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Case Report

Base of Tongue Non-Hodgkin's Lymphoma: Difficult Intubation

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ABSTRACT

Primary Non-Hodgkin's Lymphoma (NHL) of the tongue is a very rare tumor most commonly affecting elderly patients causing upper airway obstruction and anticipated difficult intubations with space occupying lesions that prevent tongue displacement and hence, scarce space for laryngoscopy. A 78-year-old man presented with progressive stridor and dyspnea. Oral examinations revealed tongue asymmetry and friable ulcerative lesions. During induction of anaesthesia in a scheduled partial glossectomy, difficult nasotracheal intubation was encountered despite using the Glidescope. Laryngeal landmarks could not be identified but successful nasotracheal intubation by hand-assisted and magill forceps manipulation of the endotracheal tube direction under video laryngoscopy. Failed intubation should always be considered in the management of base of tongue tumors. Pre-operative assessment and planning to secure the airway in patients presenting with base of tongue tumors decreases morbidity and mortality, especially when an emergency plan is prepared. No single airway management technique can be used for every patient. Further research is required for guiding the choice of airway management in such patients.

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Introduction

Oral presentations are present in 3-5% of cases of Non-Hodgkin's Lymphoma (NHL), an uncommonly encountered and very rare tumor of the base of tongue [1]. Primary malignant lymphoma of the tongue is very rare, most commonly affecting elderly patients (Age > 70) with male: female ratio of 5:3 [2]. Primary non-Hodgkin's lymphoma of the tongue is very rare accounting for about 1% of all malignant tumors of the oral cavity. Occasionally, the lesion causes upper airway obstruction, manifested by stridor and dyspnea as our patient presented. NHL commonly involves oropharyngeal lymphoid tissue comprising Waldeyer's ring but rarely involves the tongue [3].

A case of an elderly male who presented with lingual mass lesions, diagnosed with non-Hodgkin's lymphoma of the base of tongue, will be discussed. Difficult intubations in patients with extensive oropharyngeal space occupying lesions involving the base of tongue prevent tongue

displacement, rendering scarce space for laryngoscopy and resulting in challenging intubations even with video and fiberoptic laryngoscopy [4]. Awake nasal endoscopy before induction of anaesthesia is of high clinical significance when no other radiological investigations are performed. Upper airway and laryngeal inlet views are beneficial in recognizing patients in whom an awake technique is more relevant [5]. This case examines the significance of a thorough preoperative assessment and preparation, especially in patients with expected oropharyngeal obstruction, complete cooperation between the anaesthesiologist and surgeon preoperatively and intraoperatively to avoid life threatening complications and to reduce morbidity and mortality.

Case Report

A 78-year-old man (75 kg; 177 cm) presented with progressive stridor and dyspnea, 5 kg weight loss and night sweats in the past 3 months.

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Oral examinations by observation revealed tongue asymmetry, ulcerative lesions that did not heal and superficial growth on the surface of the tongue base (Figure 1). Laboratory investigations were unremarkable. The patient was scheduled for surgical resection (partial vs. complete glossectomy) with intra-operative frozen section analysis for diagnosis and guidance of therapeutic options. The surgical procedure and complications were discussed with the patient and informed consent including consent for tracheostomy, in case of emergency, was signed. Standard preoperative protocol was implemented.



Figure 1: Base of Tongue lesion.

The tumor was extensive occupying most of the oropharynx. Concerned about difficult/impossible direct laryngoscopy because of the space occupying lesion in the floor of the mouth (Figure 2), we planned video laryngoscopy to secure the airway along with rapid sequence induction and intubation and a trial of ventilation. We were also ready for urgent cricothyrotomy/tracheotomy if intubation or ventilation have failed. After performing preoxygenation and a successful trial of ventilation, we proceeded with IV succinylcholine 1.5 mg/kg dosage and nasotracheal video laryngoscopy with cuffed non-kinkable ETT 7.0. Despite the difficult manipulation and rotation of the ETT using magill forceps, we could not improve the view through the Glidescope. We could not identify any laryngeal landmark (Figure 3), especially the epiglottis.



Figure 2: Glidescope view of upper airway distorted anatomy with space occupying lesion and secretions.

The surgeons were notified to stand-by in case of emergent airway was necessary. Although the procedure was complicated by the massive tumor with epiglottic invasion and bleeding friable tissue (Figures 4 & 5), successful nasotracheal intubation was achieved by hand-assisted alteration along with the difficult magill forceps manipulation of the

endotracheal tube (ETT) direction under video laryngoscopy while confirmation of successful nasotracheal intubation was achieved by chest rise observation, end tidal carbon dioxide and auscultation. Histopathologic examination showed primary NHL.



