International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.94

Anaesthetic Management of a Patient Posted for Total Laryngectomy Plus Hemithyroidectomy

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Abstract: ***The airway is not only shared but operated upon during laryngeal cancer surgery. Patients with laryngeal cancer may require general anesthesia for diagnostic endoscopic procedures, for endolaryngeal laser surgery or for major cancer resectional surgery. This review outlines the importance of careful assessment of the airway and medical comorbidities and discusses the options for anesthetic and ventilatory management whilst ensuring a safe airway, adequate oxygenation and the best possible view of the surgical field. Laryngeal cancer surgery may improve the airway or create new problems and the need for meticulous planning, multidisciplinary input, good communication and close cooperation between all members of the team is emphasized.***

Keywords: Anticipated difficult airway, Head and neck cancer surgery, Otolaryngological larynx anesthesia

1. Introduction

Laryngeal pathology can be related to trauma, infection, malignancy, congenital malformation of laryngeal structures. Surgery on the laryngeal structures can lead to major complications, and anesthetic management must be carefully communicated and planned. Selection of the mode of ventilation and associated airway management technique depends on patient factors, surgery length, and type of laryngeal disease. This choice is influenced by the need to share the airway with the surgeon, the potential for difficult intubation, and the effects of treatment for laryngeal pathology before surgery. Airway management is of prime importance in such patients both during intra-op and post-op period. We are reporting a case posted for hemithyroidectomy and laryngectomy where we anticipated and encountered a difficult airway pre-operatively.

2. Case Report

A 72 yr old male presented to the emergency with complaints of hoarseness of voice and difficulty in breathing, change in voice since 5 days, diagnosed with supraglottic growth and squamous cell carcinoma on biopsy operated for total laryngectomy plus hemithyroidectomy.

At the time of pre anesthetic evaluation of the patient it came to our knowledge that the patient has been a known smoker and alcoholic for 20 years. Breath holding time was greater than 25 seconds. His ECG suggestive of LV strain pattern with incomplete LBBB, 2d echo established finding of concentric LVH, jerky septal wall motion and ejection fraction 55 percent, otherwise vitally stable and lab normal. DL SCOPIC biopsy suggestive of squamous cell carcinoma.

With difficulty in securing peripheral cannula, the decision was taken to insert a femoral line in the operation theater as neck dissection was supposed to be performed under local anesthesia. The patient was not given any sedative premedication in lieu of possible respiratory depression and obstruction. In the operation theater, the patient was once again counseled and briefly described the procedure and told to co-operate. Standard monitoring equipment included pulse non-invasive blood pressure, pulse-oximetry, respiratory rate, ECG, and end-tidal carbon di-oxide. Equipment for the difficult airway were made ready and the difficult airway trolley was kept beside the operation table.

After the femoral line was secured, elective tracheostomy was done firstly with a 7.5 mm internal diameter cuffed tracheostomy tube under the dexmedetomidine infusion and local anesthesia since it will obstruct the surgical field for dissection hence plan was made to change it with a flexometallic tube. Initially due to failed attempt to pass a 7.5 mm flexometallic tube a smaller size 5.5 portex cuffed tube was inserted through the opening but for young adult the tube is not appropriate to conduct anesthesia. Acknowledging failed previous attempt decision to pass the bougie through incision and and then incision enlarged and a flexometallic sized 7.5mm was railed through the bougie and circuit was attached to tube. The use of armored endotracheal tube was immensely helpful as with tracheostomy tube, breathing circuit was interfering in the surgical field while plain polyvinyl chloride (PVC) endotracheal tube can easily get kinked during surgical procedure. Maintenance of anesthesia was achieved with oxygen, isoflurane, nitrous oxide, and vecuronium was given as per the requirements for muscular relaxation. Intraoperatively the decision to perform hemithyroidectomy was taken, along which total laryngectomy was done, the flexometallic was removed twice during the procedure to remove the cancerous part from the body and hence for the period patient was in apnea, post laryngectomy tube was inserted directly into the trachea and neck dissection was performed.

Post operatively tracheostomy tube was inserted, patient was shifted to ICU for further observation and the intraoperative period with blood loss estimated to be 350ml remained uneventful.

Patient would further require extensive physiotherapy and counseling for vocalization and was started on thyronorm postoperatively

Patient was shifted to the ward on POD2.

