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Case Report

Successful tracheal intubation in a patient with difficult airway and hypopharyngeal mass with video laryngoscope when awake fibreoptic bronchoscopy failed

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Abstract

Introduction: Video laryngoscope is one of best alternative in managing difficult airways. Our patient presented with left side neck pain and hoarseness of voice for three months, dysphagia to solids for two months. Computed tomography revealed large hypopharyngeal mass and a diagnosis of carcinoma of hypopharynx was made. As endoscopic Ryle's tube insertion by gastroenterologist was unsuccessful so he was posted for Feeding jejunostomy under general anaesthesia.We anticipated difficult endotracheal intubation so our first line of securing airway with awake fibreopticbronchoscopic intubation was unsuccessful, using an alternative method with bougie and video laryngoscopy, the trachea was successfully intubated.In rare clinical scenario fibreopticbronchoscopic intubation may fail, hence we need to be prepared with the backup plan for airway management. A video laryngo scope might be useful in such situations.

Keywords: Airway management; bronchoscopy; endotracheal intubation; videolaryngoscope

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Introduction

Fibreoptic Intubation is the gold standard in difficult airway scenario[1], we report a case with large hypopharyngeal mass and edematous epiglottis when flexible fibreoptic bronchoscope failed but trachea was successfully intubated with an alternative method using video laryngoscope and bougie.

Case Report

A 54-year-old male weighing 54 kg, chronic smoker and alcohol consumer for 20 years presented with pain in left side of neck and hoarseness of voice for 3 months, dysphagia for solids and difficulty in swallowing liquids for 2 months, mild cough for one month, and dyspnea on mild exertion, NYHA II. There was no history of hypertension, diabetes and heart disease and no family history of malignancy. Neck examination revealed hard fixed lymph node on left side 3x2 cm2. On examination, there was induration at the base of the tongue. Biopsy showed moderately differentiated squamous cell carcinoma. He was diagnosed as carcinoma hypopharynx, Stage IVB N1 M0.

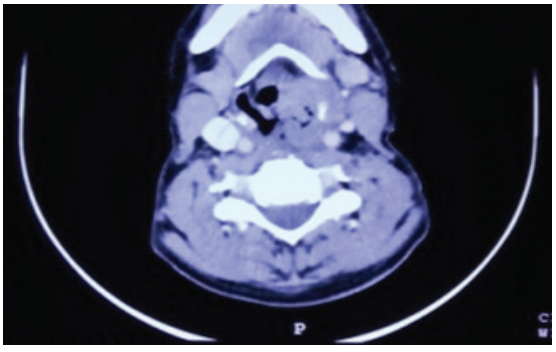
Plan of treatment was External Radiotherapy and Concurrent Chemotherapy. He was scheduled for creating feeding jejunostomy under general anaesthesia.

On preoperative evaluation, vitals and systemic examinations were normal. The patient was explained and consent was obtained for awake fibreopticintubation and need for tracheostomy as an emergency method.

On Airway examination: mouth opening was 2 1/2 fingers, Mallampati Grade 3, neck movement normal. Induration was visualised on the left side of the base of tongue.

Haematological investigations and coagulation profile were within normal limits. Chest X ray, ECG and echocardiography did not show significant abnormalities.

CT Scan (figure 1) showed ulcero-proliferative growth in left oropharyngeal and hypopharyngeal wall, pyriform fossa measuring 32x23.5mm, superiorly the lesion extended along the left tonsillar pillar to the left soft palate. It infiltrated into the left half of the base of tongue, asymmetrical thickening of epiglottis was noted with the involvement of left valleculae, glossoepiglottic fold and left half of the pre-epiglottic and para epiglottic space. Indirect laryngoscopy showed thickened aryepiglottic fold and false vocal cord. PET-CT showed metabolically active soft tissue mass.



