



Takayasu's Arteritis - An interesting case for anesthetic management of laproscopic nephrectomy.

Anesthesiology

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ABSTRACT

Introduction:- Takayasu's arteritis is a rare chronic progressive pan endarteritis involving the aorta and its main branches. Anesthesia in patients with this disease can be complicated by severe uncontrolled hypertension, end organ dysfunction and stenosis of major blood vessels. This case presents peri-operative anesthetic challenges and management during Laparoscopic Nephrectomy. **Case Details:-** A 40 years old female patient came to surgery OPD with chief complaints of pain in abdomen and vomiting since 3 months. Her CT scan showed left atrophic kidney and DTPA Scan suggestive of spilt function of left kidney 15.7% and GFR 14 ml/min signs suggestive of negligible function of left kidney. Hence patient was posted for Laparoscopic Nephrectomy. During her preanesthetic check-up she was found to have uncontrolled hypertension and absent pulsations in left radial artery, left brachial artery with weak pulsations in left femoral, left popliteal and left dorsalis pedis. She was investigated for the same and her arterial doppler report showed left external iliac artery with narrowed lumen and left subclavian artery with lumen obstruction and significant hemodynamic compromise. Her CT aortography revealed complete filling defect involving proximal left subclavian artery and the left renal artery showed concentric atherosclerotic valves thickening with narrow caliber. After which she was diagnosed as of Takayasu's arteritis with renovascular hypertension. The patient was started on anti-hypertensives after which her blood pressure was controlled.

Conclusion:- In the anesthetic management of patients with Takayasu's arteritis it is important that adequate tissue perfusion be maintained without haemodynamic changes.

KEYWORDS:

Takayasu's arteritis, Laparoscopic Nephrectomy.

Introduction:-

Takayasu's arteritis is a rare chronic progressive pan endarteritis involving the aorta and its main branches and is more common in young females. It has been classified on the basis of distribution of affected vessels. In Type I – the disease affects aortic arch and its branches, Type II – the descending thoracic and abdominal aorta is affected without involvement of the arch, Type III – is a mixture of type I and type II, Type IV – mixture of type I, II, III and pulmonary artery. Anesthesia in patients with this disease can be complicated by severe uncontrolled hypertension, end-organ dysfunction and stenosis of major blood vessels. This case presents peri-operative anesthetic challenges and management during laparoscopic nephrectomy.

Case Details-

A 40 years old female patient came to surgery OPD with chief complaints of pain in abdomen and vomiting since 3 months. Her CT scan showed left atrophic kidney and DTPA Scan suggestive of spilt function of left kidney 15.7% and GFR 14 ml/min signs suggestive of negligible function of left kidney. Patient was planned for laparoscopic nephrectomy. During her preanesthetic check-up she was found to have uncontrolled hypertension and absent pulsations in left radial artery, left brachial artery with weak pulsations in left femoral, left popliteal and left dorsalis pedis. She was investigated for the same and her arterial doppler report showed left external iliac artery with narrowed lumen and left subclavian artery with lumen obstruction and significant hemodynamic compromise. Her CT aortography revealed complete filling defect involving proximal left subclavian artery and the left renal artery showed concentric valves thickening with narrow caliber. After which she was diagnosed as of Takayasu's arteritis with renovascular hypertension. The patient was started on anti-hypertensives that is tab enalapril, tab amlodipine, tab labetalol after which her blood pressure was controlled.

Preoperative assessment- The general condition was fair and stable with heart rate 86/min regular, BP 130/80 mmHg in right upper limb on antihypertensives. The ECG, chest X ray, haemogram, Liver function tests, Renal function tests, and Serum electrolytes were within normal limits. The 2D Echo showed LVEF 60%, hypertensive heart disease

with moderate LVH and grade I diastolic dysfunction.

