Case Report

Difficult laryngoscopy made easy with the use of left-hand laryngoscope blade

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In scenarios where difficult airway is anticipated as a result of a mass or any pathology in the right side of the upper airway, the plan of approach depends on the extent of difficulty assessed by various airway assessment tests/methods. If significant difficulty is suspected some of the available options include either an awake/sedated fibreoptic or blind nasal intubations. When the airway pathology involves part of the right side or exclusively the whole of the right side compressing the airway towards the left, there is no room to position a normal right or straight blade. A left-hand laryngoscope can be used in these types of cases where anatomy and contour of the blade manoeuvres the tongue and the right-sided lesion, thereby providing an unobstructed left-sided view of the larynx. The left-hand laryngoscope blade has been useful in converting the Cormack and Lehane grade III/IV laryngoscopies to grade II in our cases where the pathology was located exclusively on the right side of the airway. These cases suggest that there may be a role of left-hand laryngoscope in the management of difficult airway, particularly, in cases where there are right-sided mass lesions obstructing the airway.

Keywords: laryngoscopy; left-hand laryngoscope; difficult airway

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Airway management has always been a vital skill in the practice of anaesthesia. One-third of the airway related catastrophes leading to brain damage or death occur as a result of inability in maintaining a patent airway. Clinical history, together with other anatomical characteristics of a patient’s airway is an independent determinant in predicting the degree of difficulty during laryngoscopy. If significant airway difficulty is anticipated as a result of pathological lesions, some of the best options to secure the airway includes either an awake/sedated fibreoptic or blind nasal intubations. It has also been proven that the risk of difficult laryngoscopy increases in the presence of multiple specific abnormalities. Optimal laryngoscopy subjects to the proper positioning of the head and neck before attempting the laryngoscopy, application of external laryngeal pressure, choice of the neuromuscular blocking agent and the choice of the laryngoscope blade. During difficult airway scenarios, blades commonly mentioned in the literature are either curved or straight right-hand blades. We present here three cases with gross airway pathology that were successfully managed with the use of left-handed curved Macintosh blade, when the use of the conventional right-handed curved Macintosh blade resulted in a difficult laryngoscopy.

Case 1

A 40-yr-old male, 168 cm tall, weighing 68 kg presented with swelling of the right cheek for 4 months. Subsequent evaluation revealed a pleomorphic adenoma of the parotid gland involving oropharynx, nasopharynx and part of the hypopharynx. There was no history of stridor or intolerance to supine position. Airway examination showed that his mouth opening was 4.5 cm, with a modified Mallampati (MP) grade of IV. His neck movement, ability to prognath and temporomandibular distance were adequate. He was neither obese nor had any co-morbidities. The computed tomographic (CT) scan of the head and neck (Fig. 1) identified that the upper airway on the right side was compressed by the mass, resulting in significant narrowing and displacement of the available airway towards the left. There was no prior history of radio or chemotherapy. He was posted for the excision of the mass. After a preoperative assessment it was planned to secure the airway under general anaesthesia as the patient was anxious and unwilling to cooperate for an
awake fibreoptic intubation. The back up plan in case of airway obstruction was to wake up the patient and to proceed with sedated fibreoptic intubation. Consent for an emergency tracheostomy was also obtained after explaining the risks involved in securing the airway. On the morning of surgery, he was premedicated with diazepam 0.1 mg kg\(^{-1}\) and metoclopropamide 10 mg orally 1 h before the procedure. The difficult airway cart with fibroscope and left-hand laryngoscopy blade was kept ready as difficult airway was anticipated.

In the operating theatre, a peripheral i.v. line was started and routine monitoring was established. The patient was positioned supine with a pillow under the head (the sniffing position) and pre-oxygenated for 3 min. Surgeons were present and were ready to intervene in case of any eventualities. Anaesthesia was induced with titrated doses of propofol totalling up to 2.5 mg kg\(^{-1}\) over 90 s and fentanyl 1 mcgm kg\(^{-1}\) was administered. Jaw support was gently introduced and mask ventilation ensured and assisted. Anaesthesia was deepened with isoflurane 1%, nitrous oxide and oxygen (50:50) and then succinylcholine 1.5 mg kg\(^{-1}\) was administered i.v. Direct laryngoscopy by an experienced anaesthetist using a size 4 right-hand Macintosh blade revealed a grade IV\(^5\) laryngoscopic view. Laryngoscopy was repeated with a size 4 left-hand Macintosh blade, introducing it from the left side of the oral cavity. By this manoeuvre it was possible to push the mass and tongue to the right side and the laryngoscopic grade was found to be grade II\(^5\). The trachea was intubated easily with a size 8 ID Portex (Portex Limited, UK) cuffed tracheal tube. The procedure was uneventful.

