



AWAKE FIBROPTIC BRONCHOSCOPY IN THE MANAGEMENT OF HUGE MULTINODULAR GOITRE WITH RETROSTERNAL EXTENSION

Anaesthesiology

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ABSTRACT

Multinodular goitre is a common endocrine disorder affecting people worldwide. The challenges can be encountered preoperatively, intraoperatively, and postoperatively. Achieving a euthyroid status and airway management – preoperatively; Cardiac arrhythmias, haemorrhage and thyroid storm- intraoperatively; haemorrhage, laryngeal edema, nerve palsies, tracheomalacia, hypocalcaemia-postoperatively. The awake fiberoptic intubation with light sedation has a more safety margin while managing such cases.

KEYWORDS

INTRODUCTION

Multinodular goitre is a common endocrine disorder affecting people worldwide with an incidence of 1 to 1.5 % in non-endemic region and prevalence between 4 to 6 %. Non endemic goitre is more common in women and elderly.(1) Huge thyroid goitres pose a challenge to the anaesthesiologist in regard to the airway management. Awake fiberoptic intubation is the most preferred method in such patients. Proper preoperative evaluation of the patient, operation theatre preparation and planning, helps to tackle such cases.

CASE REPORT

A 52-year-old female presented with a huge swelling on the anterior aspect of neck. She was apparently alright 15 yrs. back, when she had noticed a swelling on the anterior aspect of neck which was progressively increasing in size and extending towards the sides. The swelling was painless. She also had breathing difficulty while lying in the supine position due to which she used to assume lateral position. She also had symptoms of palpitation and weight loss. She was started on tablet carbimazole 20 mg TDS and tablet propranolol 10 mg BD 3 weeks prior to surgery.

On examination, her weight was 35 kg, height 156 cm (BMI- 14.4 kg/m²) with a heart rate of 105/min, regular. Airway examination showed mouth opening Mallampati grade II, nostrils normal, no septal deviation. There was restriction in neck flexion due to the mass. Eye signs were absent. Neck examination revealed a midline swelling that moved with deglutition. Superiorly the swelling was extending from the hyoid bone to the manubrium sterni and laterally bounded by the sternocleidomastoid muscles (figure.1). There was no flushing of face on lifting the arms. On palpation there was variable consistency (soft to firm) in different areas of the swelling and Kocher's test was negative. The tracheal position could not be appreciated and the carotids were not palpable due to the swelling. Percussion over the manubrium sterni revealed a dull note.



Figure.1

Thyroid function revealed a TSH-0.01, with normal free T3 and T4 levels. Xray lateral view showed no tracheal compression (Figure.2).USG neck showed multiple solid cystic heterogeneous well circumscribed lesion in the left lobe. TIRADS II lesion in both lobes of thyroid with colloid cystic degeneration suggestive of multinodular goitre with retrosternal extension. CT scan showed bilateral lobes of thyroid grossly bulky with multiple solid cystic nodular lesions with coarse calcifications largest of size 6.7×7.2×5.6 cm in the lower pole of

left lobe of thyroid with retrosternal extension into superior mediastinum till origin of right brachiocephalic artery and left common carotid artery. The craniocaudal extension from C2 to T2 vertebra. Posteriorly related to trachea without significant luminal narrowing. Indirect laryngoscopy showed normal vocal cord mobility.

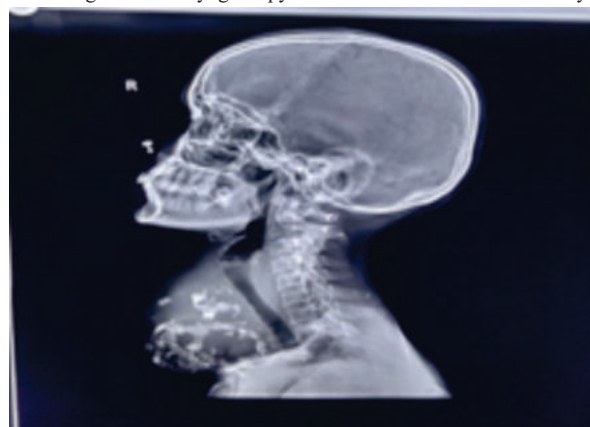


Figure. 2 - Xray neck lateral view.

