Scope
Volume 14 Number 02 June 2024

Airway Management in Papillary Carcinoma Thyroid Patient with Tracheal Stenosis

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Abstract: Thyroid tumors causing airway compression, stenosis, tracheal deviation among common causes of difficult airway and intubation in anaesthesia management. Difficult airway and intubation among goiter patients is 5.3%[3]. Cancerous goiter is major predicting factor for difficult endotracheal intubation. Therefore airway management in these patients during preoperative and intraoperative period is challenging. Here we report a case of successful awake fiberoptic bronchoscopy assisted airway assessment and endotracheal intubation in patient undergoing total thyroidectomy of papillary carcinoma thyroid causing severe subcricoid tracheal stenosis. A 6oyear old female with papillary carcinoma thyroid was posted for total thyroidectomy under general anaesthesia. Neck CT detected thyroid malignancy causing sub cricoid stenosis for length of 9.5 mm with maximum anteroposterior diameter at stenotic level of 3.2mm. The patient received general anaesthesiathrough endotracheal tube during surgery. Tumor resection and a permanent tracheostomy was done at end of surgery. Later patient was successfully weaned form mechanical ventilation and shifted to postoperative care unit. This case report provides evidence of importance and usefulness of fiberoptic bronchoscopy assisted airway assessment and endotracheal intubation in managing anticipated difficult airway in thyroid tumors causing tracheal stenosis, tracheal deviation, intraluminal infiltrating thyroid tumor.

Keywords: Difficult intubation, Thyroid cancer, Tracheal stenosis, Fiberoptic bronchoscopy.

Case Report

Airway management in patient with cancerous goiter can be dangerous and sometimes impossible. Achieving and maintaining airway for general anaesthesia in these patients pose a challenge for anaesthesiologist. Difficulty in endotracheal intubation in presence of goiter is 5.3%[3]. A 60year old female diagnosed with papillary carcinoma of thyroid posted for total thyroidectomy. Patient did not complain of dyspnea or any sort of breathing difficulty in any position.Neck CT detected a thyroid mass of 5.4x 4.3 x 4.5 cm involving both lobes of thyroid and isthmus causing sub cricoid tracheal stenosis for a length of 9.5mm on right side with maximum anteroposterior diameter at stenotic level is 3.2 mm and transverse diameter of 11.5 mm and anteroposterior diameter on left side at same level is 8.3mm. Tumor is also infiltrating through infrahyoid strap muscle and anterior margins of sternocleidomastoid muscle on both sideswith bilateral level 3 and 4 cervical lymph node enlargement making it difficult to palpate landmarks for tracheostomy preoperatively. Maximum tracheal stenosis is 2.8cm from vocal cords. After informed consent from patient for anaesthesia and complications awake flexible fiberoptic bronchoscopy and endotracheal intubation was planned as tracheostomy was not possible due to anatomical difficulties. On day of surgery 0.2 mg injection glycopyrollate given intravenously 30 minutes before starting procedure. Lignocaine nebulization and spray as go technique was used for anaesthetizing airway for awake intubation as landmarks for airway block were not appreciated on palpation.

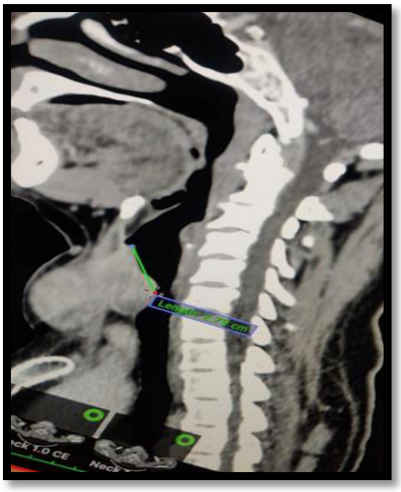

Fig.1 CT neck showing tracheal stenosis (sagittal section).

Fig.2 CT neck (transverse section).

Patient shifted to operation table and monitors were attached as per ASA standards and baseline vitals were recorded. Preoxygenated with 100% oxygen for 5 minutes. A cuffed flexometallic tube of 6.5mm ID threaded over flexible bronchoscope. Fiberopticbronchoscope passed through right nostril towards glottis and further advanced. Bronchoscopy was assisted by spraying of local anaesthetic at required sites to prevent patient discomfort. After encountering tracheal stenosis beyond glottis on right side of trachea where anteroposterior diameter was 3.2 mm, bronchoscope was directed to left side of trachea where anteroposterior diameter was 8.3mm which is sufficient to pass 6.5 mm cuffed endotracheal tube. And bronchoscope was advanced until carina. To avoid injury to tumour endotracheal tube bevel was directed to right and passed beyond stenosis. After confirming the position of endotracheal tube and equal air entry in both lungs patient was induced with propofol 100mg and vecuronium 6mg. Intraoperatively tracheal wall was found to be infiltrated by tumor and bilateral recurrent laryngeal nerve was not identified. Tumor debulking was done with residual tumor left over trachea due to gross infiltration. Therefore elective tracheostomy was done and closed circuit connected to it. Surgery was uneventful. Patient was successfully weaned from ventilator after adequate reversal of neuromuscular block and confirming spontaneous breathing. Patient was shifted to postoperative care unit for observation.

Discussion

For anaesthetic management of patient with tracheal stenosis a two step procedure consisting of bronchoscopic airway assessment followed by therapeutic brochoscopic airway stabilization while maintaining spontaneous breathing until airway is secured.

Conclusion

Tracheal stenosis due to tumors are commonly non circumferential so endotracheal tube and bronchoscope can be insinuated past the stenosis for intubation while maintaining spontaneous breathing till airway is secured.

Conflict of interest: nil.

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