Figure 3: Glidescope view of tumor invading the epiglottis and oropharynx.



Figure 4: Glidescope view of friable tumor tissue.



Figure 5: Glidescope view of bleeding friable tumor.

Discussion

The case presented shows the significance of appropriate preparation, coordination to formulate an assessment and a plan to reduce morbidity and mortality. Dysphagia, hoarseness, dyspnea and wheezing should alarm the anaesthetist of potential difficult airway. According to Mallampati *et al.*, the tongue is the single structure in the mouth that affects the accessibility of the laryngeal inlet by direct or indirect laryngoscopy [6]. Nasotracheal video laryngoscopy intubation was complicated by the tumor protrusion and massive oropharyngeal

extension with distorted anatomy. Difficulty in identifying the epiglottis because of the massive tumor invasion of epiglottic cartilage extending into the arytenoids mandated magill forceps manipulation and rotation of the non-kinkable endotracheal tube resulting in successful intubation.

Awake fiberoptic intubation was not considered in the initial anaesthetic plan because of the patient's discomfort, uncooperativeness, age, dyspnea, stridor with a reasonable possibility of patient's shortness of breath and desaturation while giving minimal sedation for awake fiberoptic intubation. Using awake techniques and more specifically fiberoptic bronchoscopy is considered the gold standard for managing difficult airways [7]. It is safer to secure the airway while spontaneous breath is initiated than if general anaesthesia is induced before tracheal intubation. Despite being then gold standard for management of difficult intubation, fiberoptic intubation might be impeded by the massive tumor and distorted anatomy of the oropharynx as in our current case and in some similar base of tongue tumors' case reports discussed in the literature. Therefore, intubation success rate alone does not provide an efficient evaluation in patients with difficult airways [7]. The Fourth National Audit Project of the Royal College of Anaesthetists (NAP4) reported that awake fiberoptic intubation was not used as the primary airway plan for many high-risk patients [8].

In addition to requiring complex skills and more practice, awake fiberoptic intubation poses as a difficult task if not well trained or poorly encountered in practice. Difficulty in securing the airway is not limited to identifying the anatomy, but also to manipulating the endotracheal tube, which depends on the anaesthesiologists' skills and experience. Magill forceps are of extreme significance in airway management and decrease the need of emergent tracheostomy in base of tongue tumor patients [9]. Detailed history, physical examination, and computed tomography (CT) scan predict how difficult is securing the airway. Diagnostic assessment including CT scan is essential to guide the management and the prognosis of this disease. Furthermore, histopathological examination determines the definitive diagnosis and has an objective prognostic significance. The prognosis of NHL is determined by the stage of the tumor, the aggressiveness of the malignant cell type and the response to treatment.

Oral lesions are relatively sensitive to chemotherapy. The mean survival was two years [10]. Even late-stage NHL involving the base of the tongue with R-CHOP treatment can be suppressed and remain in remission, and the occurrence at this site may have a good prognosis [11].

Conclusion

A tongue affected by non-Hodgkin's lymphoma rarely occurs. In the light of upper airway obstruction, failed intubation should always be considered in the management of base of tongue tumors. A rapid assessment, decision and action is prompted to reduce morbidity and even mortality. Identification of the anatomy with distorted oropharyngeal tissues may prove to be very challenging, more so with nasotracheal intubation, even with fiberoptic and video laryngoscopy. The anaesthesiologist should be aware of the likelihood of failed video laryngoscopy intubation and plan for alternative approaches and techniques to secure the airway. It is of high significance to acknowledge that no single airway management technique can be used for every

patient. Further research is required to guide the choice of airway management in such patients. Ultimately, the goal is to decide the best possible plan for securing the airway in patients presenting with base of tongue tumors that decreases morbidity and mortality.

Acknowledgment

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Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Ethical Statement

All rule of ethics in research have been followed.

Informed Consent

Written informed consent to present this case was obtained from the patient.

Conflicts of Interest

None.

Funding

None.

Abbreviation

NHL: Non-Hodgkin's Lymphoma

OP: Oropharyngeal

CT: Computed Tomography

R-CHOP: R-Rituximab C-Cyclophosphamide H-Doxorubicin (hydroxydaunomycin) O-Vincristine P-Prednisone

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