

Trekking through a Huge Goitre with Retrosternal Extension

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Abstract

Anaesthetic management of patients with huge goitres can be extremely challenging. Here is a case report of the successful airway management in a patient with a huge thyroid swelling with retrosternal extension scheduled for total thyroidectomy.

Key words: retrosternal, goitre, airway, intubation, awake, fibreoptic bronchoscope

Introduction

Large goitres can compromise the airway with retrosternal extension, thereby presenting several potential difficulties for the anaesthetist [1]. We present here, the anaesthetic management of a case of a huge goitre with retrosternal extension.

Case report

A 38 yr old moderately built female patient diagnosed as a case of multinodular goitre with retrosternal extension into superior mediastinum was scheduled for total thyroidectomy and excision of retrosternal extension by cervical route as a planned procedure. She had a history of swelling in front of neck since 15 years. She had history of difficulty in breathing in supine position, exertional breathlessness NYHA grade 2 and cough with expectoration. Clinical examination revealed facial puffiness, dilated veins over anterior part of chest and neck. There was a diffuse swelling in the anterior part of neck measuring about 23 x 11 cms extending from thyroid cartilage above to beyond the suprasternal notch below and laterally upto behind the sternomastoid on both sides. (Figure 1,2)



Figure 1 . Preoperative anterior view of patient's neck.



Figure 2. Preoperative lateral view of patient's neck.

All basic investigations, ECG, 2D-ECHO, thyroid function tests were within normal limits. Indirect laryngoscopy (IDL) revealed normal structure and function of the vocal cords. CT scan of chest showed thyroid enlargement with left lobe of thyroid extending downwards upto arch of aorta into the anterior mediastinum. The left lobe of thyroid appeared to be mildly compressing the trachea and displacing it towards right at C7-T1 level (Figure 3).

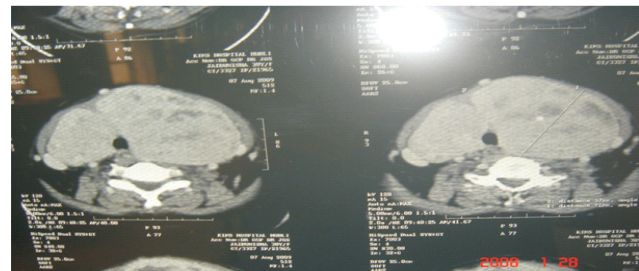


Figure 3 . CT image at C7 level.

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We planned for an awake intubation. Half an hour before, she was given Inj.glycopyrrolate 0.2 mg, Inj.ranitidine 50 mg, Inj.hydrocortisone 100 mg iv. She was reassured and the procedure of awake intubation was explained to the patient. She was made to do throat gargling with 8ml of 4% lignocaine viscous solution. 2% lignocaine gel was applied to the lips, tongue and posterior pharynx. Thereafter, bilaterally, the superior laryngeal nerve was blocked externally using a 23G needle by injecting 2cc of 1% lignocaine between greater cornu of hyoid bone and thyroid cartilage. iv midazolam 1 mg was given. After preoxygenation for 3 minutes, awake direct laryngoscopy was done and 4 puffs of 10% lignocaine were sprayed on the vocal cords. Intubation was done with 29F flexometallic tube. Intratracheal placement was confirmed with auscultation and end tidal CO₂ and the tube was fixed. (Figure 4) Inj.propofol 100 mg and Inj.fentanyl 100 micrograms were given. General anaesthesia was maintained using oxygen, nitrous oxide, halothane and vecuronium as a muscle relaxant. The intra operative course was uneventful. The neuromuscular blockade was reversed and the patient was shifted to ICU with endotracheal tube in situ in view of the risk of tracheomalacia due to the huge goitre. She was extubated 24 hrs later.



Figure 4. View of the intubated patient on OT table after induction.

Discussion

The problems associated with huge goitres include difficult intubation, large blood loss, prolonged operating time and post operative tracheomalacia [2]. Huge goitres can cause upper airway obstruction due to displacement and rotation of larynx and edema of adjacent structures [3]. If there is significant retrosternal extension, they can cause

compression of tracheobronchial tree, pulmonary artery or superior venacava leading to symptoms like dyspnoea particularly at night or on lying down, cough and stridor often mistaken as bronchial asthma, dysphagia, choking, engorgement of neck veins and superficial veins on the chest wall[2,4]. Our patient had most of these symptoms.

If symptoms are suggestive of tracheal compression as in our case, CT evaluation should be done [5]. CT scan can accurately measure the site of tracheal obstruction and can predict anaesthetic difficulty with the airway [4,6]. General anaesthesia (GA) with tracheal intubation is preferred when operating on intrathoracic goitre [7]. However, in patients with huge goitres, unexpected and total airway obstruction may occur when muscle tone decreases following the induction of GA [3]. Hence, awake intubation is indicated in these patients [5]. Nevertheless, awake fibreoptic intubation through Williams airway, laryngeal mask for fiberscope aided tracheal intubation, awake direct laryngoscopy aided intubation, inhalational induction have been documented in cases of huge goitres with retrosternal extension [6,8,9].

An 'awake look' by pre-operative fibreoptic endoscopy to reassess the airway and to rule out airway obstruction followed by awake fibreoptic intubation is safe, logical and practical in patients with retrosternal goitre [6,10]. If obstruction is ruled out, the patient can be safely given general anaesthesia by intubating with muscle relaxants. This is because intubation with muscle relaxants is more pleasant for the patient than awake intubation [10]. Since we did not have a fiberoptic endoscope, we were not very confident of securing the airway with the aid of muscle relaxants. Hence we opted for awake intubation. The choice of technique for awake intubation depends on experience and availability of equipment[11]. Since we did not have a fibreoptic bronchoscope, we opted for awake oral intubation with direct laryngoscope.

Conclusion

A careful preoperative assessment of the airway, adoption of a clear plan for airway management and intubation and being prepared to deal with acute perioperative airway complications are a must for a good operative outcome in a case of a large goitre with retrosternal extension.

Acknowledgement

We thank Dr. Gurushantappa Yalagachin, Professor in Department of Surgery and Dr. Jagadish Sutagatti, Associate Professor, Department of Radiodiagnosis, KIMS, Hubli for the support rendered for this case presentation.

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How to cite this article: Kurdi MS, Shaikh SI, Trekking through a huge goitre with retrosternal extension.

Med Inn 2013;2:105-07

Source of funding - Nil

Conflict of interest - None declared