Case Report

Awake Intubation with Airtraq Laryngoscope in a Morbidly Obese Patient

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The Airtraq laryngoscope (AL) is a new disposable tracheal intubation device. The authors reported the case of a successful awake intubation with AL of the trachea in a morbidly obese patient. A 54-year-old female, morbidly obese (BMI 38 kg/m^2), patient was scheduled for a tumor removal of the right eye under general anesthesia. She had symptoms of gastroesophageal reflux. The preoperative airway assessment showed difficult ventilation and intubation. An awake intubation under sedation and topical airway anesthesia were chosen. The first attempt of tracheal intubation with AL was unsuccessful because the tip of endotracheal tube (ET-tube) pointed to the arytenoid cartilage. The second attempt, with slight rotation of AL, glottic view showed grade I and the ET-tube passed through the vocal cords easily. The authors' experiences demonstrated that the AL could be used while awake and may be an alternative laryngoscope for airway management in morbidly obese patients.

Keywords: *Airtraq laryngoscope, Morbidly obese*

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The Airtraq laryngoscope (Prodol Meditec S.A., Vizcaya, Spain) is a novel disposable tracheal intubation device. The Airtraq blade consists of two side by side channels. One channel acts as a conduit through which a tracheal tube can be passed. The other channel contains a series of lens, prisms and mirrors that transfer the image from the illuminated tip to a proximal viewfinder. It was designed to provide a high quality view of the glottis without the need to align the oral, pharyngeal and tracheal axes.

The Airtraq laryngoscope can be passed over the dorsum of the tongue without either tongue displacement to the left or conventional sniffing position. Because of less forceful blade elevation, the Airtraq should therefore be suitable for awake intubation.

Preliminary reports showed the Airtraq laryngoscope has been used in patients with normal airways[1], simulated difficult airways[2,3] and in a clinically difficult airway[4-9].

The authors reported the case of a morbidly obese patient in whom the trachea was successfully awake intubated by the Airtraq laryngoscope.

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Case Report

A 54-year-old Thai female, 86 kg weight and 150 cm height (BMI 38 kg/m^2), was scheduled for anterior orbitotomy with the tumor removal of the right eye under general anesthesia. She had well controlled hypertension, history of snoring and symptom of gastroesophageal reflux (GER). No history of obstructive sleep apnea was detected.

The preoperative airway assessment showed the Mallampati class IV, interincisor gap and thyromental distance were 3 cm and 6 cm, respectively. Limitation of head extension was due to occipital fat pad.

Her blood pressure was 130/80 mmHg and other preoperative laboratory investigations were normal. Intravenous ranitidine 50 mg and metoclopramide 10 mg were given preoperatively 1 hr before the operation.

Anesthetic choices and intubating techniques were discussed and then awake intubation was suggested. The patient cooperated well and informed consent was obtained. Blood pressure, electrocardiogram and pulse oximeter were monitored continuously throughout the procedure. The patient was preoxygenated while 50 □g of fentanyl was slowly given intravenously for sedation.

Oropharynx and supraglottic area were sprayed with 10% lidocaine topically with the assistance of the McCoy laryngoscope blade. Moreover, 3 ml of 4% lidocaine was injected transtracheally through the cricothyroid membrane for laryngeal anesthesia.

During the airway manipulation, patient's position was supine and her head was supported with a thin layer pillow. The Cormack and Lehane glottic view showed grade IV when McCoy laryngoscope blade was applied. Endotracheal tube was lubricated and then passed to the side channel of Airtraq (Fig. 1). Endotracheal tube 7.0 mm. ID. was attached with Airtraq laryngoscope in first attempt and the glottic view showed grade II. However, endotracheal tube could not be passed through the vocal cords because its tip pointed to the arytenoid cartilage and then the Airtraq laryngoscope was withdrawn. Therefore, the size of the endotracheal tube was changed to 6.5 mm.ID and the Airtraq laryngoscope was applied again. After slight rotation of the Airtraq laryngoscope, the glottic view showed grade I and the endotracheal tube could be passed through the vocal cords easily. A capnograph was used to confirm the endotracheal intubation. No desaturation and mucosal bleeding occurred during the intubation. The general anesthesia and surgical procedure lasted 2 hours and was carried out without any complications. The patient exhibited only mild symptoms of a sore throat and self improved within 2 days postoperatively. No hoarseness and other airway complications were found.