Anesthetic technique- After a written informed consent and conforming the NBM status, two 18g intracaths were secured in right arm. Electrocardiogram (leads II and V5), peripheral artery oxygen saturation noninvasive BP on right arm and right lower limb were monitored throughout anesthesia. Infusion of Ringer lactate solution was initiated and premedicated with intramuscular inj glycopyrrolate 0.2mg, inj ranitidine 150mg and inj metoclopramide 10mg intravenously followed by inj midazolam 1mg and inj fentanyl 50mcg slowly intravenously 20mins prior to induction. Following preoxygenation anesthesia was induced using inj thiopentone 250mg slowly iv and sevoflurane. After confirmation of loss of consciousness, scoline 80mg was administered intravenously and oral intubation was performed using portex cuffed endotracheal tube no 7.5. After etco2 conformation long acting inj vecuronium 4mg was given. The lungs were ventilated with oxygen (2 L/min) and nitrous (2 L/min) and anesthesia was maintained with isoflurane 0.6%. Patient was given lateral position after laparoscopic port entry and pneumoperitoneum with CO2. Proper pressure padding was done. Intraoperative analgesia was achieved with titrated doses of inj fentanyl. We planned to maintain systolic blood pressure at approximately 110-130 mm Hg, the preoperative value, and end-tidal carbon dioxide pressure between 30 and 35 mm Hg during anesthesia. Hemodynamics and other vital parameters were stable and the duration of the surgery was 2 hours 15 minutes. Inj Ondansetron 4mg was given prior to extubation. The patient was extubated after recovery of neuromuscular blockade and adequate spontaneous breathing. The patient was admitted into the recovery room with stable vital signs.

Discussion

The first description of nonspecific arteritis was made by Savory and Kussmauls in 1856. In 1908 Takayasu noted ocular changes in the retinal vessels of a young woman^{2,3}. Pulse deficit is the commonest presentation and hypertension and cardiac failure occur frequently. The heart failure usually follows systemic or pulmonary hypertension. Systemic hypertension is generally moderate and usually responds to medical treatment.

Myocardial damage is secondary to heart failure and is not a feature of the disease itself. Coronary involvement is a rare complication. The manifestations of the disease are determined by the distribution of the vessel involvement and thus typing has important implications for management. Approximately renal involvement has been found in 63% of cases, but organ perfusion is often preserved by well established collaterals. In assessing a patient with TA presenting for surgery it is important that the type, and hence the distribution of the arteritis, is established and the degree of organ involvement ascertained. Particular attention must be paid to cardiac, respiratory and renal function. Since hypertension and cardiac failure usually respond well to treatment, every effort must be made to ensure optimal preoperative cardiovascular function⁴.

In this case as the patients BP was well controlled on antihypertensives and noninvasive BP monitoring in right upper and lower limb was possible arterial line was reserved for emergency situation. All the care was taken so that the patients anxiety was allayed and intubation pressor response abated. Inj fentanyl was the drug of choice. Inj thiopentone was given graded, supplemented with sevoflurane to avoid sudden hypotension and tachycardia. Due care in positioning, intraabdominal pressures after CO₂ insufflation and intraoperative analgesia was taken. Proper fluid management helped maintain cardiac output, tissue perfusion and urine output.

References:

1. Aditi A.Dhima,Swati A.Bhatt,V.N.Swadia. Anaesthetic management of total hip replacement in a patient with Takayasu's arteritis with subclavian steal syndrome with hypertension.J Anaesth Clin Pharmacol 2008;24(3): 357-358
2. Elarief Mohamed,Magadi Pramod G. Anaesthesia and pulseless disease:case report and review of literature. The Internet Journal of Anesthesiology 2005;vol 10(1)
3. Kathirvel S.,Chavan S.,Arya Virender K.et al . Anesthetic management of patients with Takayasu's arteritis: a case series and review . Anesth Analg 2001;93: 60-65
4. Clark Andrew G, Al Qatari Mohammad . Anesthesia for caesarian section in Takayasu's disease . Can J Anesthe 1998;45(4): 377-379