

Case Report

Anaesthetic concerns of difficult airway in case of large oral hemangioma posted for robotic cystectomy

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ABSTRACT

A difficult airway poses a challenge to attending anaesthesiologist. Fiberoptic intubation (FOI) to secure airway can be a valuable option in such a scenario. Steep Trendelenberg's position with pneumoperitoneum in robotic surgery causes respiratory changes with airway oedema and congestion. We are describing here a case report of 56-year male patient with a large congenital oral cavity hemangioma with primary urothelial neoplasm of bladder posted for robotic radical cystectomy with ileal conduit with urethrectomy. We emphasize the importance of difficult airway management by using fibre optic technique in such cases complicated by steep Trendelenburg's position required during robotic surgeries.

Keywords: Difficult extubation, Fiberoptic intubation, Oral cavity hemangioma, Robotic surgery

INTRODUCTION

Airway management is a fundamental practice of anaesthesia and poses challenge in large oral cavity lesions. Hemangioma is a relatively benign congenital vascular pathological neoplasm occurring more frequently in the lips, buccal mucosa, dorsal and lateral borders of tongue, lower lip and palate.^{1,2} Increased in the size of haemangioma and airway oedema in steep trendelenberg's position are the main challenges perioperatively. We report here a case of large hemangioma of oral cavity posted for robotic surgery and challenges faced perioperatively.

CASE REPORT

A 56-year male patient with congenital oral cavity hemangioma presented with history of primary urothelial neoplasm of bladder. He was posted for robotic radical cystectomy with ileal conduit with urethrectomy. A known case of Type 2 diabetes and hypertension for 20

years and on medication: Tab cilacar 5 mg and Tab metformin SR 500 mg once a day. He underwent embolization for hemangioma 40 years back, but it increased gradually with time.

On preoperative assessment, he weighed 88 kgs. His built was obese (body mass index: 29 kg/m²) with good effort tolerance. Airway assessment revealed large soft tissue lesion noted in oral cavity extending to tongue base, right side cheek and soft palate and seen protruding out from oral cavity (Figure 1). Patient had heavy jaw, thyromental distance of 5.5 cm, adequate mouth opening and normal neck movements with mallampati grade IV. There was no history of trauma, bleeding, breathlessness, stridor, pain, dysphagia, snoring in sitting or in lying down position. His vital parameters were within normal limits. His systemic examination revealed no abnormalities. Haemoglobin content was 6.6 gm%. Rest all blood investigations with electrocardiogram, chest X ray and echocardiography were within normal limits.

A written, informed valid consent was taken. Patient was explained about awake FOI. One unit of blood was transfused before surgery and another was started in preanaesthesia care unit. Two large bores 18-gauge intravenous cannula were secured. A standard monitoring was attached. A difficult airway cart was kept ready with ENT surgeon in standby, in case if tracheostomy was required.



Figure 1: Hemangioma extending to tongue base, right side cheek and soft palate and seen protruding out from oral cavity.



Figure 2: Intraoperative congestion and increased hemangioma size.

For anaesthetizing the nasal cavity, cotton pledgets soaked in 2% injection lignocaine with adrenaline 4 to 5 ml were packed in each nostril. Posterior pharyngeal wall was sprayed with 2 to 3 puffs of lignocaine spray. Otrivin nasal drops were put in both nostrils. The patient was premedicated with injection glycopyrrolate 0.2 mg intravenously (IV). Aspiration prophylaxis in the form of injection pantoprazole 40 mg was given IV. Patient was preoxygenated with 100% oxygen for three minutes and end tidal oxygen of 90% was achieved. Patient was given injection midazolam 1 mg IV + injection fentanyl 50 microgram IV. Awake nasal FOI was performed in supine position through left nostril. After proper visualization of the glottis scope was passed in trachea till visualisation of bronchial bifurcation. Anaesthesia was induced with injection propofol 2 mg/kg and cuffed north

pole endotracheal tube (ETT) No. 7 was guided under vision into trachea. Neuromuscular blockade was achieved with injection atracurium 0.5 mg/kg. Anaesthesia was maintained with inhalational desflurane 6% in oxygen: air ratio (60%:40%) along with infusion atracurium + infusion dexmedetomidine. Ventilation was with pressure control ventilation- volume guaranteed (PCV-VG). Ryle's tube and temperature probe were inserted. Vital parameters and airway pressures were recorded. For robotic surgery, patient was well strapped to the operating room table with arms and hands padded and tucked at patient's sides and eyes protected. After lithotomy position, pneumoperitoneum was created and a steep Trendelenburg's position up to 25 degrees was given.

