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Anaesthetic management of patient with severe aortic stenosis posted for Myomectomy: A case report

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Abstract

Aortic stenosis is a stenotic valvular heart disease with a fixed cardiac output state. The patients with such illness can come for non-cardiac surgeries. They pose significant challenges to the attending anesthesiologist. Here, we report a 45-year-old 65 kg female with significant aortic stenosis posted for myomectomy. She was a known case of significant aortic stenosis with an orifice of 1 sq.cm. She was symptomatic with NYHA class three symptoms. The patient had a difficult airway with Mallampatti class IV with stiff temporomandibular joints. The pulse rate was 70 / minute and regular with a blood pressure of 110/70mmHg. After explaining the pros and cons of General and regional anaesthesia, the patient accepted for a regional technique. A bilateral TAP block was administered with 20 ml of 0.25 % bupivacaine on each side. She was administered intrathecal fentanyl 50 µg with 0.5 ml of 0.5 % hyperbaric bupivacaine. Surgical anaesthesia was obtained and myomectomy was completed within 45 minutes. The blood loss was approximately 500 ml which was replaced. After an uneventful early postoperative period of six hours, she became hypotensive with a heart rate of 122/minute. An emergency ultrasound scan revealed a collection. A passive leg rising test was positive. She was again administered two more units of compatible blood. The rest of the postoperative period was uneventful and discharged on the seventh day. This case is reported for its extreme rarity and successful management.

Keywords: Myomectomy, aortic stenosis, regional anaesthesia, TAP block

Introduction

Aortic stenosis (AS) is a valvular heart disease in which anesthesiologist face several challenges with regards to hemodynamic stability, maintaining the cardiac output since this condition is considered as a fixed output state. Usually, a patient presenting with a moderate to severe aortic stenosis, central neuraxial blockade as the sole anaesthetic technique is contraindicated owing to the hemodynamic instability which usually follows such. There would be a loss of vascular tone which would eventually lead to a reduction in cardiac output [1]. Patients with big fibroid uterus are usually anemic and they bleed with every menstruation. Hence a preoperative transfusion and waiting may be counterproductive. In general anaesthetic management of a patient posted for Myomectomy would be a central neuraxial blockade. But in aortic stenosis, such blockade is relatively contraindicated. Transverse abdominis plane (TAP) is the fascial plane superficial to the transversus abdominis muscle. Performing a TAP block ideally anaesthetizes the somatic components in the infra umbilical region. Usually this is done for post operative analgesia [2]. In this case report we discuss how we managed a case of severe aortic stenosis posted for Myomectomy with a combination of TAP block and spinal fentanyl.

Case Report

A 45-year-old female weighing 65kgs came with the complaints of menorrhagia and spasmodic dysmenorrhea for the past 5 months. Her cardiopulmonary effort tolerance was < 4METS with a breath holding time of <20 seconds. She had dyspnea of NYHA class III with no attacks of failure. Routine examination of the patient showed the pulse rate was 70 beats/min, regular rhythm with a low volume pulse. The blood pressure of 110/70mmhg measured in right arm in supine position and she had pallor. There was no icterus, clubbing, cyanosis, pedal edema or generalized lymphadenopathy. Airway examination revealed Mallampatti class IV with a Temporomandibular joint stiffness. Routine blood investigation showed a hemoglobin of 8.5gm% with other blood parameters being normal.

