Case Report

ANESTHETIC MANAGEMENT OF LARGE MULTINODULAR GOITRE POSTED FOR TOTAL THYROIDECTOMY : A CASE REPORT

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Abstract

The multinodular goitre presents as a swelling of neck and when it is enlarged enough it can distort the airways, produce pressure symptoms leading to a difficult airway. We are presenting case of successful anesthetic management in a woman with enlarged neck mass posted for total thyroidectomy.

KEY WORDS : multinodular goitre, total thyroidectomy, difficult airway, fiberoptic intubation

INTRODUCTION

The term "goitre" describes an abnormal swelling of the thyroid gland. The prevalence of goitre ranges from 80% in the iodine-deficient areas to 1-4% in the developed countries.[1] In India, the prevalence is around 12.2%.[2]Patients with large goiters pose a major challenge to anesthesiologists. Amathieu et al. reported that the overall incidence of difficult intubation in thyroid surgery was 11.1%.[3] In cases of large multinodular goiters, there is decrease in neck movements, reduced mouth opening, tracheal deviation, and compression. Fiberoptic intubation (FOI) has been used successfully in patients with enlarged thyroid in a difficult airway situation. We demonstrate one similar case of successful fiberoptic intubation in a 58-year-old female with large multinodular goitre with a challenging airway, where the airway was effectively secured with awake FOI.

CASE HISTORY

A 58 year old female presented with neck swelling (16 x 11 cm) since 14 years progressively increasing in size since two years, more on the right than the left. The neck swelling was associated with difficulty in swallowing, dyspnea on lying down and heat intolerance for 3-4 months.

On examination neck swelling was 16cm×11cm×10cm in size, with nodules, extending from hyoid bone above till sternal notch below and laterally from medial border of right sternocleidomastoid to the medial border of left sternocleidomastoid, moving with deglutition. On palpation, it was mobile and firm having multiple nodules and engorged veins were present over the swelling. No eye signs were present. Lymph nodes were not palpable. Airway examination revealed mouth opening of 1.5 finger breadths; large tongue; Mallampati grade 4, restricted neck extension, and severely limited neck flexion. [Figure 1]

Patient was taking Tab Carbimazole 5mg OD since 3 months and was euthyroid (TSH- 1 uIU/mL, T3- 10.30 ug/dL, T4-141 ng/dL).

The ultrasonography of neck was indicative of massive swelling of thyroid with multiple nodules. FNAC (Fine Needle Aspiration Cytology) was done and colloid goitre with cystic change was seen.

Patient was diagnosed as a case of multinodular goitre and was posted for total thyroidectomy.

On general examination, patient was obese (BMI-32.1 kg/m2) with Blood pressure- 130/85 mmHg, Pulse rate- 75/min. All the routine investigations were done.

Indirect laryngoscopy was done by

otolaryngologist which revealed overhanging epiglottis, anteriorly placed right-sided arytenoid, and vocal cords were not visualized. Chest X-ray showed no retrosternal extension or deviation of the trachea [Figure 2, Figure 3]. Radiological examination revealed diffuse bulky thyroid gland (15.9x10.9x9.4 cm) with no obvious retrosternal

extension, mild compression of the esophagus with normal airway and mediastinal structures.

Awake fiberoptic intubation was planned and procedure was explained to the patient. Written informed consent was taken.

On the day of surgery, after confirmation of fasting status, the patient was given Injection Glycopyrrolate 0.2 mg intramuscular) 30 min before surgery. Nebulization with 4ml of 4% Lignocaine was done and Xylometazoline drops given nasally.

After shifting the patient to the operation theatre, multipara monitors were attached. Baseline values noted. Nasal airway inserted and paraoxygenation started. Lignocaine 10% atomizer spray was used on the pharynx. Minimal sedation was given using 0.5 mg Injection Midazolam and 50 ug injection fentanyl IV so that patient could co-operate with awake procedure.

The patient was made to lie in the semirecumbent position at 30° angle. Cuffed ETT (Endotracheal tube) No. 7.0 was loaded on the fiberoptic bronchoscope (FOB) after lubrication of the scope. FOB was introduced into the nasal cavity and pharyngeal structures visualized which were severely crowded. The epiglottis was seen to be large and overhanging [Figure 4]. As the laryngeal inlet was approached, converging of false vocal cords could be seen. Topical anesthesia with 2 ml of Injection Lignocaine 4% was given to prevent reflexes using "spray as you go" technique through drug channel of FOB. True vocal cords could be seen , another aliquot of 2 ml of injection lignocaine 4% was given at this point. After crossing the vocal cords (subglottic area) another 2 ml aliquot. 4th aliquot administered after visualizing the carina [Figure 5] (tracheal).

ETT was introduced into the trachea by railroading

along fiberscope and placed above the carina. FOB was removed. Correct placement of the tube in the trachea was confirmed by checking end-tidal carbon dioxide (EtCO2) and bilateral air entry on auscultation. Cuff was inflated and the tube was secured. Injection propofol 150 mg intravenous (I.V.), injection fentanyl 50 mcg I.V., and injection vecuronium bromide 5 mg I.V. were administered. Anesthesia was maintained with O2, N2O, isoflurane, and maintenance doses of vecuronium bromide 1 mg every 30–40 min. The patient was monitored for pulse rate, blood pressure, ECG, pulse oximetry and EtCO2. The patient was hemodynamically stable throughout surgery.

Postoperatively, the patient was shifted to Intensive Care Unit. After 24 h, leak test was performed which was negative. The patient was fully awake, oriented and hemodynamically stable. Trachea was extubated using AEC (airway exchange catheter) after adequate oropharyngeal suctioning. AEC was used due to the fear of airway obstruction in the post-operative period. [Figure 6].

AEC was removed after 24 hours and patient was shifted to ward on post-operative day two with stable vitals.

DISCUSSION

Massive thyroid swellings pose a major challenge to anesthesiologists. Bouaggad et al. in their study have reported that there is increased incidence of difficulty in endotracheal intubation with tracheal deviation, compression, presence of dyspnea, Mallampati Grading III and IV, and neck mobility <90°.4 Various techniques can be used to manage difficult airway in patients with goitre. If thyroid swelling is small with normal airway examination and without any evidence of tracheal deviation/compression, we can proceed for a conventional airway management.

In this case, we did not plan a direct laryngoscopy in view of difficult mask ventilation and intubation due to obesity, decreased mouth opening, large tongue, Mallampati Grade IV, large goiter causing decreased neck movements and dyspnea on lying down indicating tracheal compression. Hence, we opted for awake fiberoptic intubation. We did not plan tracheostomy in our case due to large swelling obscuring the trachea. It is mentioned in literature that tracheostomy is difficult to perform in the presence of large and vascular thyroid gland. FOI has been suggested for the airway management in patients with challenging airways as it can quickly and safely secure the airway.

CONCLUSION

Patients with large neck swelling present a unique set of challenges for the anesthesiologist. A multidisciplinary team approach including the surgeon, anesthesiologist and endocrinologist allows safe and effective management. Appropriate preoperative planning, assessment, effective communication with patients and preparation for airway management is essential for better patient outcomes.

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