

Morbidly Obese Patient with Huge Thyroid – An Airway Challenge

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Abstract: *Morbid obesity with huge Goiter is a known risk factor for difficult airway. We report a case of 35 years old female having carcinoma thyroid with morbid obesity posted for total thyroidectomy. Her body weight was 138 kilogram with BMI of 50 kg/m². On preoperative assessment she was short necked with mallampati grading of IV. Various techniques to handle airway in such situation have been recommended like fiberoptic bronchoscope guided intubation, LMA, PLMA, intubating LMA, tracheostomy etc. Due to morbid obesity, short neck and huge swelling in neck we planned LMA insertion in awake state. We tried to insert PLMA size-3 under local anaesthesia, which was successful in second attempt.*

Keywords: Morbid obesity; Huge neck Swelling; Difficult Airway.

1. Introduction

Goiter is known risk factor for difficult airway, but associated morbid obesity adds to the problem in airway management. The appropriate airway management in patient with morbid obesity and huge thyroid is often a challenge for an anaesthetist. Various techniques to handle airway in such situation have been recommended. Use of fiberoptic bronchoscope intubation performed awake or under locosedation is one of the most acceptable and frequently used technique to secure safe and definitive airway. Airway can also be secured using various supraglottic devices like intubating LMA, retrograde intubation can also be tried. If all rescue measures fail we can choose an option of tracheostomy in such patients [1,2]. We report a case in which we managed airway in morbid obese patient with huge goiter by introduction of Proseal Laryngeal mask airway (PLMA) in awake state.

2. Case Report

We report a case of 35 years old female with papillary carcinoma of thyroid with morbid obesity posted for total thyroidectomy. Her body weight was 138 kilogram with BMI of 50 kg/m². She did not have any other associated medical illness. On preoperative assessment she was short necked with mallampati grading of IV. Thyromental distance could not be estimated because of huge goiter. The biochemical analysis data including thyroid function tests were within normal range. Chest X-ray showed normal findings, slight narrowing and deviation was observed in X-ray STN in lateral and AP view. EKG was normal. CT scan showed slight narrowing of upper trachea with no

retrosternal extension. Preoperative blood gas analysis on room air showed PaO₂= 70 mmHg, PaCO₂=42 mmHg and O₂ saturation 92%.

Due to morbid obesity, short neck and huge swelling in neck we planned PLMA insertion in awake state. Patient was explained about the procedure beforehand. On OT table I/V line and all the monitors were placed. Local anaesthesia was administered with 10% lignocaine spray and 2% viscous for oral gargles. After waiting for ten minutes we tried to insert PLMA size-3, but it was rejected. Another puff of spray was administered, second attempt was taken and it was successful. Placement was confirmed by conduction of breaths to the rebreathing bag and normal curve capnography. As soon placement was confirmed injection propofol 140 mg in incremental doses was administered and depth of anaesthesia was increased by sevoflurane. We did a fiberoptic scoring through the PLMA which showed trachea in line with the distal lumen and clear view of glottis. Since thyroid surgery involves excessive manipulation of trachea we planned to replace PLMA by endotracheal tube. We reached the conclusion that PLMA placement is not a problem in our patient and in any crisis situation airway can be managed with it. Injection succinylcholine 50 mg I/V was administered. Positive pressure ventilation with 100% O₂ was done and patient was intubated with intubating LMA no.3 in first attempt successfully. Surgery continued for 2.5 hours and was uneventful. At the end of surgery possibility of tracheomalacia secondary to long standing tracheal compression and recurrent laryngeal injury was ruled out. Subsequently patient was reversed with injection neostigmine and glycopyrrrolate and was extubated fully

awake. Patient was observed in PACU for 2 hours and later sent to ward without any untoward complication.

3. Discussion

Morbid obesity with short neck and thyroid swelling is a challenge for an anaesthetist. Upper airway should be assessed in detail in patients with morbid obesity. These patients often have difficulty in mask ventilation and intubation because of anterior larynx, limitation of cervical spine and atlanto occipital flexion and extension. Despite all clinical assessments of airway, imaging of airway with soft tissue X-rays and CT scan should be a must. Various techniques have been recommended from time to time for airway management in such patients which includes inhalational induction with sevoflurane, in which one can try intubation under deep inhalational anaesthesia or another approach is to gently attempt direct laryngoscopy in an awake state or under inhalational anaesthesia. If laryngeal structures cannot be visualised than awake intubation should be planned [3]. Awake FOI, tracheostomy, retrograde intubation through cricothyroid membrane are some of the awake procedures [1,2,4,5]. Various authors in literature recommend awake intubation when actual body weight is >175% of IBW, and in patients with H/O OSA. Using LMA, PLMA or intubating LMA are alternative choices to awake fiberoptic intubation.

In our case our plan-I was introduction of PLMA in an awake state and plan-II was use of awake fiberoptic intubation if the initial plan proved unsuccessful. Since PLMA placement was successful so the plan of awake fiberoptic was deferred. Above all one should always be prepared with all aids of difficult intubation like short handled blade, McCoy laryngoscope, gum elastic bougies, standard and intubating LMA, equipment of cricothyrotomy and tracheostomy tray. Introduction of LMA and PLMA is well accepted in awake patients just like fiberoptic [6]. Induction of anaesthesia is hazardous in these patients because of the risk of difficult intubation but similarly extubation should also be done carefully and fully awake and patient should be transferred to recovery room up to 45 degrees [3].

4. Conclusion

We conclude that to ensure the safe airway management all possible plans should be predecided and patients should be informed about the procedure properly. All airway equipment should always be available before intubation. Skilled anaesthesia team is required essentially to handle such a situation. We suggest the use of PLMA and intubating LMA as a safe, convenient and reliable technique used to manage the airway in patients with obesity and a huge thyroid.

References

[1] Eldawlatly A, Alsaif A, Alkattan K, Turkistani A, Hajjar W, Bokhari A et al. Difficult Airway In A Morbidly Obese Patient With Huge Goiter: A Case Report And Review Of Literature. *Internet J of Anesthesiol* 2006,13.

- [2] Eldawlatly A, Takrouri M, Elbakry A. Perioperative management of huge goiter with compromised airway. *Internet J Anesthesiol* 2003, 7.
- [3] Adams JP, Murphy PG. Obesity in anaesthesia and intensive care. *Br J Anaesth* 2000;85:91-108.
- [4] Hariprasad M, Smurthwaite J. Management of a known difficult airway in a morbidly obese patient with gross supraglottic oedema secondary to thyroid disease. *Brit J Anaesth* 2002; 89:927-30.
- [5] Thallange A, Zahrani TA. Anesthetic Management of huge goiter with retrosternal extension. *Internet J of Anesthesiol*, 2005, 10.
- [6] Cook TM, Seller C, Gupta K, Thompson M, O'Sullivan E. Non-conventional uses of the Aintree Intubating Catheter in management of the difficult airway. *Anaesthesia* 2007;62 (2):169-174.