



Anaesthetic Management of a Patient with Takayasu Arteritis For LSCS

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Abstract

Takayasu arteritis is an idiopathic and chronic inflammatory disease characterized by the formation of stenosis or abnormal aneurysms in large vessels, resulting in life-threatening ischemia in major organs. It is most commonly seen in women, who are between the ages of 40 _ 60year old. The etiology of this disease has not been defined.

Pregnancy in women with Takayasu's arteritis does not affect the inflammatory evolution of the disease but increases the risk of exacerbation of pre-existing chronic hypertension. Thus such parturients need special attention during peripartum period owing to the likelihood of complications such as hypertension, multiple organ dysfunction and stenosis leading to decreased regional blood flow, intra uterine growth retardation (IUGR) and low birth weight.

Some reports have emphasized problems in the anesthetic management of a patient with Takayasu arteritis. However, limited information is available. Ideal anaesthetic management of these pregnant mothers with Takayasu's arteritis still poses a stringent challenge to anaesthesiologist. Here we present a case report of anaesthetic management of a parturient with Takayasu's arteritis.

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I. CASE REPORT

28-year-old multigravida, a known case of TA, was scheduled for elective lower segment caesarean section (LSCS) at 36 weeks of pregnancy. At 26 years of age she had developed fever with myalgia, and pain in the left upper limb. On evaluation her CT Angiogram revealed circumferential wall thickening and significant luminal narrowing of left subclavian artery. Her echocardiography was normal. She was a known hypertensive for the same duration, and was controlled on oral amlodipine 10 mg.

Pre-anaesthetic examination revealed that the patient was alert, oriented and cooperative. Physical examination revealed absent left radial, ulnar, and brachial artery pulsations. The patient's heart rate was 90beats/min and the noninvasive blood pressure (NIBP) in right upper limb is 140/90mm Hg. The patient's respiratory and neurological examinations showed normal results.

Preoperative investigations of the patient, including a haemogram, renal and liver function tests, coagulation profile and ultrasonography of the kidney-ureterbladder, were within normal limits. In the operating room, standard monitors were attached to the patient, including a five-lead ECG, an NIBP cuff over the right upper arm and a pulse oximeter. Intravenous access was secured with a 16-G cannula.

The surgery was planned under the subarachnoid block (SAB). Preloading (20 ml/kg) was done using Ringer's lactate solution, and 100 mg hydrocortisone was administered intravenously. Under full aseptic precautions, SAB was administered with 6.5 mg hyperbaric bupivacaine along with 25 µg fentanyl at lumbar 3-4 interspace, using a 25-G spinal needle. While positioning (left lateral) for SAB, flexion of the neck was avoided. The patient was then placed in the supine position and oxygen (5 l/min) was administered via a face mask. A small pillow was placed under the patient's head, and left lateral tilt was maintained. Surgery was only commenced after the achievement of T6 dermatomal sensory block. After the administration of SAB, a transient fall in the patient's blood pressure was treated by increasing the rate of administration of crystalloid and colloid,

and by raising the foot end of the operation table. Following the delivery of the baby, oxytocin infusion was started. After about 4–5 minutes, the patient's blood pressure suddenly dropped to 118/72 mmHg (MAP 87 mmHg). Patient did not have any symptoms of poor cerebral perfusion, as evidenced by continuous verbal communications. No further fall of the MAP was noted, and the rest of the procedure was uneventful.

Postoperatively, analgesia was maintained with an injection of tramadol and paracetamol suppositories. Injections of 50 mg hydrocortisone every eight hours were administered intravenously for the first two postoperative days, followed by 10 mg oral prednisolone twice daily. The patient was uneventfully discharged along with a healthy baby on the tenth postoperative day.

II. DISCUSSION

Anaesthetic management of parturients with TA for C section has not been standardised. Both general Anesthesia and regional Anesthesia have been described..

Four types of patients with TA can be identified. Type I involves the aortic arch and its main branches. Lesions in Type II are restricted to the descending thoracic and abdominal aortas. Patients with Type III show features of both Types I and II, and patients with Type IV show additional involvement of the pulmonary artery.

Anaesthesia in patients with TA is complicated by severe uncontrolled Four types of patients with TA can be identified. Type I involves the aortic arch and its main branches. Lesions in Type II are restricted to the descending thoracic and abdominal aortas. Patients with Type III show features of both Types I and II, and patients with Type IV show additional involvement of the pulmonary artery. Our patient was categorised as Type I, with involvement of the carotids and the brachiocephalic trunk.

Anaesthesia in patients with TA is complicated by severe uncontrolled hypertension leading to end-organ dysfunction, stenosis of major blood vessels affecting regional circulation, and difficulties in monitoring blood pressure. A major cause of hypertension is renovascular, but it can also result from an abnormal function of the carotid and aortic sinus baroreceptors and/or reduced elasticity, and a marked narrowing of the aorta and major arteries.

The anaesthetic goal in patients with TA is the maintenance of blood pressure during the perioperative periods. There are some advantages and disadvantages of both general and regional anaesthesia. Tracheal intubation, extubation and inadequate depth under general anaesthesia result in considerable fluctuations in blood pressure that can lead to cerebral haemorrhage, rupture of aneurysms and cardiac dysfunction in patients with TA. Regional anaesthesia, on the other hand, can lead to hypotension, thus inducing cerebral ischaemia or infarction. However, regional anaesthesia in conscious patients is the easiest way to monitor cerebral function. There are many case reports that describe successful surgery under general as well as regional anaesthesia in patients with TA. However, there is a scarcity of literature reporting on the use of low-dose SAB alone for emergency caesarean section in patients with TA, which prompted this case report. A dose of 6.5 mg hyperbaric bupivacaine along with 25 µg fentanyl was administered, as larger doses of local anaesthetics are associated with higher levels of autonomic block and consequently, more severe hypotension. It is also a known fact that doses of intrathecal bupivacaine between 5 mg and 7 mg are sufficient to provide effective anaesthesia for caesarean sections.

Our aim was to maintain the MAP in the range of 100–120 mmHg, so that there was less than 20% reduction from the preoperative values. As patients with TA may not tolerate acute decrease, preloading with 20 ml/kg of Ringer's lactate was performed. This is diffuse arteritis result in stenotic and non-compliant vessels, which interfere with compensatory mechanisms to increase blood pressure.

A pillow was placed under the patient's head in order to prevent the extension of the neck, which might have reduced carotid blood flow by stretching the arteries, and a left lateral tilt was maintained to prevent aortocaval compression. Diffuse arteritis result in stenotic and non-compliant vessels, which interfere with compensatory mechanisms to increase blood pressure.

III. CONCLUSION

Spinal Anesthesia for Caesarian section in parturients with takayasu arteritis is a safe technique because it allows a close monitoring of neurological status and blood pressure. The important goal is to avoid hemodynamic changes and to maintain organ perfusion.