



## Acute Presentation of Partially Obstructing Laryngeal Tumour: A Case of Failed Awake Fibroptic Intubation

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### Abstract

*Assessing a difficult airway is one of the challenging problem in anaesthesia. Managing the laryngeal tumor depends on experience of anaesthesiologist, needs a careful preoperative evaluation and close cooperation with ENT surgeons are mandatory. Awake fiberoptic intubation is sometimes very challenging in patients with laryngeal carcinoma. We would like to present a case of 50-year-old male who attended emergency department with stridor and dyspnea taken up for emergency tracheostomy. He is a known case of possible laryngeal tumour. We would like to discuss the Anaesthetic management of this case.*

### Introduction

The anaesthetic management of patients with laryngeal tumour and acute airway compromise pose a challenge to anaesthesiologist. This case highlights a particular group of patients which will be very difficult to intubate. To be successful it requires careful preoperative planning and a technique which has been used effectively in patients such as fiberoptic bronchoscopy. Laryngeal cancer accounts for 50% of head and neck malignant tumours. The glottis, supraglottic area and the subglottic area are three major location for laryngeal carcinoma. As per anaesthesiologist, airway related information is acquired from medical history, physical examination, radiography and from the surgeons. Furthermore, equipments for difficult intubation are should be well understood.

### Case Report

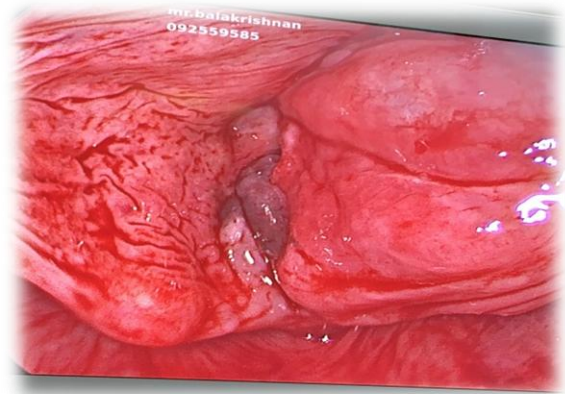
A 50-year-old male, 70 kg presented to emergency department with acute airway compromise. He has no recorded medical history and was not taken any medication; however, he was a known smoker and alcoholic for past 22 years. He was a known case of right vocal cord growth found 6 months back and was not on any treatment. Outpatient CT neck imaging shows enhancing soft tissue thickening of right vocal cord extending to anterior commissure.

He subsequently presented to our hospital as an emergency with acute breathing difficulty. Our Ear, Nose and Throat (ENT) colleagues reviewed in emergency department. He was stridulous and demonstrating postural signs of respiratory distress. His oxygen saturation was maintained 98% at room air with a respiratory rate of 26/min. Flexible Nasopharyngeal video laryngoscopy

showed proliferative growth involving entire length of vocal cord and interrupted as airway was adequate for endotracheal tube. So our plan A was to do awake fibro optic intubation. Patient was immediately brought to operation theatre. Intravenous access was secured. Vitals were monitored. Patient was in semi recumbent position and nebulized with 4% Lignocaine and Epinephrine, driven by 100% oxygen. Dexmedetomidine infusion was started at 0.4mcg/kg/min without bolus dose, IV Dexamethasone 8 mg and IV Glycopyrrolate 0.2 mg was given. Awake fiberoptic intubation with paediatric fibroscope was attempted in semi recumbent position with spray as you go technique. Bronchoscope was tried to pass delicately under the mass during inspiration. We couldn't able to pass the scope as the growth was obscuring the vocal cord opening. In contrary to the ENT Nasopharyngeal video laryngoscopy view, the airway was inadequate and plan B was adopted. Surgical tracheostomy under Local Anaesthetic was done with sevoflurane induction under spontaneous ventilation supplemented with 25mcg Fentanyl, and the airway was secured. Then the surgeons carried out a direct laryngoscopy and biopsy was taken from the growth. After the surgery, the patient was transferred to intensive care unit and remained for 24 hours.

### Outcome and Follow-UP

The patient recovered well post procedure. His breathing immediately improved, however, he undergone laryngotomy in government hospital.



### Discussion

Surgery and anaesthetic management of patients with a laryngeal tumour occupying the space of the supraglottic and glottis region is challenging for anaesthesiologists. Fiberoptic intubation in cases where the glottic opening is narrowed will usually allow successful passage. However, there remain risks associated with this approach but these can be reduced by careful planning and management. In our case report, a patient with laryngeal tumour had to undergo tracheostomy due to a failed fiberoptic intubation. Reasons for failure of fiberoptic intubation include loss of laryngoscopic vision due to bleeding or mucous, tumour size, and severe upper airway narrowing that makes insertion of the bronchoscope through the cords impossible<sup>(10)</sup>. In the aforementioned case, on direct laryngoscopy done by ENT surgeons, a small opening between the vocal cords was observed and hence fiberoptic intubation was planned. Anaesthetic management in cases of laryngeal tumour is difficult, and it is crucial to fully evaluate the airway preoperatively. Multi-slice CT, which can be reconstituted with three-dimensional (3D) images, can provide a virtual bronchoscopic view<sup>(1)</sup>. However, our patient presented as an emergency case, a CT image was not performed but in view of malignancy the 6-month-old CT did not represent the current advanced nature of the tumour. Efforts were made to release the airway obstruction as soon as possible. With a difficult airway, the most routine manoeuvre is awake intubation. In awake intubation, no neuromuscular blocking drug is



administered to minimize the risk of a failed airway, only topical anaesthesia of the nasal and laryngeal area is applied. With proper sedation, the procedure will be more tolerable. The commonly used sedatives include Propofol, Sevoflurane and Dexmedetomidine. Sevoflurane is equivalent to Propofol for the performance of fibreoptic intubation under spontaneous respiration in terms of the success rate, patient recall and satisfaction<sup>(2)</sup>. In a study that compared Propofol with Dexmedetomidine for sedation during fibreoptic nasal intubation, patients in the Dexmedetomidine group experienced a lower heart-rate response to intubation, showed better tolerance, and had a more stable hemodynamic status<sup>(3)</sup>.

The instruments used in an anticipated difficult airway include a fiberscope, video laryngoscope and light wand. In our study, awake fibreoptic intubation was tried but was unsuccessful because of narrow glottis opening. Sometimes life threatening unexpected challenge will be encountered by the anaesthetist. So, we had to proceed with surgical tracheostomy immediately with the help of ENT surgeons.

The American Society of Anaesthesiologists difficult airway algorithm defines invasive access as a surgical or percutaneous airway, jet ventilation and retrograde intubation<sup>(4)</sup>.

As a last way, extracorporeal membrane oxygenation (ECMO) were also been used in situations where ventilation cannot be performed. ECMO can provide support for severe respiratory failure<sup>(5,6)</sup>.

A highly specialized team of ear, nose and throat specialists, thoracic surgeons, anaesthesiologists, and operative supporting staff is required in cases of difficult airways or surgeries on the trachea and carina. In conclusion, we successfully managed a case of laryngeal carcinoma with stridor. Fibreoptic intubation is the first choice in anticipated difficult airways, it also carries a low failure rate. Presence of video-assisted airway devices and ECMO will greatly increase the safety profile during anaesthesia if prepared in advance.

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