3. Discussion

Laryngectomy is considered to be intermediate risk surgery, as it does not involve opening of the major body cavity. Laryngeal cancer is one of the common cancers of the neck region which are known for its notoriety in spreading to adjoining structures and creates difficulty inbreathing and deglutition. Invasion of the thyroid gland by laryngeal cancer has been reported in1-30 percent of cases. Total or subtotal thyroidectomy has been a matter of debate, but in this case, it was decided to go for total laryngectomy and hemithyroidectomy. Oropharyngeal and neck lesions at all times pose airway problems during induction and endotracheal intubation. Management includes formulation of different plans preoperatively to reduce the morbidity and mortality associated with difficult airway management.

Postoperatively these patients need extra vigilant care due to high incidence of potential complications associated with laryngectomy. The potential complications may include but are not limited to pain, nausea and vomiting, hemorrhage, laryngeal edema, recurrent and superior laryngeal nerve damage, tracheomalacia, hypothyroidism, pneumothorax and thyroid storm. protection. For those patients undergoing laryngeal surgery not requiring an end stoma a careful extubation strategy should be planned well in advance. Swelling after prolonged surgery, bleeding and airway debris make extubation hazardous. If tracheal intubation was difficult in the first place, reintubation in suboptimal circumstances is likely to be more. Careful management of the tracheostomy is necessary in the immediate postoperative period with humidified oxygen to minimize crusting, and frequent suction to keep the airway clear of blood and secretions. Patients should be nursed in the semi erect position to improve venous drainage, reduce swelling and improve respiratory mechanics with attention paid to fluid balance and nutritional requirement

With multiple vital structures in the vicinity including carotid artery, superior laryngeal nerve, trachea itself a procedure as massive as total laryngectomy with hemithyroidectomy posed a lot of risks such as intraoperative bleeding, damage to trachea, other vessel damage and delayed recovery. It was hence of utmost importance to maintain hypotensive anesthesia with adequate fluid resuscitation with preparation for difficult intubation ready in the OT. With supraglottic growth, the risk of airway collapse also posed as a predicted problem.

If the anesthetist was unable to secure a central line preparation for venesection must also be kept in mind. Hence this case required good tactical management as well as vigilance

4. Conclusion

Laryngectomy is a life-changing procedure for a patient and requires a multidisciplinary approach to care, with good communication between anesthetist and surgeon being essential. They are elderly, often have significant coexisting medical problems and have abnormal airways that have to be shared with the surgical team. As far as is possible, the level and the full extent of the airway difficulty must be defined. As no single technique is 100% effective, the primary plan for airway management and the back-up plans need to be discussed and agreed between the anesthetic, surgical and theater teams.

