the right side and the saturation dropped to 96%. After excluding endobronchial intubation, two possibilities were considered—either a blood clot causing right lung collapse or a pneumothorax. Flexible fiberoptic bronchoscopy done through the ETT revealed a mucosal tear in right main bronchus. A few minutes after bronchoscopic examination, systolic blood pressure dropped to 100 mmHg, airway pressure increased to 30 cm H2O and right side percussion turned into a hyper resonant note. Chest X-ray done on the operation table confirmed the clinical diagnosis of right-sided tension pneumothorax. A 28 F intercostal drain was inserted in the right fourth intercostal space. Patient was shifted to Intensive Care Unit, where he eventually made an uneventful recovery.

Bougies can be a classic gum elastic bougie or the newer single use bougies. The classic Eschmann bougie is made of braided polyester covered with resin. In contrast, the newer bougies are made of plastic, are more rigid and are either solid or hollow tubes. The distal end is not blunt as in gum elastic bougie but is a sharp circular opening to facilitate ventilation and confirm tracheal placement by EtCO2. Possible causes for airway trauma in our case were rigidity of the plastic bougie and inadvertent distal migration of the bougie during railroading of ETT. Majority of bougie related trauma were associated with single use plastic bougies as they are more rigid[1] and their distal end exerts more pressure on the tracheal wall.[2] Airway trauma can be reduced by advancing bougie under vision and following the markings as a guide to decide the depth of insertion. In case it is inserted too deep, withdraw few centimetres before railroading the tube.[3] Water based jelly should be used to facilitate smooth movement of the tube over the bougie. During railroading, the proximal end of the bougie should be stabilized by an assistant to prevent distal movement along with ETT. Finally we would like to emphasize the importance of adequate depth of anaesthesia during repeated airway manipulations.

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References
1. Staikou C, Mani AA, Fassoulaki AG. Airway injury caused by a Portex single-use bougie. J Clin Anesth 2009;21:616-7.
2. Hodzovic I, Latto IP, Wilkes AR, Hall JE, Mapleson WW. Evaluation of Frova, single-use intubation introducer, in a manikin. Comparison with Eschmann multiple-use introducer and Portex single-use introducer. Anaesthesia 2004;59:811-6.
3. Higgs A, Goddard C. Bougie trauma: Insertion or railroad? Anaesthesia 2009;64:918-9.

Airway management of a huge thyroid swelling with retrosternal extension by awake intubation using loco-sedative technique

To the Editor,

The anesthesiologist approaching the patient with a difficult airway has got many techniques and instruments that can be applied for securing and maintaining oxygenation and ventilation.[1-4] We report here the airway management of a patient with massive thyroid swelling accompanied by tracheal narrowing, deviation and retrosternal extension. The patient was posted for total thyroidectomy.

A 43-year-old female patient presented with a history of the diffuse neck swelling since 5 years with recent onset of dyspnea. There was no suggestive history of hyper or hypothyroidism. On examination, her vital parameters were normal, and she was neither in distress nor sweating. Neck examination showed a huge swelling of around 8 cm × 4 cm on the right side and 6 cm × 4 cm on the left side. It was moving with swallowing, firm in consistency but not tender. Getting below the swelling was not possible. Cardiovascular system examination revealed no added sounds or murmurs. Chest examination showed...
bilateral good air entry. Laboratory investigation including thyroid function tests were within normal ranges. Radiological examination including Chest X-ray and magnetic resonance imaging (MRI) revealed diffusely enlarged thyroid gland with left lobe measuring 11.2 × 7.5 × 5.5 cms in size with retrosternal extension and right lobe measuring 8.5 × 6.2 × 4.5 cms in size with inferior margin of right lobe just above sternum associated with superior mediastinal widening, significant compression and displacement of trachea to right side. Carotid artery and jugular vein were displaced laterally on both sides of neck. There was no tracheal erosion or infiltration [Figure 1]. On IDL, larynx was not seen and with 70 degree scope, larynx was pushed to right with normal and mobile bilateral vocal cords. Fine-needle aspiration cytology showed possibility of benign follicular lesion. Airway assessment revealed adequate mouth opening with Mallampati Grade II, but limited neck movement. The plan was to perform awake endotracheal intubation through direct laryngoscopy.

