

Case Report

Awake Fiberoptic Intubation in Sitting Position can be Life-Saving in an Emergency

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Abstract

Patients with large thyroid mass may present in stridor requiring emergency tracheostomy. Securing the airway first with endotracheal tube before surgical tracheostomy is the preferred modality in these patients which may be challenging, especially in an emergency. We report the airway management of a 74-year-old female with thyroid malignancy presented with stridor and was unable to lie supine.

Keywords: Stridor; Sitting position; Fibre optic intubation

Introduction

Airway management of the patients who present with huge thyroid mass with stridor is challenging for anesthesiologist because of a potential difficult airway [1]. Prolonged compression over the trachea can lead to the sudden loss of airway under any kind of anaesthesia [2]. Awake fibre optic nasal intubation has been reported successful in patients with enlarged thyroids in a difficult airway situation [3]. However, this can be more challenging when the patient is unable to lie supine. We present a case of successful awake FOB guided nasal intubation in sitting position who presented in stridor with a large thyroid mass with retrosternal extension for emergency tracheostomy.

Case Presentation

A 74-year-old, 45 kg female presented in stridor with a large swelling predominantly on the right side and front of the neck for the past 30 years. There was a progressive increase in the size of swelling since last 3 months with difficulty in breathing. There was no history suggestive of hypothyroidism or hyperthyroidism and thyroid function tests were within normal limits. She had a history of change in voice, stridor and difficulty in breathing which aggravated on lying down for last one and half months. On examination, the swelling was a multilobulated firm nodular mass on the anterior and right side of the neck measuring 15 cm × 8 cm in size. Mass was immobile and extending from the lower jaw to the sternal notch (Figure 1). The lower limit of the swelling was neither visualized nor palpable. There were engorged veins visible on the chest and neck. On airway examination mouth opening was more than two fingers, Mallampati grade 2 with limited neck extension and severely restricted neck flexion. The trachea was deviated to the left side.

Indirect laryngoscopy revealed restricted mobility of left vocal cord. USG neck showed a large multilobulated, heterogeneous, hypoechoic lesion in the thyroid region with a heterogeneous hypoechoic lesion at level 1b on the right side and level 2 supraclavicular location. CT scan chest and neck showed grossly enlarged thyroid gland with retrosternal extension and marked compression of the trachea (Figure 2). FNAC showed anaplastic carcinoma thyroid. The patient was in active stridor and because of huge size and long history of the thyroid mass, we anticipated difficulty in mask ventilation, laryngoscopy and intubation. Therefore, awake fiberoptic intubation was planned. There was an increase in respiratory distress in the supine position, hence we planned the intubation in sitting position only. Difficult airway cart was kept ready. The procedure was explained to the patient and written informed consent was taken. The patient was shifted to the operation theatre and ASA standard monitors were attached, baseline vitals included HR 120/min and NIBP 160/90 mmHg and ECG showed sinus tachycardia. Injection glycopyrrolate 0.2 mg IV was administered to minimize the secretions. Xylometazoline drops were instilled in both the nostrils for nasal decongestion to facilitate the smooth passage of FOB without mucosal injury. The patient's airway was anaesthetized with 4% lignocaine nebulization and 10% lignocaine spray. Oxygen was administered via nasopharyngeal airway in the other nostril at a rate of 2 L/min. The fiberoptic bronchoscope was loaded with a 6.5 mm cuffed flexo metallic endotracheal tube and the patient was made to sit on the operation table. The anaesthesiologist was standing on the left side of the patient-facing the FOB monitor. The FOB was inserted nasally and advanced towards the laryngeal inlet. The patient was asked to inhale deep and the laryngeal opening was visualized with great difficulty due to distortion of the airway and 2 ml 2% lignocaine was sprayed using the spray as u go technique to block the superior laryngeal nerve. The FOB was then advanced and positioned just above the carina and endotracheal tube was threaded down the bronchoscope under the vision and the FOB was removed. The anaesthesia breathing circuit was attached and the tube placement was confirmed with capnography. The patient was made to lie in the supine position and induction of anaesthesia was done with fentanyl, propofol and atracurium. After securing the airway, ETT was withdrawn slightly under visual guidance just below the level of vocal cords and tracheostomy tube was placed. After confirmation of the position of tracheostomy tube through capnography, ETT was withdrawn out completely. The tracheostomy tube was firmly

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Figure 1: Patient with a huge thyroid mass.