Electrocardiography (ECG) showed normal sinus rhythm with left ventricular hypertrophy. Echocardiogram showed severe Aortic stenosis with a valve orifice of 1.0 square cm. The other valves were normal with neither regional wall motion abnormalities, nor pulmonary hypertension. USG abdomen and pelvis revealed a fibroid uterus of size 20 to 22 weeks. She was posted for myomectomy as a semi emergent case in view of bleeding. She was not willing for hysterectomy. The pros and cons of regional and general anaesthesia were explained and she was willing for regional anaesthesia. After a mild oral sedative premedication, patient was shifted to operating room and all standard monitors ECG, NIBP, Pulse oximeter were connected. A 18G venflon was secured in the left arm and another one in the Right External Jugular Vein. Our anaesthetic goals were to provide an adequate relaxation, hemodynamic stability, to maintain the preload and afterload. A Bilateral Transversus Abdominis Plane block was performed through ultrasound guidance through a classical approach to administer 20 ml of 0.25 % bupivacaine on each side. A feeling of numbness was felt in the skin of the abdomen i.e around T-6 and T-12 somatic areas. Spinal anaesthesia was performed using a 25G Quincke spinal needle- and 0.5ml of 0.5% Bupivacaine (heavy) with 50mcgs of Fentanyl was given. Clinical anaesthesia was established and the surgery was completed in 45 minutes with 500 ml of blood loss replaced with one unit of cross matched compatible blood and adequate crystalloids. Intraoperatively another 25mcg of Fentanyl was given intravenously with oxygen supplementation. The hemodynamics were very stable and did not require any vasopressors.

Overall, the surgery was uneventful. The patient was shifted to the post anaesthesia care unit and uneventful for the first six hours. Later she developed tachycardia and hypotension. An emergency ultrasound revealed fluid collection. The passive leg rising test was positive. Two units of compatible blood was transfused. The patient became stable and later discharged after six days.

Discussion

Aortic stenosis is a disease of fixed cardiac output. The anaesthetic goals for a case of severe aortic stenosis aims at maintaining the preload and afterload and achieving a hemodynamic stability. Usually, central neuraxial blockade is contraindicated in cases of severe aortic stenosis. Ideally controlled general anaesthesia is the method of choice but reports of successful epidural administration have been reported [3]. But in our case, it was a case of difficult airway and the patient opted for regional anaesthesia. To maintain hemodynamic balance in such cases is a challenge. We hypothesized that a TAP block will cover the somatic component and the spinal opioid will take care of the visceral portion. Hence, we opted for this technique. It is important to also take into account about the myomectomy related blood loss and the anaesthesia provided. Farghali *et al.* [4] studied epidural anaesthesia vs the myomectomy related blood loss and found that in patients whom general anaesthesia was provided there was more blood loss compared to whom epidural was administered. Hence this was an added advantage for us in already anemic patient. Hoyalchi *et al.* [5] did a case report of a patient with severe aortic stenosis and hashimoto's thyroiditis posted for abdominal hysterectomy, epidural anesthesia was the choice of anaesthesia, which provided stable hemodynamics

throughout the intraoperative and post operative period. Osaheni [2] studied TAP block for post operative myomectomy pain and found the time to first analgesia significantly reduced in TAP group indicating a somatic pain relief provided by the TAP block. Mishra *et al.* [6] studied bilateral TAP block as a sole anaesthesia method for a patient posted for peritonitis and found that TAP block provides a good myocutaneous sensory blockade with good hemodynamic stability but TAP block is unlikely to cover the peritoneal pain. To counter this problem, we added intrathecal opioids with minimal dose bupivacaine. Gurbet *et al.* [7] demonstrated that addition of 25 microg intrathecal fentanyl added to ultra-low dose (2.5 mg) bupivacaine provided good-quality spinal anaesthesia and also reduced post-operative pain in patients undergoing ambulatory anorectal surgeries. We tried to do the case for lower abdominal surgery with added fentanyl. We admit that a controlled general anaesthesia is the technique of choice, but we report the case report for an alternative technique being successfully administered with careful monitoring. In the postoperative period, any undue hemodynamic imbalance is likely to make us think in favour of a cardiac cause. But we strictly followed the basic steps of shock approach to satisfactorily handle the case. This is the first such reported case of myomectomy with severe aortic stenosis managed with regional anaesthesia.

Conclusion

We report a successful management of myomectomy with combined TAP block and ultra low dose intrathecal spinal bupivacaine.

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