Premedication was achieved with injection glycopyrrolate 0.2 mg intramuscular and injection midazolam 1 mg intravenous (iv) followed by nebulization with lignocaine (2%) solution and lignocaine (2%) viscus gargles. In the operation theater, the difficult airway cart was arranged and noninvasive blood pressure cuff, SpO2 and electrocardiogram were attached to the patient. Injection dexmedetomidine bolus was started at 1 mcg/kg over 10 min, followed by infusion at 0.6 mcg/kg/h along with which preoxygenation was done with 100% oxygen. When the sedation score was Ramsay score 3, direct laryngoscopy was performed and lignocaine (5%) spray was puffed and after 5 min trachea was intubated successfully with 7.5 mm size armored tube with external manipulation of larynx. Intubation was confirmed by attaching EtCO2 monitor, which was followed by IV injection of propofol and injection vecuronium. Anesthesia was maintained with incremental doses of vecuronium and sevoflurane. Total thyroidectomy was uneventful. On completion of surgery, neuromuscular blockade was reversed and trachea was extubated after performing leak test to rule out any possibility of tracheomalacia.

The problems anticipated during induction were difficult mask ventilation after induction of general anesthesia and muscle relaxation secondary to partial or complete airway collapse by huge thyroid swelling, which can cause severe hypoxia and warrants urgent tracheal intubation which may be difficult and time consuming due to distorted anatomy.[2-4]

In this situation, it was prudent to secure the airway before induction of anesthesia. Awake fiberoptic intubation is ideal gold standard technique in such situation where intubation is done under direct visualization of the glottis.[1] Fiberoptic bronchoscope was not available in our institute so awake oral intubation with direct laryngoscopy was planned.

Dexmedetomidine is selective α2 agonist with pharmacological actions like analgesia, anxiolysis, sedation, reduction in the secretion, sympatholytic action, minimal respiratory depression, decreased stress response to intubation and attenuation of airway reflexes making it promising agent in this situation.[5] Hence dexmedetomidine in bolus and infusion was used during induction to enhance patient comfort and cooperation, which is essential for the success of awake intubation using direct laryngoscopy.

In conclusion, awake intubation using topical anesthesia and sedation with dexmedetomidine infusion is a viable option in case of huge thyroid swelling.

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References

1. Miller RD, Eriksson LI, Fleisher LA. Local anaesthetics and “Awake” techniques of Airway management: Airway

Figure 1: Magnetic resonance imaging plate showing huge swelling with retrosternal extension
Alternatives to GlideRite® for flexometallic endotracheal tube insertion with GlideScope®

To the Editor,

GlideScope® Video Laryngoscope (Verathon, Bothell, WA, USA) (GVLS) helps in easier visualization[1] and reduced lifting force[2] of the anterior placed larynx.

GlideScope® Video Laryngoscope is often used in the intubation of patients with cervical spine pathology. Spiral embedded flexometallic cuffed endotracheal tubes (ETTs) (Mallinckrodt™, Covidien™, Covidien Ireland Limited, Tullamore, Ireland), resistant to external compression, are useful in these surgeries. These are floppy tubes requiring a stylet for insertion, and have fixed lengths as the reinforcing wire is sealed tightly against a bonded connector.

GlideScope® specific stylet, GlideRite®, is 35 cm long, which is appropriate for an ETT without connectors. However, a #8.0 mm internal diameter flexometallic ETT measures 39 cm [Figure 1], leaving a 4 cm floppy distal end after full insertion of GlideRite® making intubation difficult. The large blade and an anterior larynx together compounds the difficulty in introduction of the flexometallic ETT.

We found initially placing a Portex Bougie Coudé Tip (Smith Medical International Ltd., Hythe, Kent, UK) [Figure 2] and then rail roading the ETT over it, aids in the placement of the flexometallic tubes with GVLS. The Bougie with its longer length is convenient for rail roading and manipulations to guide the Bougie into the anterior larynx and is easier than with a styleted flexometallic ETT.

Difficulty in positioning the Bougie, as it tends to unfold and slip posteriorly could be overcome by initially directing the Bougie Coudé toward the laryngeal inlet and then rotating it anticlockwise. Hang up at the posterior arytenoids, which has been described[3] was prevented by anterior lift of the Bougie making the passage of the ETT easier. Thus the commonly used Bougie[4] is an effective alternative to GlideRite® in GVLS aided flexometallic tube insertion. This technique has been described for a different indication—difficult intubation with videolaryngoscopy.[5]

Alternatively an unfolded Mallinckrodt™ Satin Slip stylet may be used after recreating a curvature similar to GVLS.

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2. Srivastava D, Dhiraj S. Airway management of a difficult airway due to prolonged enlarged goiter using loco-sedative technique. Saudi J Anaesth 2013;7:86-9.
3. Ghai A, Hooda S, Wadherra R, Garg N. Gross tracheal deviation: Airway challenges and concerns — two case reports. Acta Anaesthesiol Belg 2011;62:203-6.
4. Thallage A, Al-Zahrani T. Anaesthetic management of huge goiter with retrosternal extension. Internet J Anaesthesiol 2004;10:1.
5. Bajwa SJ, Sehgal V. Anesthesia and thyroid surgery: The never ending challenges. Indian J Endocrinol Metab 2013;17:228-34.
