Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Anesthesia

Takayasus's Arteritis in Pregnancy: Case Report and Literature Review

Bendamia Khawla[1*], Bejja Ihssan[1], Tachinante Rajae[1]

[1]The Department of Anesthesia and Intensive Care of the Maternity, University Hospital Center Ibn Sina, Rabat, Morocco

DOI: 10.36347/sjmcr.2024.v12i05.073 | **Received:** 18.04.2024 | **Accepted:** 23.05.2024 | **Published:** 24.05.2024

***Corresponding author:** Bendamia Khawla
The Department of Anesthesia and Intensive Care of the Maternity, University Hospital Center Ibn Sina, Rabat, Morocco

Abstract **Case Report**

Takayasu arteritis is a chronic idiopathic vasculitis affecting the aorta and its primary branches. It affects women of reproductive age and leads to an increased risk of cardiovascular complications. We report the case of a 34-year-old gravida, with Takayasu's disease who presented at 37 weeks of amenorrhea pre-eclampsia which was taken care of at the anesthesia and intensive care unit of the maternity of Ibn Sina Hospital Center in Rabat Morocco with a favorable outcome of her delivery. During pregnancy, one should pay special attention to these patients. The objective of this report was to present the peripartum anesthetic care of a patient with Takayasu arteritis and a review of the literature.

Keywords: Takayasu Arteritis, Anesthesia, pre-eclampsia, pregnancy.

1. INTRODUCTION

Takayasus's Arteritis (TA) is a chronic idiopathic vasculitis usually affects aorta and its main branches commonly: carotid, subclavian and renal arteries [1-4]. TA affects more women than men with a ratio ranging from 4:1to 8:1 [5, 6, 4, 2]. The peak incidence is in the 2 nd -3 rd decades [7].

Clinical symptoms depend on the distribution of the involved vasculature and ischemic disturbance of the organs affected. This may result in claudication, ischemic pain and fatigue of the limbs, and carotid arteries may give headache, vertigo, syncope, convulsions, transient hemiplegia, aphasia, and visual disturbance; renal artery involvement may cause hypertension and some patients may progress to aortic insufficiency and congestive heart failure [1, 5, 7, 8]. Physical findings depends on the affected artery and include high blood pressure and reduction or loss of palpable pulses in the neck and limbs [9, 8]. Pulmonary involvement leads to pulmonary hypertension [8]. Management of TA involves corticosteroid and immunosuppressive agents [1, 7, 4, 2]. Some cases of TA may require further treatment in the form of angioplasty or surgical correction [6, 7, 9, 4]. The commonest cause of death in TA are heart failure, myocardial infarction (MI) and stroke [7, 2]. Fatal complications during pregnancy include aortic aneurysm rupture and cerebral haemorrhage [4].

Anaesthesia in TA is complicated by uncontrolled hypertension leading to end organ dysfunction, stenosis of major blood vessels affecting regional circulation, and difficulties in the monitoring of arterial blood pressure [3]. The initial manifestation of TA may occur during pregnancy [6]. The effect of pregnancy on TA is unclear [1, 7, 9, 8]. But in 60-90% of cases hypertensive complications including preeclampsia, exacerbated chronic hypertension, miscarriage or fetal loss are reported [7-9].

The aim of this report is to share our clinical and therapeutic experience in the management of a gravida diagnosed with TA in the maternity hospital in Rabat Morocco.

2. CASE PRESENTATION

It concerns a 34-year-old parturient, followed for Takayasu's disease (Stage 2, according to the classification of Ishikawa and Matsuura) under corticosteroid therapy, 3rd gestation, 2nd parity:

- The first delivery was at term (12 years ago) by vaginal delivery with good psychomotor development.
- The second: early spontaneous abortion.
- The third: current pregnancy at 37 weeks and 6 days of gestation.

The diagnosis of Takayasu's disease was established 15 years ago. A thoraco-abdominal CT scan showed a staged stenosis of the abdominal aorta with stenosis of the mesenteric artery without signs of visceral distress, an estimated 50% stenosis of the renal artery complicated by hypertension 7 years ago, managed with

treatment (aldopa + loxen), and involvement of the subclavian arteries non-stenotic on the right and stenotic on the left.

Echocardiography revealed moderate left ventricular hypertrophy (LVH). Doppler ultrasound of the neck vessels showed bilateral involvement of the primitive carotid arteries. Fundoscopy did not show involvement of the central retinal artery.

The parturient was hospitalized at 37 weeks of gestation in labor due to superimposed preeclampsia on chronic hypertension. Upon admission, she was conscious, without sensory-motor deficits, with present and symmetrical peripheral pulses except for the diminished left brachial pulse, correct visual acuity, eupneic, with measured hypertension at 160/100 mmHg accompanied by a proteinuria of 0.46g/24h, without signs of involvement of other organs. Additionally, the laboratory tests performed upon admission were normal.

On the fetal side, the fetal heart rate monitoring showed no anomalies, obstetric ultrasound revealed a progressing monofetal pregnancy with an estimated fetal weight of 3000g and a normal umbilical Doppler.

