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Patient with aortic stenosis and ischemic heart disease undergoing excision of oral cavity malignancy: A case report

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Abstract
Aortic stenosis is a progressive valvular heart disease with significant implications in perioperative management. Patients with aortic stenosis undergoing noncardiac surgeries (1), (2) may require meticulous monitoring throughout the perioperative period. Ischaemic heart disease (IHD) is a dynamic process of atherosclerosis of the coronary arteries or functional alterations of coronary circulation and these patients may have wall motion abnormalities. Here we report a case of carcinoma of buccal mucosa with aortic stenosis and IHD with restricted mouth opening posted for wide local excision of the tumour, hemimandibulectomy and reconstruction with pectoralis major flap. Airway assessment shows Mallampati grade 4 and had an anticipated difficult airway. Hence, awake fibreoptic endotracheal intubation was done by following airway blocks, and an 8.0 mm cuffed flexometallic armored tube was secured. This case report details the multidisciplinary perioperative management approach for a patient with severe AS and ischemic heart disease (IHD) undergoing oral cavity malignancy excision.

Keywords: Aortic stenosis, oral malignancy, anaesthestic management

Introduction
Aortic stenosis is a condition characterized by the narrowing of the aortic valve, leading to obstruction of left ventricular outflow. The severity of aortic stenosis significantly impacts the cardiovascular response to surgical stress and anaesthesia. Patients with aortic stenosis are prone to complications such as myocardial infarction, arrhythmias, and stroke, necessitating meticulous perioperative planning.

Case Report
A 65-year-old male with a history of hypertension and type 2 diabetes mellitus for 12years on regular medication presented with carcinoma of buccal mucosa with restricted mouth opening and was scheduled for the excision of oral cavity lesion.
Preoperative investigations revealed left ventricular hypertrophy on ECG, and an echocardiogram showed an ejection fraction (EF) of 35%, low-flow low-gradient aortic stenosis [5], moderate aortic regurgitation, and a bicuspid aortic valve, mean gradient across aortic valve was 40mmHg and valve area was 0.7 cm2.
Airway assessment showed a mouth opening of one finger width, classified as Mallampati grade IV, with an ASA physical status of III.
The patient was shifted to the operation theatre after giving airway blocks, with lignocaine 10% spray applied to the nasal cavity. A superior laryngeal nerve block was performed by injection of lignocaine 2% 2 ml on either side 0.5 cm below the greater cornu of the hyoid bone to block the external branch of the superior laryngeal nerve. The recurrent laryngeal nerve was blocked by a transtracheal approach, and 2 ml of lignocaine 4% injection was injected with a 22gauge inserted perpendicular to the skin with the aim to penetrate the cricothyroid membrane (above the cricoid cartilage) confirmed by aspiration of air and the appearance of bubbles indicated that the needle tip is now in the trachea. Rapid injection (and then removal of the needle) of 2 ml of 4% lidocaine resulted in coughing, after shifting inside the operation theatre standard monitors like ECG, NIBP, and Pulse oximeter were attached.

For continuous invasive blood pressure monitoring left radial arterial line was secured and central venous access was secured via the left subclavian vein for precise fluid management. Due to the anticipated difficult airway [3], awake fibreoptic intubation was performed by using an 8mm ID cuffed flexometallic tube via the nasal route ensuring hemodynamic stability, ETT position was confirmed by auscultation and EtCO2.Induction was achieved with fentanyl 3 mcg /kg body weight, etomidate 0.2 mg/kg body weight, and vecuronium 0.1 mg/kg body weight and maintained on a combination of oxygen, air, and sevoflurane in low doses to minimize myocardial depression.

Hemodynamic monitoring included pulse pressure variability index, which was maintained between 7-14% to guide fluid and vasopressor administration. IV fluids administration and urine output were carefully adjusted to optimise preload and avoid hypotension. The goal was to avoid both hypotension and excessive volume loading, both of these could lead to worsening cardiac function.

Adequate pain management was achieved by using a fentanyl infusion at 1 - 1.5 mcg/kg/hr, ensuring comfort while avoiding excessive respiratory depression or hemodynamic fluctuations. Surgery went on for 5 hrs and total input was around 1.5 litres of intravenous fluids and 300 ml of PCV was given, urine output was around 500 ml and blood loss were about 500 ml.