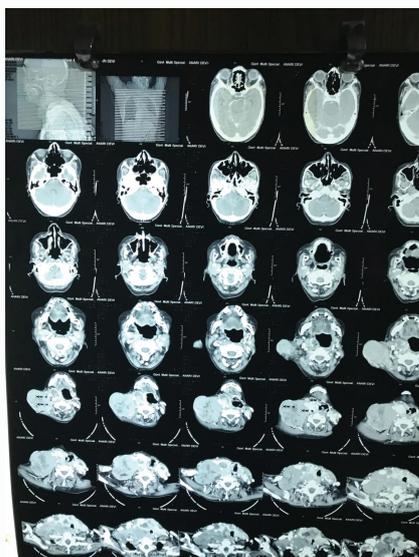


Figure 2: CT showing tracheal compression.

secured and sutured and anaesthesia was maintained with O₂ in air and isoflurane. The intraoperative course was uneventful. Large venous channels were found in the gland and the total blood loss was about 500 ml, which was adequately replaced with crystalloids and colloids. There was no episode of hypotension. The patient remained hemodynamically stable throughout the procedure. Postoperatively, the patient was reversed with injection glycopyrrolate and neostigmine after the return of spontaneous breathing efforts. The patient was shifted to ICU on the ventilator and was gradually weaned over 12 hours. After observation in ICU patient was shifted to ward on T piece at 2 litres per minute. After explaining the tracheostomy care and suction, the patient was discharged and planned for palliative surgery at a later date. Poor prognosis was explained to the patient because of anaplastic carcinoma.

Discussion

Large thyroid masses can present for both elective and emergency surgical procedures. They might be associated with tracheal deviation, compression or both [4] and presents with anticipated difficult airway requiring optimum skills and techniques for successful management. Upper airway obstruction due to thyroid gland has been reported in up to 31% and difficult intubation has been reported in 11% of the patients with a thyroid mass [5]. Long-standing pressure on trachea

by a neck mass could lead to tracheomalacia due to weakening of cartilages which in turn can lead to a complete collapse of the airway with muscle relaxants. Direct laryngoscopy under topical anaesthesia is difficult, rather impossible due to distorted anatomy. Use of any induction agent or muscle relaxant can lead to sudden complete loss of airway leading to cannot ventilate cannot incubate scenario. Therefore, awake FOB guided intubation in sitting position is safe as it does not increase respiratory distress further and maintains a patent airway throughout the procedure [2]. Hence, it has been recommended for the airway management in patients with difficult airways in both elective and emergencies. Bouaggad et al. [3] found that there was significantly increased incidence of difficulty in endotracheal intubation with tracheal deviation, tracheal compression, presence of dyspnoea, mallampati class III/IV airway and with restricted neck mobility.

In our case, the patient had both obstructive and compressive symptoms and the trachea grossly deviated, so we went ahead with awake FOB guided intubation. Also, in our case, the patient was unable to lie supine, and there was radiological evidence of tracheal deviation and compression. Therefore, we carried out the procedure in the sitting position. Failure to visualize the glottis, trauma, bleeding and laryngospasm have all been reported with FOB in the previous study [6]. Sitting position was more useful as secretions settled down due to gravity and we had a clear view. Tracheostomy in patients with stridor is usually done under local anaesthesia. However, patients with huge thyroid masses causing airway compromise and distortion of the airway is a major limiting factor for doing the procedure under local anaesthesia as the landmarks couldn't be identified and therefore, done under general anaesthesia. The other options of airway management in our case could be ventilation via a rigid bronchoscope. Complete airway collapse with the use of local anaesthetic during awake fiberoptic bronchoscope use has also been reported [6].

A quick preoperative assessment of the patient including the airway is the first step in the successful management of a patient with a difficult airway. Safe and meticulous planning is a must in such cases. Alternative plans should be readily available in case the primary technique fails. The skills and experience of the anaesthesiologist and teamwork play a major role in successful management and outcome.

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