After conditioning and stabilizing the parturient's condition, with signs of fetal well-being, a vaginal delivery under epidural analgesia was allowed. This resulted in the birth of a full-term female newborn weighing 3650g, with an Apgar score of 9 at the first minute and reaching 10 at the fifth minute.

The patient was discharged after three days of hospitalization in the intensive care unit with uncomplicated recovery, on aspirin and combination therapy for her hypertension.
Haut du formulaire.

3. DISCUSSION

Takayasu arteritis was first described in 1908 by two japanese ophthalmologists, takayasu and onishi, who observed retinopathy in the absence of peripheral pulses [13]. Although more common in oriental women it is seen worldwide [14]. The cause is unknown, but it seems to be related to autoimmunity, sex hormones (more common in young females), and genetics (demonstrated by the predisposition of the human leukocyte antigen – hla bw52) [15]. Four types of takayasu arteritis can be identified: type I (disease involving the aortic arch and its branches), type II (lesions restricted to descending thoracic aorta and abdominal aorta), type III (patients have characteristics of types I and II), and type IV (involvement of the pulmonary artery) [16].

The disease can also be classified into stages according to the presence of major complications such as hypertension, retinopathy, aneurysms, and aortic insufficiency [17]. Stage I, no complications are observed; stage IIa, patients have only one of these complications; and stage IIb, patients have only one of these complications, but the severe form; stage III, when more than one complication is present. The patient presented here was in stage II.

Diagnosis is based on signs and symptoms, inflammatory markers, and arteriography demonstrating aortic stenosis and of its branches. However, the gold-standard for diagnosis is the biopsy of the vessel [10]. Pregnancy does not interfere on disease progression, although hypertensive complications such as preeclampsia and exacerbation of chronic hypertension, and fetal complications such a restriction of intrauterine growth, abortion, and fetal death have been reported in 60% to 90% of the cases [13]. The high incidence of restricted uterine growth seems to be related to uncontrolled hypertension and aorta and iliac arteries involvement [18].

Arterial ultrasound doppler, which quantifies the flow in the uterine arteries, is another way of evaluating fetal well-being and growth in patients with TA.

Few patients are asymptomatic and more than 60% have some kind of complication. Hypertension, caused by reduction in elasticity and narrowing of the aorta and its branches, besides abnormalities in the function of the aortic and carotid baroreceptors function, is the most common [19]. Occlusive and stenotic lesions might require revascularization by percutaneous angioplasty, use of endoprosthesis, or surgical correction [20].

Preoperative evaluation involves identifying the distribution of affected arteries, degree of organ involvement with special attention to cardiac, pulmonary, renal and cerebral function in addition to drugs used for the treatment of TA [5]. Chronic use of corticosteroids could lead to suppression of endogenous corticosteroids release [9], hence our patient was given 100mg of hydrocortisone before delivery. Invasive blood pression(bp) monitoring is advised in patients with bp measurement difficulty to obtain in any extremity and if rapid fluctuation in bp is anticipated [7-9, 4], which is not the case in our patient.

In addition to pregnancy induced physiological changes anaesthetic management in TA takes compromised regional circulation into consideration [3, 4, 2]. The anaesthetic goal in a patient with TA is the maintenance of blood pressure during perioperative period [2, 21]. Low dose regional anaesthesia (ra) combined with opioid causes less hemodynamic instability and allows easy monitoring of cerebral circulation [5, 4, 2]. Unlike general anaesthesia ra is associated with less risk of aspiration, pressure response during intubation and extubation which may aggravate hypertension and tachycardia leading to MI, congestive

heart failure (ccf) and intracranial hemorrhage [7, 9, 3, 2]. Ra may cause hypotension inducing cerebral, renal, intestinal or uterine ischemia, [5, 22, 23, 4] but can be minimized by pre-anaesthetic volume expansion. Spinal anaesthesia hypotension can be corrected by generous iv fluid and by placing the patient in reverse trendelenburg position [5].

To avoid postoperative hypoperfusion of organs and hypertensive complications the patient should remain monitored in the intensive or semi-intensive care unit for 24 hours [4]. Our patient was discharged after three days of hospitalization in the intensive care unit with uncomplicated recovery.

4. CONCLUSION

Gravidas with TA may develop several complications. Careful patient evaluation, treatment of TA complications, and anesthetic-surgical planning are essential. Maintenance of perfusion is the main concern in these patients, and neuraxial anesthesia may be used without injury to mother or newborn.

Our case adds further evidence to the necessity of multidisciplinary management involving anesthesiologists, obstetricians, internists, cardiologists, and neonatologists for optimal and favorable outcomes for both mother and fetus.

Competing Interests: Authors have declared that no competing interests exist

Consent: It's not applicable

Ethical Approval: As per international standard or university standards written ethical approval has been collected and preserved by the author(s).