Fig. 1 Lateral view of Airtraq laryngoscope with a 7.0 mm ID cuffed endotracheal tube in place in the side channel

Discussion

Obese patients are often difficult to intubate as a result of limited mobility of temporomandibular and atlanto-occipital joints, a narrowed upper airway, and a shortened distance between the mandible and sternal fat pads. Difficult airway associated with morbidly obese patient has been described in previous reports[10-13].

Moreover, obesity is also associated with gastrointestinal disorders, including hiatal hernia, gastroesophageal reflux, delayed gastric emptying and hyperacidity of gastric fluid. For these reasons, pulmonary aspiration should be highly considered for morbidly obese patients in particular. In the presented case, airway assessment showed difficult ventilation and difficult intubation by awake assessment with McCoy laryngoscope blade initially (laryngoscopic view grade IV). In addition, the patients' symptom of GER also increased risk of pulmonary aspiration. Therefore, awake intubation technique was chosen.

Nowadays, several modern airway devices have been widely developed for difficult airway management, such as intubating laryngeal mask airway[14] LMACtrach[15], Glidescope[16,17], fiberoptic assisted intubation[18], lightwand[19] or Airtraq, a new laryngoscope.

Similar to fiberoptic guided intubation, the Airtraq laryngoscope shows the advantages of difficult airway management because it can be done while awake, spontaneous ventilation and provides a direct visualization of the glottis. Previous studies demonstrated that the Airtraq laryngoscope was easy to use and could be learned rapidly without any experiences in all laryngoscopists[3,20,21].

The Airtraq laryngoscope has recently been used in patients with normal airway[1], traumatic asphyxia[9], cervical spine immobilization[8], anticipated difficult laryngoscopy[5], morbidly obese parturient

undergoing cesarean section[4] and awake tracheal intubation[6].

With the Airtraq laryngoscope, the airway axes do not have to be aligned to visualize the vocal cord and require less upward laryngoscopic force during laryngoscopy. Thus, it should be suitable for awake intubation.

In the presented case, the Airtraq laryngoscope improved glottic exposure. This was similar to the report of Maharaj et al[1], which showed the Airtraq laryngoscope provides comparable or superior intubating conditions compared with the Macintosh laryngoscope in the normal airway. In addition, the Airtraq laryngoscope was successfully used as an alternatively rescue airway device following failed direct laryngoscope[7].

Conclusion

This is the case report of the Airtraq laryngoscope being used as an airway device. It appears to improve the laryngoscopic view and is easy to use. The authors' experiences demonstrated that the Airtraq laryngoscope could be used under awake conditions with adequate topical airway anesthesia. The Airtraq may be an alternative laryngoscope for airway management in morbidly obese patients.

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การใส่ท่อช่วยหายใจขณะรู้สึกตัวในผู้ป่วยอ้วนด้วย Airtraq laryngoscope

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อุปกรณ์ Airtraq laryngoscope เป็นเครื่องมือสำหรับใส่ท่อช่วยหายใจชนิดใหม่ รายงานกรณีผู้ป่วยรายนี้เป็นการใส่ท่อช่วยหายใจขณะรู้สึกตัวด้วย Airtraq laryngoscope ผู้ป่วยหญิงอายุ 54 ปี มีปัญหาอ้วนมาก ใส่ท่อช่วยหายใจยากและมีประวัติ gastroesophageal reflux จึงเลือกวิธีใส่ท่อช่วยหายใจขณะรู้สึกตัวร่วมกับการพ่นยาชาบริเวณทางเดินหายใจ พยายามใส่สองครั้ง ครั้งแรกไม่สามารถใส่ท่อช่วยหายใจได้ เพราะปลายท่อช่วยหายใจชี้ไปทางกระดูกอ่อน arytenoid และเมื่อหมุน Airtraq laryngoscope เล็กน้อย จึงสามารถใส่ท่อช่วยหายใจสำเร็จ โดยไม่มีภาวะแทรกซ้อนใด ๆ เกิดขึ้นในระหว่างการใส่ท่อช่วยหายใจ จากประสบการณ์ดังกล่าว แสดงให้เห็นว่าสามารถใส่ Airtraq laryngoscope ขณะที่ผู้ป่วยรู้สึกตัวร่วมกับการพ่นยาชาบริเวณทางเดินหายใจอย่างเพียงพอ และอุปกรณ์ดังกล่าวอาจเป็นอีกทางเลือกหนึ่งในการดูแลทางเดินหายใจในผู้ป่วยอ้วนที่มีปัญหาการใส่ท่อช่วยหายใจยาก