

# Compromised Airway Secondary to Thyroid Carcinoma – a Case Report

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## Abstract

Difficult airway management is a dilemma for any anaesthesiologist. In the following case we encountered an acutely enlarging thyroid mass that was compromising the airway. Due to the huge neck mass which caused airway compression leading to breathlessness and difficulty in breathing in supine position. This 70 years old male was being investigated for a swelling in the anterior neck region and had sudden increase in the size of swelling. He became breathless and could not breathe in supine posture. Biopsy revealed the swelling to be follicular carcinoma of the thyroid with bilateral lung metastasis. His breathing difficulty compelled us to contemplate emergency tracheostomy because of decreased in saturation and severe respiratory distress.

## INTRODUCTION

Management of difficult airway presents a great dilemma to the anesthesiologist Practice guidelines and algorithms may help us in such situations, the anesthesiologist judgment and vigilance remains the primary means to save lives. In the following case, we encountered an acutely enlarging thyroid mass that was compressing the airway. This huge mass precluded tracheostomy in central position of trachea as trachea was shifted to left side and the patient could only breathe in sitting position.

Neck masses from different sources may affect airway and are potential causes of difficult airway (1-8). There are few options for securing the airway in a patient with acutely enlarging and airway compromising anterior neck mass, such as thyroid tumors. These patients may not tolerate the supine position due to severe tracheal compression.

The utility and safety of performing tracheostomy in an awake patient prior to induction of general anesthesia are debatable due to location of mass and displaced anatomy. Here we are discussing an enlarging neck mass where high tracheostomy was done due large growth occupying center of neck displacing trachea towards left.

## CASE REPORT

A 70 year old male with thyroid swelling was referred to tertiary care Sher-I-kashmir Institute of medical sciences Srinagar J&K where he was diagnosed as follicular

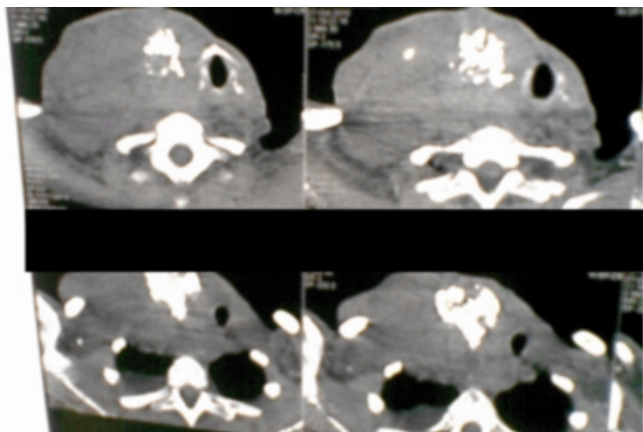
carcinoma with metastasis to lungs and was waiting for its management when he started with fast increase in the swelling and difficulty in breathing and inability to breathe in supine posture and his respiratory condition deteriorated. He could not open his mouth, air hunger worsened and air exchange to some extent was possible only in the sitting position.

Patient was immediately transferred to the operating room with an anesthesiologist in attendance. Meanwhile, general surgeon and thoracic surgeon were also present in the operating room and ready to establish surgical airway. The patient could not lie in supine position and surgical cricothyrotomy was not possible because swelling occupied whole anterior neck with a shift of trachea to left. Because of hypoxia the patient was agitated with arterial blood gases showing constantly low  $P_{O_2}$  and saturation 75-77%,  $p_{CO_2}$  39.8 mmHg. Patient was explained about tracheostomy as awake, nasal and fiberoptic intubation was not possible as fiberoptic bronchoscope was not available in emergency theater and Standard monitoring started with E.C.G, Pulse oximetry, non invasive BP. The nasal prongs were used with oxygen flow 5-6lt/min. The patient had a heart rate of 110/minute, Bp 110/70 mmHg. The patient was little calm. Saturation reached 84-86% on oxygen. Difficult intubation cart was kept ready. Surgeons carried out the lateral tracheostomy under local anesthesia. Patient started breathing spontaneously and adequately post tracheostomy maintaining a saturation of 88-92%. Tracheostomy was done

as a limited procedure. The patient was comfortable thereafter increasing saturation to 94-95% and was now comfortable in supine position also and was shifted to postoperative ward for monitoring with t piece attached and receiving oxygen at 8-10 l/min.

**Figure 1**

CT Neck showing shifting of trachea



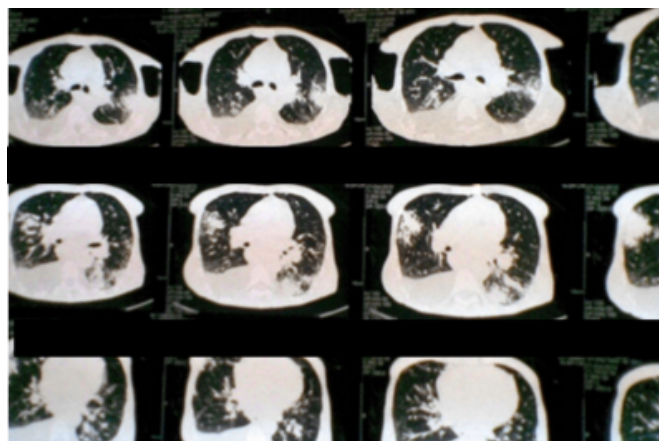
**Figure 2**

Lateral tracheostomy in a patient with enlarging thyroid mass



**Figure 3**

CT Chest showing lung metastasis



### DISCUSSION

Neck masses from different sources may affect the airway. Thyroid tumors are potential cause of difficult airway management. Few cases of hemorrhagic thyroid mass with resultant respiratory distress have been reported (5,7,10). Awake fiberoptic intubation is the gold standard for difficult intubation but may not be available sometimes(10). Blind nasal or oral intubation is a simple technique but associated with two major drawbacks, infrequent success on the first pass and increased trauma with repeated attempts. We could not risk precipitating complete airway obstruction. Insertion of an endotracheal tube through the nose increases the risk of nasal bleeding. Large thyroid masses are a nightmare for anesthesiologist not only because of thyroid endocrine abnormality but also for difficult airway.(9)

Intubation associated with frequent failure (66% in some studies),(6). Avoiding airway irritation and laryngeal spasm is critical in preventing sudden airway loss. Most authors believe that using local anesthetics on the oropharyngeal cavity for patient co-operation is mandatory. However, application of topical anesthesia might precipitate cough and laryngeal spasm. Hence we decided to keep difficult airway cart ready and go ahead with surgical tracheostomy under local anaesthesia.

Tracheostomy using local anaesthesia has been considered the “definitive modality” of airway management in situation such as this huge neck mass (6-8).In our case we took the risk of handling airway by tracheostomy keeping everything ready. We succeeded in getting the patient out of very distressful situation with lateral tracheostomy

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