

Case study

A CASE REPORT ON CESAREAN SECTION UNDER SPINAL ANESTHESIA IN A PATIENT OF TAKAYASU'S ARTERITIS

Abstract:

Takayasu's arteritis (TA) is a chronic inflammatory illness of the major arteries that is extremely rare. It mainly affects women of reproductive age which increases the risk of cardiovascular problems such hypertension and congestive heart failure. In this study, we discuss the case of a pregnant woman with TA who was diagnosed and managed successfully at a tertiary care facility with a good outcome. As a result, comprehensive care for TA patients has been shown to be critical in achieving optimal maternal and fetal/neonatal outcomes.

Introduction:

Takayasu's arteritis is a rare form of large vessel vasculitis. It is an autoimmune disorder, where there is inflammation in the large arteries of the body like aorta leading to proximal occlusion with or without aneurysm of carotid. It more commonly affects women, mainly seen in the second and third decade of life (3). Though its etiology is primarily idiopathic, its prevalence in childbearing age group women suggests a role of sex hormones in its pathogenesis. It is shown that there are genetic predisposition for Takayasu's arteritis in families which is linked to HLA-Bw52 and MIC-A gene [1,2,3]

Case Report:

A 21 year old Primigravida with 37.1 weeks of gestational age was admitted in the hospital for safe confinement with a known history of Takayasu's arteritis. She had history of neck swelling on the left side of neck since 3 months for which she was investigated and on carotid and subclavian arterial Doppler it showed bilateral common carotid artery thickening, more on left side with almost 70% luminal stenosis in proximal part of left common carotid artery, 50-60% stenosis in the right brachiocephalic artery and there were changes suggestive of arteritis. No significant wall thickening or stenosis is seen in carotid bifurcation and internal carotid arteries, vertebral arteries and in bilateral subclavian arteries. She was on Tab. Prednisolone 10mg once a day and Tab. Ecosprin 75mg once a day since the first trimester of her pregnancy. She had no history of cerebrovascular accidents, Hypertension, or pain in the abdomen.

On examination: Patient was afebrile, pulse rate was 84bpm in both upper limb, peripheral pulses in all extremities were palpable and blood pressure was 120/70mmHg on left upper limb and 104/60mmHg on right upper limb, 130/80mmHg on right lower limb and 134/86mmHg on left lower limb, respiratory rate of 16bpm, Mouth opening was adequate, with normal TMJ mobility. Carotid bruit was heard on auscultation.

On investigation: Haemoglobin was 10.7 gm%, platelet count of 2.8lak/cumm, INR(PT) - 1.02(12.8)secs, ESR-38, AntiNuclear Antibodies was negative. Liver and Renal function test was within normal limits RBS-104mg/dl. Echocardiography showed Ejection fraction of 70%, normal diastolic function with no abnormalities.

In the pre operative room the patient was given anti aspiration prophylaxis , inj.Emeset 4mg iv and inj.Metoclopramide 10mg iv was given . Patient was secured with 18 G intracath, she was preloaded with 500ml of ringer lactate. Monitors consisted of Spo2 probe , ECG , Non Invasive Blood pressure monitor was attached .

Patient was given Spinal anesthesia with 0.5% Bupivacaine (heavy) 25 G using quincke's spinal needle at the level of L2-L3 Level , T6 Level was achieved . Intra operative blood pressure was maintained between 120 – 100 mmHg systolic and diastolic between 80 – 70 mmHg and pulse rate was in the range between 70-90 bpm. Blood loss was approximately 800mg , urine output 500 ml .

Newborn was a 2,800gm female child, after the procedure patient was shifted to post op ICU for observation ,where she stayed for 24 hrs without any complications .

Discussion :

Takayasu's arteritis is a rare form of large vessel vasculitis . It is an autoimmune disorder , where there is inflammation in the large arteries of the body like aorta leading to proximal occlusion with or without aneurysm of carotid . It more commonly affects women , mainly seen in the second and third decade of life(3) . Though Its etiology is primarily idiopathic , Its prevalence in childbearing age group women suggests a role of sex hormones in its pathogenesis. It is shown that there are genetic predisposition for takayasu's arteritis in families which is linked to HLA-Bw52 and MIC-A gene [1,2,3]

In TA it is shown that there is infiltration of the intimal layer of artery by inflammatory cells resulting in loss of elastic tissue and replacement by fibrous tissue resulting in stenosis /aneurysm (3,4) . Progression of the disease occurs in three phases.In the initial active phase, only 60% present with constitutional symptoms.. Phase I is the systemic phase characterised by constitutional symptoms such as weight loss , low- grade fever , weakness , anorexia . Phase II is vasculitis stage characterised by tenderness over vessels . Phase III is the late , fibrotic phase characterised by absence of peripheral pulses (1,4) . TA classification is based on angiography into 6 types , only the branches of the aortic arch are involved in type I, ascending aorta , aortic arch and its branches are involved in type iia and thoracic descending aorta are involved in type II b , type III involves abdominal aorta with or without renal arteries along with descending aorta , only the abdominal aorta and/or renal arteries are involved in Type IV . Combined Type IIb and IV forms type V (6) . In our case diagnostic options were limited secondary to her pregnancy . We did CT angiography weighing the risk associated , colour Doppler of the carotid artery .

