



DIFFICULT AIRWAY CHALLENGES-INTUBATION AND EXTUBATION MATTERS IN A CASE OF LARGE GOITER WITH RETROSTERNAL EXTENSION

Anesthesiology

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ABSTRACT

Large thyroid masses with retrosternal extension present several potential difficulties for anesthetist. Anesthetic implication that includes difficult airway management, uncontrolled hyperthyroidism or hypothyroidism and postthyroidectomy complications. Securing airway in such cases is difficult and require skillful management. We present the anesthetic management in a patient with a large goiter with retrosternal extension leading to tracheal compression and deviation. We managed the case with an awake fiberoptic intubation and guided extubation.

KEYWORDS

Introduction-

thyroid disease like goiters still exist in many endemic parts of the world¹. Enlargement of the thyroid gland is due to iodine deficiency in 90% of cases. Anesthetic management of a patient with goiter depends on the size of the goiter, vascularity, compression on the surrounding organs and sub-sternal extension. Large goiter presents specific challenges in relation to preoperative evaluation and surgical management. Classic indications for surgery include pressure and cosmetic effects, and higher than expected rates of incidental malignancy in a MNG with retrosternal and intrathoracic extension. Retrosternal goitre (RSG) is an uncommon problem encountered rarely by anaesthetists. Most of these patients require thyroidectomy throughout the globe. Large thyroid masses present several difficulties for anaesthesiologists. These include distortion of airway, endocrine disturbances and metabolic effects². The anaesthesiologists approaching the patient with a difficult airway has a vast armamentarium of techniques and instruments that can be applied to securing and maintaining oxygenation and ventilation³. Several techniques are available to select the level of obstruction however it depends on the anesthiologist's expertise and familiarity. We describe here the presentation, diagnosis, peri-operative management and outcome of the patient who was managed with an awake fiberoptic intubation and guided extubation.

case report-A 50 year-old patient was admitted to our hospital with very large swelling in the midline and both sides of the neck since >8 years. Superior border was extended upto chin and inferior border was not well defined. Her symptoms started 9 years ago with palpitations, tremors, and increase in appetite and weight loss. She had a history of proximal myalgia that increased progressively over the years. Her swelling was small initially and increased in size progressively with change in voice and subsequent hoarseness. When the swelling became large, she was experiencing symptoms of compression that is, shortness of breath and dysphagia. On examination, she was hemodynamically stable. There was a huge swelling anterior and at both sides of the neck which was lobulated and cystic on palpation. Swelling was extending retrosternally. There was no obvious resting tremor, no exophthalmos, no lid lag and no palpable lymph nodes. Thyroid function test was suggestive of hyperthyroidism. On ultrasound scan examination it was shown that size of the thyroid gland was 9.3 cm × 6.7 cm. There was compression and deviation of the trachea and marked extension of the right lobe retrosternally into the superior mediastinum. She was on carbimazole 20 mg, propranolol 80 mg, both 2 times a day. Diagnosis was a huge multinodular toxic goiter. Indirect laryngoscopy was done which showed normal bilateral vocal cord movement and adequate chink. Awake fiberoptic intubation was considered for airway management in this patient. Detailed procedure of an awake intubation was explained to the patient and written informed consent for procedure and publication was taken. Preparation of patient was started with 4% lignocaine gargles in the ward. Patient was taken to the theatre, and all the routine monitoring was applied. The difficult intubation cart was kept ready. A

flexometallic endotracheal (ET) tube number 7 mm internal diameter was loaded on to the well-lubricated fibroscope. The fibroscope was advanced through the oral route with the help of the oral airway. When the larynx was visualized, topical anesthesia of the larynx and trachea was applied via "spray as-you-go" technique through the drug channel of the bronchoscope using 3 ml of lidocaine 2% in increments. The fibroscope was advanced into the larynx and trachea gradually till the level of the carina. The flexometallic tube was "railroaded" on the fibroscope into the larynx and at the same time induction of anesthesia was done with fentanyl and propofol. ET tube position was confirmed through fibroscope, and clinically by chest auscultation and capnography. Patient was maintained on atracurium, fentanyl and sevoflurane/oxygen-nitrous mixture. Total thyroidectomy was done. An awake gradual extubation was done after leak test and patient was reversed with neostigmine and glycopyrrrolate. Postextubation, bilateral vocal cord movement was checked with laryngoscope that was normal. Patient was kept in surgical Intensive Care Unit for observation in the postoperative period.

Discussion- Retrosternal, substernal and intrathoracic goitre is a subgroup of multinodular goitre (MNG). Haller first provided an anatomical description of the Intrathoracic Goitre in 1794; since then it has been given a number of names and descriptions e.g. retrosternal, substernal, retroclavicular and intrathoracic goitre. WHO has classified goiter according to the size, according to which Class 0- palpable mass within neck structure and Class I-visible, palpable and undermines the curves and the neck line. Class II is a very large goiter with retrosternal extension that makes the tracheal deviation, compression of trachea and esophagus⁴. Large thyroid masses with retrosternal extension present several potential difficulties for anesthetists. One of these is distortion of airway anatomy, which may precipitate complete airway obstruction during induction of general anesthesia. Upper airway obstruction is considered rare in patients with goitre and indicated by symptoms such as positional dyspnea and dysphagia⁵. In order to avoid airway problems during induction of general anesthesia, The preoperative evaluation should be carefully performed and have a plan for airway management in advance. CT scan of the airway is mandatory, since the diameter of the trachea and the site of obstruction can be measured accurately⁶. Thyroid function tests should be done to rule out hyper/hypothyroidism. Pt. should be made euthyroid before surgery to avoid thyroid storm. Planning for awake fiberoptic intubation as an early option for patient with retrosternal goiter represents safe and logical technique. In the present report, awake fiberoptic bronchoscopy was successful to accomplish endotracheal intubation.

Conclusion- large goiter with retrosternal extension is a challenge for anesthetists and require careful preop assessment and intraoperative management.

References-

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