Case 2

A 38-yr-old male weighing 58 kg, 158 cm tall with similar complaints similar to that in the case described earlier (case 1) presented for the removal of a similar mass lesion (pleomorphic adenoma) in the right parotid region. Mouth opening and other airway parameters were similar to case 1 except that the size of the lesion was slightly smaller. The CT scan showed a similar deviation of the airway but to a lesser extent (Fig. 2). As the airway evaluation and the pathology of the lesion were similar to case 1, the plan of anaesthesia was similar to the earlier case and it was decided to use a left-hand scope for intubation. The airway could be secured easily with the use of the size 4 left-hand laryngoscope blade which revealed a grade II laryngoscopy. After securing the airway, laryngoscopy was attempted again from the right side of the mouth with a right-hand size 4 blade with the tracheal tube in situ. Only the hard palate could be seen in this manoeuvre.

Case 3

A 54-yr-old male, 175 cm tall and weighing 62 kg presented with hoarseness of the voice for 6 months and a sensation of stickiness in the throat for a couple of months. Clinical evaluation revealed a malignant supraglottic mass involving the right side of the vocal cords. Indirect laryngoscopy showed almost complete obstruction of the airway at the laryngeal inlet with an available lumen of about 4 mm. There was no history of stridor or breathing difficulty. The X-ray neck showed a mass at the level of larynx deviating the airway (Fig. 3) towards the left. He was posted for micro laryngoscopy and laser debulking of the lesion as he was not an ideal candidate for total laryngectomy. After obtaining consent for tracheostomy, it was planned to secure the airway under general anaesthesia as the patient was unwilling to cooperate for an awake fibreoptic intubation. The difficult airway cart with fibroscope and left-hand laryngoscopy blade was kept ready as difficult airway

\[\text{RL} = 5 \text{ cm} \]

\[\text{P} = 5 \text{ cm} \]
was anticipated. Anaesthesia was induced with propofol (2.5 mg kg\(^{-1}\)) and fentanyl 1 mcgm kg\(^{-1}\) i.v. in a similar manner as that of case 1. After confirmation of effectiveness of mask ventilation an additional propofol 50 mg was administered i.v. and laryngoscopy was done with a left-hand size 4 laryngoscope blade to check the grade of laryngoscopy. It was found to be grade II with visibility of only the left vocal cord. A size 6.5 ID Portex (Portex Limited, UK) cuffed tracheal tube was introduced past vocal cords. After confirmation of the tube placement, atracurium 0.5 mg kg\(^{-1}\) was administered and anaesthesia was maintained with oxygen and nitrous oxide (50:50), isoflurane 1–1.5% and fentanyl as per requirement. After the airway was secured, a right-hand laryngoscopy was done as with case 2 and only the mass could be seen. The procedure was uneventful thereafter.

**Discussion**

The incidence of difficult intubation requiring more than two attempts of laryngoscopies is around 1–4%, whereas the incidence of abandoned or failed intubation is about 0.005–0.35%.\(^6\) The use of the left-hand scope blade for the incidence of abandoned or failed intubation is about two attempts of laryngoscopies is around 1–4%, whereas the incidence of difficult intubation requiring more than two attempts of laryngoscopies.\(^1\) A left-hand scope can be used in these types of cases where anatomy and contour of the blade manoeuvres the tongue and the right sided lesion, leaving an unobstructed left sided view of the glottis. In our third case with a supraglottic mass we intubated without a neuromuscular blocking agent, as we were not sure of ventilation. Intubations without use of neuromuscular blocking agent are no longer a rarity and there are studies supporting this.\(^12\)

The use of a left-hand scope itself is not free of difficulties, as its use particularly in difficult airway situations requires prior practice of handling the scope. As a good technique of laryngoscopy depends on the prior experience of the laryngoscopist, it may be reasonable to conclude that left-hand blade may not be useful in inexperienced hands. The use of the left-hand laryngoscope blade needs practice and expertise and, the right-handed person would probably not be comfortable negotiating the tracheal tube into the trachea with the left hand.

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