Treatment of TA involves corticosteroids , antiplatelets because of risk of thrombus formation , and antihypertensive (7) . Our patient was diagnosed with TA in her third month of pregnancy . She was started with a tab. Prednisolone 10mg OD and Tab. Ecosprin 75mg . Her Blood pressure was under control .

It is shown that Pregnancy does not interfere with disease progression (7, 8) , but it can cause IUGR , IUD , preeclampsia , abortion (7) . It is important to monitor Blood pressure of all four limbs , to do pre eclampsia screening ,cardiac and renal status assessment , Fetal surveillance should be done along with routine antenatal visits . 2D ECHO , Carotid , Renal ,Uterine artery Doppler should be done to know the progress of the disease and for anticipation of associated complication.

In our patient 2DECHO with colour and spectral Doppler showed normal study , B/L uterine artery Doppler showed normal waveform and flow velocities .

Management of this case was done using a multidisciplinary approach involving obstetrician , cardiologist , physician , radiologist and anaesthesiologist . Vaginal delivery with epidural analgesia can be preferred in uncomplicated cases with augmentation of the second stage of labour using forceps. LSCS is preferred to avoid cardiac decompensation due to increased cardiac output that is observed during labour . General or regional anaesthesia can be given , both has its own merits and demerits .

General anaesthesia may in turn reduce the tissue perfusion , and during laryngoscopy pressor response or light plane of anesthesia can in turn increase the blood pressure and can complicate the case. It also becomes a challenge to assess the cerebral perfusion in case of general anesthesia Therefore it is better to avoid GA(4,10) .

Regional anesthesia , Sub arachnoid block with low dose local anesthetic with or without spinal opioid can be safely performed in patients with TA.[11] sympathetic blockade can affect regional blood flow so adequate preloading should be done to avoid sudden hypotension , vasopressors can be used in case of severe hypotension . Other options of regional anesthesia are continuous epidural anaesthesia and combined spinal epidural . Advantage of regional anesthesia is that neurological assessment won't be hampered since the patient is awake . It is important to evaluate PT/INR status of the patient before favouring regional anesthesia .

In our case the patient was in the latent phase of labour with non progression of labour . LSCS was done under subarachnoid block using 1.8ml of 0.5 % Bupivacaine (Heavy) . Intra operative there were no complications .

Conclusion :

We report anaesthetic management of takayasu arteritis in pregnancy. Thorough preoperative evaluation is important to prevent inadvertent complication intraoperatively . The choice of anesthetic technique should be discussed with the patient and well planned before surgery. In this case subarachnoid block was used to induce the case focussing on tissue perfusion . Adequate pre loading of the patient should be done to prevent sudden hypotension post spinal anesthesia .

References:

- 1) Verma GS. Takayasu's arteritis: An anesthetic challenge. In The Indian Anaesthetists Forum 2016 Jul 1 (Vol. 17, No. 2, p. 52). Medknow Publications.
- 2) Johnston SL, Lock RJ, Gompels MM. Takayasu arteritis: A review. J Clin Pathol 2002;55:481-6. 3.
- 3) Henderson K, Fludder P. Epidural anaesthesia for caesarean section in a patient with severe Takayasu's disease. Br J Anaesth 1999;83:956-9.
- 4) Khan AM, Kapoor MC, Puri A. Cesarean section under spinal anesthesia in a patient of Takayasu's arteritis. Journal of Obstetric Anaesthesia and Critical Care. 2015 Jul 1;5(2):90.
- 5) Miller DV, Maleszewski JJ. The pathology of large-vessel vasculitides. Clin Exp Rheumatol. 2011;29:S92-8
- 6) Hata A, Noda M, Moriwaki R, Numano F. Angiographic findings of Takayasu arteritis: new classification. Int J Cardiol 1996;54Suppl.:S155-63
- 7) Poonam SG, Kalpana DH. Anesthetic considerations in a patient with Takayasu's arteritis for cesarean section. Ain-Shams Journal of Anaesthesiology. 2015 Oct 1;8(4):681.

8) M. J. Koster, E. L. Matteson, and K. J. Warrington, "Recent advances in the clinical management of giant cell arteritis and Takayasu arteritis," *Current Opinion in Rheumatology*, vol. 28, no.3, pp.211–217, 2016.

9) A. P. L. Assad, T. F. Da Silva, E. Bonfa, and R. M. R. Pereira, "Maternal and neonatal outcomes in 89 patients with Takayasu Arteritis (TA): comparison before and after the TA diagnosis," *The Journal of Rheumatology*, vol. 42, no. 10, pp. 1861–1864, 2015

10) Ramanathan S, Gupta U, et al. Anaesthetic consideration in Takayasu's arteritis. *Anesth Analg* 1979; 58:247–249.

11) Meikle A, Milne B. Extreme arterial blood pressure differentials in a patient with Takayasu's arteritis. *Can J Anaesth* 1997;44:868-71

UNDER PEER REVIEW