The patient was extubated after being reversed with inj. neostigmine 2.5mg and inj. Glycopyrrolate 0.4 mg and thorough oral suctioning were also done and shifted to the ICU for observation.

Discussion

Patients with Aortic Stenosis undergoing noncardiac surgery present several anaesthetic challenges. The principal concerns include maintaining adequate coronary perfusion, avoiding tachycardia or hypotension, stroke, and preventing perioperative myocardial ischemia.

Aortic stenosis increases perioperative morbidity and mortality. Preoperative echocardiographic assessment of stenosis severity and left ventricular function is highly desirable. Perioperative invasive monitoring is advised for patients with an aortic valve area <1.0 cm^2 or a mean aortic valve gradient >30 mm Hg.

In this case report awake fibreoptic intubation was chosen to mitigate the risk during induction. Furthermore, a conservative fluid management approach was employed to prevent volume overload while ensuring adequate preload.

Volatile anaesthetics were limited to minimize myocardial depression, and short-acting opioids were preferred to facilitate hemodynamic stability.

Intraoperative management of patients with Aortic stenosis is essential to avoid systemic hypotension. The aim is to maintain blood pressure at normal pre-anaesthetic values and also heart rate and rhythm have to be maintained to ensure ventricular filling.

Hypotension can lead to a decrease in coronary perfusion leading to myocardial dysfunction and further decreasing contractility. Hence decrease in Systemic vascular resistance has to be avoided at all cost. During the episodes of blood loss, use of blood or intravenous fluids as a replacement. Administration of vasoconstrictors by infusion, rather than boluses, facilitates cardiovascular stability. By using the pulse pressure variability (PPV) [4, 6] index hypovolemia is avoided by giving fluids and PPV index is maintained between 7 - 14%.

Postoperatively, the patient was closely monitored in the ICU for any signs of decompensation, including hypotension, arrhythmias, or worsening cardiac function. Early mobilization, optimal pain control, and gradual weaning and invasive monitoring were key aspects of postoperative care.

Conclusion

This case report underscores the importance of a multidisciplinary approach to the perioperative management of patients with severe Aortic stenosis with IHD undergoing noncardiac surgery. Key considerations include preoperative cardiovascular optimization, careful anaesthetic selection, meticulous intraoperative monitoring, and structured postoperative care.

Conflict of interest: There is no conflict of interest from any authors.

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References

1. Goel N, Kumar MG, Barwad P, Puri GD. Noncardiac surgery in two severe aortic stenosis patients: General or epidural anesthesia? Saudi Journal of Anaesthesia. 2018;12(2):367-369. PMID: 29628867.
2. Andersson C, Jørgensen ME, Martinsson A, Hansen PW, Gustav Smith J, Jensen PF, *et al*. Noncardiac surgery in patients with aortic stenosis: a contemporary study on outcomes in a matched sample from the Danish health care system. Clinical Cardiology. 2014;37(11):680-686. PMID: 25224044.
3. Dash S, Bhalerao N, Gaurkar A, P S, Chandak A. Anaesthetic challenges in a case of oral carcinoma with anticipated difficult airway posted for tumour excision and reconstruction surgery. Cureus. 2023;15(2):e34599. PMID: 36883095.
4. Mathis MR, Schechtman SA, Engoren MC, Shanks AM, Thompson A, Kheterpal S, *et al*. Arterial pressure variation in elective noncardiac surgery: Identifying reference distributions and modifying factors. Anesthesiology. 2017;126(2):249-259. PMID: 27906705.
5. Tashiro T, Pislaru SV, Blustin JM, Nkomo VT, Abel MD, Scott CG, *et al*. Perioperative risk of major non-cardiac surgery in patients with severe aortic stenosis: a reappraisal in contemporary practice. European Heart Journal. 2014;35(35):2372-2381. PMID: 24553722.
6. Preisman S, Kogan S, Berkenstadt H, Perel A. Predicting fluid responsiveness in patients undergoing cardiac surgery: Functional haemodynamic parameters including the respiratory systolic variation test and

static preload indicators. British Journal of Anaesthesia. 2005;95(6):746-755. PMID: 16286349.

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