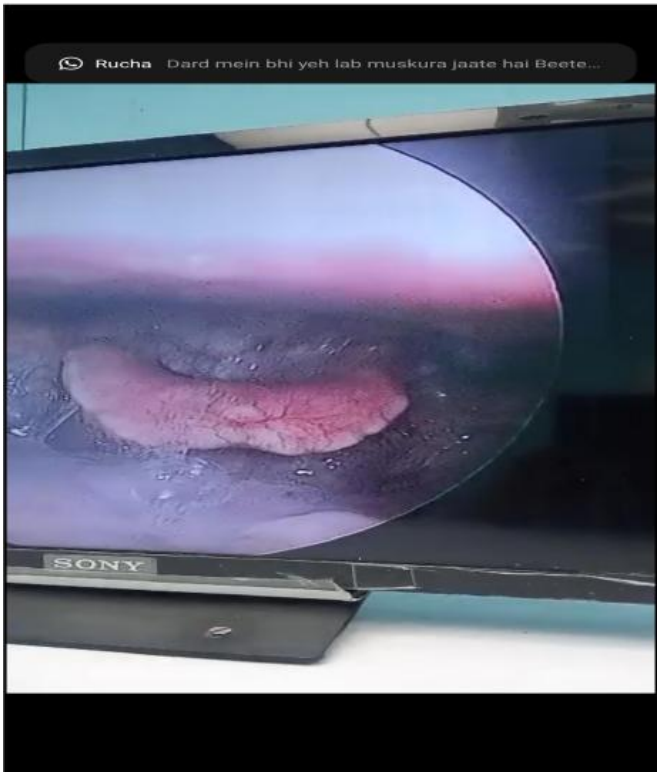

Figure 1

Figure 2

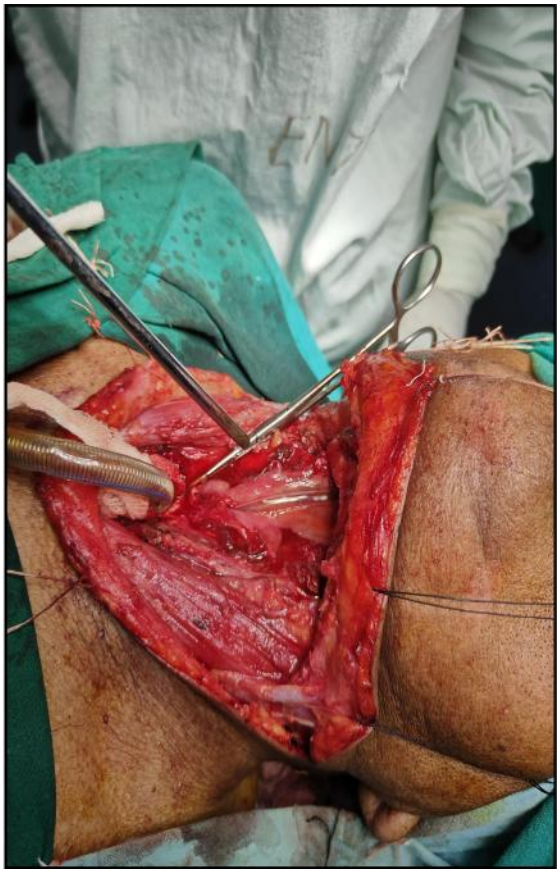

Figure 3

Figure 5

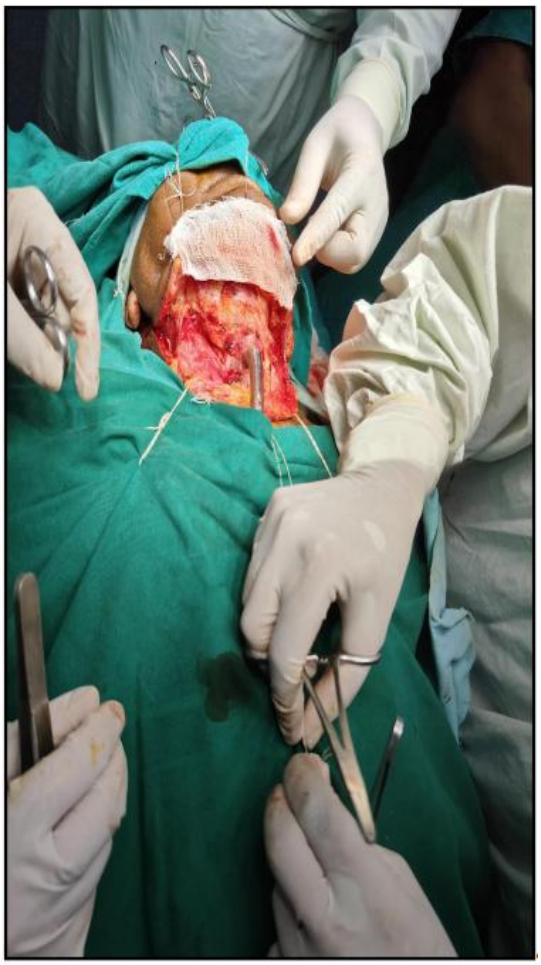

Figure 4

References

[1] Bajwa SS, Sehgal V. Anaesthesia and thyroid surgery: The never ending challenges. Indian J Endocr Metab 2011; 17: 228-34.

[2] Bajwa SS. Management of difficult airway during laryngectomy and thyroidectomy. Med J DY Patil Univ 2014; 7: 342-5

[3] Miriam Stephens, Jennifer Montgomery, Craig Stirling Urquhart, Management of elective laryngectomy, BJA Education, Volume 17, Issue 9, September 2017, Pages 306-311,

[4] Charters P, Ahmad I, Patel A, Russell S. Anaesthesia for head and neck surgery: United Kingdom National Multidisciplinary Guidelines. J Laryngol Otol 2016.

[5] McGrath BA, Bates L, Atkinson D, Moore JA. Multidisciplinary guidelines for the management of tracheostomy and laryngectomy airway emergencies. Anaesthesia 2012; 67: 1025-41

[6] Shah SK. Anticipated Difficult Airway Management with McGrath Mac Videolaryngoscope for a Case of Pyriform Fossa Carcinoma: A Case Report. Res Inno in Anesth 2020; 5 (1): 18-20.

[7] Chapane S, Salgaonkar S, Tadvi S. Ventilating bougie guided flexo-metalic tube intubation with airtraq-not a technique of choice? J Anaesth Crit Care Case Rep 2017; 3 (1): 22-24.

[8] Elliott MS, Odell EW, Tysome JR, Connor SE, Siddiqui A, Jeannon JP, Simo R. Role of thyroidectomy in advanced laryngeal and pharyngolaryngeal carcinoma. Otolaryngol Head Neck Surg. 2010 Jun; 142 (6): 851-5. doi: 10.1016/j. otohns.2010.02.006. PMID: 20493357.