Airway pressures were maintained around 30 cm of water (H₂O) throughout the surgery. The size of hemangioma was checked every half an hour during head low position which gradually increased due to venous congestion. Patient was ventilated with low tidal volume 6 to 8 ml/kg and high respiratory rate (16-18/minute) to maintain end tidal carbon dioxide between 25-30 mm Hg. Intraoperatively, patient was started on packed cells since haemoglobin content was 6.6 gm%. Restricted IV fluids were given and urine output was maintained between 0.5-1 ml/kg/hour till clamping of urethra. Radical cystectomy with ileal conduit and urethrectomy was done and the procedure lasted for 8 hours. Postoperatively, due to congestion and increased hemangioma size (Figure 2), patient was electively ventilated on volume control mode of mechanical ventilation on sedation with midazolam and fentanyl infusion. On the next day morning after regression of swelling, a T piece trial was given which was successful. Patient was extubated uneventfully and discharged on tenth postoperative day.

DISCUSSION

Hemangiomas in adults comprises of 3.4% of oral lesions.^{1,3} Usually, these are asymptomatic and painless.^{4,5} In our case, the difficult airway was because of the large hemangioma involving right buccal mucosa, tongue and soft palate occupying the oral cavity which made conventional laryngoscopy difficult. Due to high body mass index, decreased thyromental distance and heavy jaw, mask ventilation was a challenging task. Improper preoxygenation and ventilation could cause rapid desaturation during fiberoptic bronchoscopy. As it is a highly vascular lesion, any pressure or fiddling with it during the airway management could have caused uncontrolled bleeding from it. So awake FOI was chosen as a technique of choice. Nasal FOI is easier to perform because less patient cooperation is required and angle of insertion into the glottis is less acute.¹

In robotic surgery, steep trendelenburg position combined with pneumoperitoneum pushes the abdominal contents cephalad decreasing lung compliance with functional residual capacity, ventilation-perfusion mismatch,

atelectasis and pulmonary oedema. Increase in central venous pressure, pulmonary artery and capillary wedge pressure, intracranial pressure, intraocular pressure, increased myocardial oxygen demand, bradycardia, venous air embolism is found when 25 degrees Trendelenburg position with 15 mm of mercury of pneumoperitoneum is given to the patient.⁶⁻⁸ To overcome this, a tidal volume of 6-8 ml/kg and a positive end-expiratory pressure of 4-7 cm of water was given to prevent atelectasis. Airway pressures were maintained below 35 cm H₂O.

Clinical swelling of the face and upper airway with venous stasis in the head and neck is common.^{6,9} Airway oedema is the most common complication with incidence of 0.7-26%. The incidence of head and neck oedema was reported to be 12.5% which is severe enough to delay extubation. The prolonged time spent in Trendelenburg positions leaves patients at increased risk for oedema formation secondary to venous engorgement and thus fluid administration was restricted to less than 2 litres for reducing the degree of oedema as well as the incidence of acute kidney injury. Position of the robot interferes with effective cardiopulmonary resuscitation and airway interventions.

In our case, we managed to do a successful nasal FOI and had continuous monitoring of airway pressures and vital parameters throughout the surgery. The degree of Trendelenburg's tilt was measured. The size of hemangioma increased due to vein engorgement in steep head low position. In view of congestion and increased hemangioma size we delayed extubation. Postoperatively, patient was kept intubated in head up position till the size of hemangioma regressed.

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