient. As there is a combination of low intravascular onocytic pressure due to PIH and increased intravascular hydrostatic pressure due to cor triatriatum, the pulmonary capillary bed becomes extremely prone to pulmonary oedema. A pulmonary vasodilator may help in this situation by facilitating a decrease in the intravascular hydrostatic pressure. It is also important to avoid an increase in the central blood volume by extreme administrative fluids.

General anaesthesia was chosen in our patient as it permitted haemodynamic manipulation based on the patient’s response. As thiopentone in larger doses can decrease systemic vascular resistance and cardiac output undesirably, fentanyl was used to decrease heart rate and reduce the induction dose of thiopentone. Although nitrous oxide (N\textsubscript{2}O) is a usual accompaniment to inhalational anaesthesia, its use is limited in conditions of preexisting hypoxaemia. Graded epidural anaesthesia is gaining a foothold as the preferred mode of anaesthesia in mitral stenosis wherein pathophysiology is similar to cor triatriatum.\textsuperscript{3,4} The same technique is likely to be useful in cor triatriatum as well. However, there is no evidence to support or refute this. A subarachnoid block may produce undesirable hypotension or bradycardia.

Our patient was predisposed to pulmonary oedema for several reasons viz. underlying cardiac anomaly, fluid administration during surgery and autotranfusion due to uterine contraction following delivery.\textsuperscript{5} Fluid administration guided by continuous monitoring of CVP prevented pulmonary oedema. Pulmonary capillary wedge pressure monitoring is ideal in such situations.

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References

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Uterine restoration following fibroid expulsion after uterine artery embolisation using gelfoam

Sir,

We have been using uterine artery embolisation routinely at our centre for the last two years to treat selected symptomatic patients with fibroids. We report a case of a 35-year-old woman who presented with menorrhagia and dysmenorrhoea with a uterus measuring 5.9 cm in diameter, as seen on transabdominal ultrasound and MR imaging. The patient underwent bilateral uterine artery embolisation using a single 5 F Uterine Artery Catheter (Cook, Bloomington, IN, USA) from the right transfemoral route using standard technique. Instead of using polyvinyl alcohol particles we used gel foam particles as detailed in the article by Katsumori et al. Embolisation of both uterine arteries was effected to the point of near occlusion of the uterine arteries and the uterine vascular bed with reflux of contrast into the arch segment and the descending parts of the uterine arteries. Post-embolisation crampy abdominal pain was effectively controlled using intravenous infusion of a combination of pentazocine and midazolam which continued for two days following the procedure.

Following the procedure, the patient’s symptoms of menorrhagia and dysmenorrhoea improved in the first menstrual cycle itself. Three months following the procedure, the patient reported painless evacuation of a fleshy mass per vagina on the first day of her menstrual period. Ultrasound revealed a normal uterus with complete disappearance of the fibroid. It was speculated that the fibroid must have been expelled with complete restoration of the uterus. The patient has been asymptomatic since this episode for the last one year.

Uterine artery embolisation has been tried as an alternative to surgery and has proved successful in treating symptomatic fibroids. Permanent embolisation particles (such as polyvinyl alcohol) are usually injected into uterine arteries to obtain fibroid shrinkage. Results of fibroid embolisation have been very encouraging. In the study by Klein et al, 92% patients were satisfied with the reduction of bleeding, and 78% were satisfied with the reduction in pressure symptoms. The mean decrease in uterine volume was 36%, and the mean decrease in the size of the dominant fibroid was 49%. Most of the shrinkage of the fibroid occurs within a 6-month period with further reduction occurring between 6-12 months. A few studies have reported expulsion of the fibroid following embolisation, as happened in our case. There has, however, been only one report in English literature so far, of complete uterine restoration following expulsion of the fibroid, which was reported following the use of polyvinyl alcohol particles, with complete cessation of symptoms thereafter. Our case became totally asymptomatic and had painless expulsion of the fibroid three months following embolisation and is unique because it followed embolisation using gel foam particles, which are very economical and yet highly effective embolisation materials as recently reported.

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References


Persistent hypotension and splenic rupture in a patient with Plasmodium vivax and falciparum co-infection

Sir,

A 28-year-old man was admitted with fever, abdominal pain, vomiting and loose stools of three days’ duration. He was from a region non-endemic for malaria. There was no history either of previous episodes of malarial infection or of travel to an endemic area. On examination, the pulse rate was 106/min and blood pressure was 100/70 mm of Hg. He was febrile (temperature 40°C), and was pale and icteric. His abdominal examination revealed a soft abdomen, with hepatosplenomegaly and mild left hypochondrial tenderness.

Investigations revealed haemoglobin of 5.7 gm/dl, total leucocyte count of 4.9x10^9/L and a platelet count of 23x10^9/L. Thin blood smear revealed Plasmodium vivax rings, schizonts and gametocytes. Gametocyte and ring stages of Plasmodium