The patient was accepted under American Society of Anaesthesiologists grading II. She was counseled about awake fiberoptic intubation and consent was taken for the same.

On the day of the surgery, patient was premedicated with inj. Glycopyrrrolate 0.2 mg intramuscular injection. 4% lignocaine nebulization and 2% lignocaine viscus gargle with 10% lignocaine was sprayed in the pharynx in the preoperative room. The laryngeal blocks were not possible due to the size of the mass.

In the operation theatre difficult intubation cart was prepared. ASA standard monitors were attached and the patient was given semi recumbent position. Patient was preoxygenated with 100% oxygen for 3 minutes and Inj dexmedetomidine 1mcg/kg was given over 15 to 20 minutes. Awake fiberoptic intubation was performed nasally and 2% lignocaine was administered by "spray as you go" via the fiberoptic, as it was advanced into trachea. Endotracheal intubation was achieved with flexometallic tube no: 6.5. After confirming the tube position by, end tidal CO₂ and auscultation, inj propofol 100mg and inj vecuronium 4mg was given intravenously. Anaesthesia was maintained by 50% O₂ + 50% N₂O+ sevoflurane and incremental doses of vecuronium.

Total thyroidectomy was performed and the retrosternal part was removed by cervical approach (Figure.3). The entire operative period was uneventful. Postoperatively, patient wasn't extubated immediately on the table due to the history of long-standing thyroid mass and was shifted to intensive care unit with T- piece. Patient was extubated 24 hrs after the surgery.



Figure.3-Total thyroidectomy specimen

DISCUSSION

Thyroid tissue mass can cause distortion of airway which can lead to airway collapse during induction and intubation difficult. Therefore, it is important to secure the airway before induction of anaesthesia. Awake fiberoptic intubation is the goal standard in such cases. (3) The consideration between “awake” versus “asleep” fiberoptic intubation is the margin of safety fiberoptic allows, i.e., if the intubation is unsuccessful, the patient can still maintain the airway intact. The primary goals in patients presenting for thyroid surgery is ensuring euthyroid status and assessing the potential risks in difficult intubation. Long standing thyroid may be associated with breathing difficulty in supine position, stridor, dysphagia and postoperative tracheomalacia. (2)

Difficult ventilation and intubation increase the morbidity and mortality, depending on the degree of problems encountered in providing airway patency. It may cause hypoxia, myocardial injury, airway trauma and even death. (4) Even though the thyroid mass was large, the features of compression was ruled out by radiographic examination. Indirect laryngoscopy also helped to assess the vocal cord movement in our case. Adequate preoxygenation can help us to gain sufficient time for intubation and prevent hypoxia. In our case only dexmedetomidine was administered until the airway was secured by awake fiberoptic intubation. But proper airway preparation in the form of nebulisation, spray, gargles, and blocks have to be performed. The total dose of local anaesthetic that can be administered have to be calculated prior to this. Repeated trial for laryngoscopic intubation can increase the risk of laryngeal edema and bleeding, which can further increase the intubation difficulty in such cases. According to Difficult Airway Society (DAS), maximum 3 attempts of endotracheal intubation can be performed in any patients and the fourth attempt must be done by an experienced anaesthesiologist. (5) But blind approach must be avoided if the institution is equipped with videolaryngoscope and fiberoptic. If intubation cannot be established in these patients, surgical airway cannot be a rescue due to the huge thyroid mass and in such cases femoro-femoral bypass is the only option for oxygenation. Cardiothoracic surgeon has to be standby in such cases. (6)

CONCLUSION

Preoperative evaluation and proper planning help anaesthesiologists to tackle cases with anticipated and sometimes, unpredicted difficult intubation. Optimisation of the thyroid function is of equal importance as the airway management.

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