1CT SCAN - Arrow shows Left Hypopharyngeal Mass

After glycopyrrolate premedication, in the operation theatre, difficult airway cart was kept ready and routine monitors 5 lead ECG, SPO2, Capnography, NIBP were connected. Midazolam 1 mg was given intravenously. Nasal packing with 4 % lignocaine soaked gauge was done and bilateral superior laryngeal nerve block with 2ml 2 % lignocaine and transtracheal installation of 2ml 2% lignocaine was done. After preoxygenation, a prewarmed cuffed endotracheal tube (ETT) 7.0 sealed over fibreopticbronchoscope was introduced through the right nostril, a large mass was visualised in hypopharynx with swollen epiglottis, obscuring the view of the glottis. The glottic opening could not be visualised as the fibrescope could not be negotiated under the mass and swollen epiglottis, hence procedure was abandoned. Then plan-B for intubating trachea was considered with video laryngoscope CMac D-blade. The patient was administered O_2: Sevo (MAC 0.8) with 100% Fio_2. Fentanyl 50mcg and Propofol 1mg/kg^{-1} was used and spontaneous ventilation was maintained. Large hypopharyngeal mass with swollen epiglottis was visualised but the glottic opening could not be visualised. A Bougie was introduced below the epiglottis into the trachea and 6.5 mm ID cuffed Portex ETT, was railroaded over the bougie. Successful ETT placement was confirmed with capnography. Further, standard anaesthetic and surgical course were uneventful. At the end of surgery, the patient was awake and oriented with adequate spontaneous breathing and shifted to PACU on T-piece. The trachea was extubated in PACU after 2 hours over tube exchanger, in view of difficult intubation. Later, radiotherapy and concurrent chemotherapy were given and the patient was discharged in stable conditions.

Discussion

One of the major cause of adverse respiratory event during surgery is the difficult tracheal intubation.[2] Our patient did not have many criteria of difficult airway, such as inadequate month opening, limited neck extension, or unfavourable degree of Mallampaticlassification. However, he had hoarseness of voice, hypopharyngeal mass infiltrating the base of tongue and thickened epiglottis, and thickened false cords, so we anticipated difficult intubation.

Awake fibreopticintubation is the gold standard[1] for an anticipated difficult intubation with a compromised airway. This method has an advantage of maintaining spontaneous breathing, oxygenation and the endotracheal tube is placed under vision. Ovassapian et al have reported the difficulty in fibreopticnasotracheal intubation, mentioned incidence and causes of failure.3 There are many reasons for distorted airway anatomy or deviation of the larynx that contribute to difficult fibreopticexposure. In our patient fibreopticintubation failed as the fiberscope could not be negotiated under the epiglottis, an alternative method using video laryngoscopy with C-Mac D-blade to intubate trachea with bougie below the epiglottis was successful. So video laryngoscopy can be used as an alternative method in difficult airway management.

Asai and Shingu in their article stated that the paucity of the normal anatomical space between the posterior pharyngeal wall and the larynx was the reason for failed fibreopticendotracheal intubation.[4] Baddoo and Parkins reported failed awake-fibreopticintubation in an adult patient with large mandibular fiberosseous lesion occupying entire oral cavity as it impossible to pass the scope beyond nasopharynx.[5]

Video laryngoscope displays enlarged laryngeal image on the video monitor, it is easier to align oral, laryngeal and pharyngeal axis for placement of ETT in the trachea. Percentage of glottic opening (POGO) score is improved with video laryngoscope, possibility of successful tracheal intubation in difficult airway is increased, hence we choose CMacD blade video laryngoscope over conventional laryngoscope.[6,7]

The fibreoptic bronchoscopy was not a complete failure, as we visualised thickened epiglottis Vocal cords could not be visualised, prompting us to decide about alternative intubation technique. Repeated attempts at bronchoscopy would have lead to bleeding and complicated the situation, hence we opted directly for video laryngoscopy.

To conclude, awake fibreopticbronchoscopy gold standard for difficult airway management may fail in securing airway due to distorted airway anatomy and lack of nasopharyngeal space. A detailed preoperative airway evaluation, a backup plan for airway management, including difficult airway cart stand by and sometimes video laryngoscope is a better option.

Informed consent: An informed consent was obtained from the patient for publication of the report without disclosing his identity.

Conflict of interest: The authors have filled the ICMJE conflict of interest form and have nothing to declare.

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