REFERENCES

1. Dey, M., Kapur, A., Goyal, S., Wadhwa, R. D., Srivastava, A., & Agarwal, R. (2015). Takayasu arteritis in pregnancy. *medical journal armed forces india*, *71*, S227-S229.
2. Gautam, S., Srivastava, V. K., Kumar, S., & Wahal, R. (2013). Successful low-dose spinal anaesthesia for lower segment caesarean section in a patient with Takayasu arteritis. *Case Reports*, *2013*, bcr2013010107.
3. Dutta, B., Pandey, R., Darlong, V., & Garg, R. (2010). Low-dose spinal anaesthesia for a parturient with Takayasu's arteritis undergoing emergency caesarean section. *Singapore Med J*, *51*(6), e111-3.
4. Ioscovich, A., Gislason, R., Fadeev, A., Grisaru-Granovsky, S., & Halpern, S. (2008). Peripartum anesthetic management of patients with Takayasu's arteritis: case series and review. *International journal of obstetric anesthesia*, *17*(4), 358-364.
5. Hampl, K. F., Schneider, M. C., Skarvan, K., Bitzer, J., & Graber, J. (1994). Spinal anaesthesia in a patient with Takayasu's disease. *BJA: British Journal of Anaesthesia*, *72*(1), 129-132.
6. Strider, D., Robinson, T., Guarini, J., & Ivey, J. (1996). Challenges with Takayasu's arteritis: a case study. *Journal of Vascular Nursing*, *14*(1), 12-17.
7. Henderson, K., & Fludder, P. (1999). Epidural anaesthesia for caesarean section in a patient with severe Takayasu's disease. *British journal of anaesthesia*, *83*(6), 956-959.
8. Grewal, K., & Samsoon, G. (2003). Combined spinal-epidural anaesthesia for caesarean section in a patient with Takayasu's disease. *International Journal of Obstetric Anesthesia*, *12*(3), 234-235.
9. Leal, P. D. C., Silveira, F. F. M., Sadatsune, E. J., Clivatti, J., & Yamashita, A. M. (2011). Takayasus's arteritis in pregnancy: case report and literature review. *Revista Brasileira de Anestesiologia*, *61*(4), 482-485.
10. Kerr, G. S., Hallahan, C. W., Giordano, J., Leavitt, R. Y., Fauci, A. S., Rottem, M., & Hoffman, G. S. (1994). Takayasu arteritis. *Annals of internal medicine*, *120*(11), 919-929.
11. Matsuura, K., Ogino, H., Kobayashi, J., Ishibashi-Ueda, H., Matsuda, H., Minatoya, K., ... & Kitamura, S. (2005). Surgical treatment of aortic regurgitation due to Takayasu arteritis: long-term morbidity and mortality. *Circulation*, *112*(24), 3707-3712.
12. Seyahi, E. (2017). Takayasu arteritis: an update. *Current opinion in rheumatology*, *29*(1), 51-56.
13. Matsumura, A., Moriwaki, R., & Numano, F. (1992). Pregnancy in Takayasu arteritis from the view of internal medicine. *Heart and Vessels*, *7*(Suppl), 120-124.
14. Domingo, R. T., Maramba, T. P., Torres, L. F., & Wesolowski, S. A. (1967). Acquired aorto-arteritis: A worldwide vascular entity. *Archives of Surgery*, *95*(5), 780-790.
15. Wilke, W. S. (1997). 5 Large vessel vasculitis (giant cell arteritis, Takayasu arteritis). *Baillière's clinical rheumatology*, *11*(2), 285-313.
16. Lupi-Herrera, E., Sanchez-Torres, G., Marcushamer, J., Mispireta, J., Horwitz, S., & Vela, J. E. (1977). Takayasu's arteritis. Clinical study of 107 cases. *American heart journal*, *93*(1), 94-103.
17. Ishikawa, K. A. I. C. H. I. R. O. (1978). Natural history and classification of occlusive thromboaortopathy (Takayasu's disease). *Circulation*, *57*(1), 27-35.
18. Mahmood, T., Dewart, P. J., Ralston, A. J., & Elstein, M. T. (1997). Three successive pregnancies in a patient with Takayasus arteritis. *Journal of Obstetrics and Gynaecology*, *17*(1), 52-54.
19. Sharma, B. K., Sagar, S., Singh, A. P., & Suri, S. (1992). Takayasu arteritis in India. *Heart and Vessels*, *7*, 37-43.
20. Liang, P., & Hoffman, G. S. (2005). Advances in the medical and surgical treatment of Takayasu arteritis. *Current opinion in rheumatology*, *17*(1), 16-24.

21. Sharma, B. K., Jain, S., & Vasishta, K. (2000). Outcome of pregnancy in Takayasu arteritis. *International Journal of Cardiology*, *75*, S159-S162.
22. Tiwari, A. K., Tomar, G. S., Chadha, M., & Kapoor, M. C. (2011). Takayasu's arteritis: Anesthetic significance and management of a patient for cesarean section using the epidural volume extension technique. *Anesthesia Essays and Researches*, *5*(1), 98-101.
23. Isobe, M. (2013). Takayasu arteritis revisited: current diagnosis and treatment. *International journal of cardiology*, *168*(1), 3-10.