

# Airtraq® Optical Laryngoscope for Tracheal Intubation in a Patient with Giant Lipoma at the Nape: a Case Report

Qazi Ehsan Ali <sup>1</sup>, Obaid Ahmed Siddiqui <sup>2</sup>, Syed Hussain Amir <sup>2</sup>, Abdulla Zoheb Azhar <sup>3</sup>, Kashif Ali <sup>3</sup>

**Summary:** Ali QE, Siddiqui OA, Amir SH, Azhar AZ, Ali K – Airtraq® Optical Laryngoscope for Tracheal Intubation in a Patient with Giant Lipoma at the Nape: a Case Report.

**Background and objectives:** Lipoma is a progressively increasing disease which may appear anywhere in the body. Its appearance at the back of the neck, especially when it is large enough to cause restriction of neck extension, poses challenges to anesthesiologists in airway management whenever needed. This paper evaluates the role of Airtraq® in restricted neck movement.

**Case Report:** Case with a huge lipoma of 14 x 12 cm at the nape, and its surgical removal during an elective operation theatre posed difficulty in securing the airway by conventional laryngoscopy. To overcome the problem we successfully used a newly developed device, the Airtraq®, which is an optical laryngoscope for securing the airway.

**Conclusion:** Airtraq® can be used for elective intubation in patients with restricted neck movements.

**Keywords:** Intubation, Intracheal; Lipoma; Laryngoscopes; Neck Injuries.

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## INTRODUCTION

Conventional laryngoscopy and tracheal intubation is considered to be the gold standard of airway management <sup>1</sup>. However, this may prove to be difficult in situations where achieving an optimal sniffing position may not be possible or difficult and restricted neck movements. The airway management in such patients presents a unique challenge to anesthesiologists, and failure to secure airway in a timely and effective manner may lead to catastrophe.

Certain newer airway devices are presently available and have been used to facilitate airway management in patients with restricted neck movements. The Airtraq® (Prodol Meditec S.A., Vizcaya, Spain) is a recently introduced airway device to facilitate tracheal intubation in patients with both normal and difficult airways. The device provides a high quality view of the glottis without the need to align the oral, pharyngeal and tracheal axes. The blade of the Airtraq® consists of two channels. One channel acts as a conduit for passing the tracheal tube (ETT) while the other channel consists of an optical system, that transfers the image from the illuminated tip to a proximal

viewfinder. The Airtraq® is anatomically shaped and standard ETTs of all sizes can be used (Figure 1). We describe a case of a massive swelling (lipoma) on the posterior aspect of neck that renders restricted movements in a patient who was successfully intubated using Airtraq® laryngoscope (Prodol Ltd. Vizcaya, Spain).

## Case Report

A female, 50 years old, weighing 57 kg, American Society of Anesthesiologists (ASA) Class I, presented to the surgical outpatient department with a history of gradually progressive swelling on the posterior (nape) aspect of neck for the last 10 years. On clinical examination and investigations of the swelling the diagnosis of lipoma was made and the patient was planned for excision under general anesthesia. On preoperative airway assessment the thyromental distance was 5 cm and the interincisor distance was 5.5 cm. Neck movements, especially head extension, were severely restricted. The patient had a normal mouth opening and was classified as Mallampati II. Routine preanesthetic investigations were normal. X-Ray cervical spine showed no bony or articular abnormality and the joint spaces were maintained. A preoperative assessment of difficult intubation was made and all the preparations for managing a difficult airway were kept ready. She did not give consent for awake intubation, so a general anesthesia was planned. Patient was premedicated with i.v. midazolam and i.m. glycopyrrolate. The patient was made to lie supine with the head supported by pillows in a way to avoid compression of the swelling and all the standard monitors were applied. After preoxygenation, anesthesia was induced with i.v. fentanyl 1 µg.kg<sup>-1</sup> and i.v. propofol 2 mg.kg<sup>-1</sup>. After confirmation of adequate bag mask ventilation neuromuscular

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1. Associate Professor, Department of Anesthesiology, Jawaharlal, Nehru Medical College, AMU, Aligarh, UP, India.

2. Assistant Professor, Department of Anesthesiology, Jawaharlal, Nehru Medical College, AMU, Aligarh, UP, India.

3. Resident, Department of Anesthesiology, Jawaharlal, Nehru Medical College, AMU, Aligarh, UP, India.

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Correspondence to:

Qazi Ehsan Ali, Associate Professor  
Dept of Anesthesiology  
AMU, Aligarh, UP, India.  
E-mail: qaziehsanali@gmail.com



Fig. Showing huge swelling 14 cm x 12 cm at the nape.

**Figure 1** – Swelling (lipoma) on the Posterior Aspect of Neck.

relaxation was achieved with  $1.5 \text{ mg.kg}^{-1}$  of succinylcholine. The table was adjusted to the head down position with flexion of both the knees. The blade of the laryngoscope was introduced into the oral cavity in the midline, over the base of the tongue and the tip positioned in the vallecula. Trachea was intubated with size 7.0 mm endotracheal tube (PVC) in the first attempt after adequate visualization of the vocal cords, which required minor adjustments of Airtraq® and wrist movements. Anesthesia was maintained with nitrous oxide (66%) and sevoflurane (1-2%) in oxygen. The intraoperative course was uneventful and the patient was extubated after reversal of neuromuscular blockade.

## DISCUSSION

Difficult airway increases the risk associated with anesthesia and leads to higher chances of mortality and morbidity. Conventional laryngoscopy is performed in an optimal sniffing po-

sition, which requires an extension at the atlanto-occipital joint ( $80^{\circ}$ - $85^{\circ}$ ) and flexion at the lower cervical joint ( $25^{\circ}$ - $30^{\circ}$ ). Head extension is an important movement during laryngoscopy and an adequate extension of the atlanto-occipital joint is important to align the three axes i.e. oral, pharyngeal and laryngeal<sup>2-5</sup>. Patients with restricted neck movements therefore present a difficult airway situation because of improper positioning and non alignment of the three axes. El-Ganzouri<sup>6</sup> and colleagues demonstrated restricted head and neck movements as one of the variables to have a significant association with difficult intubation. Awake fiberoptic intubation is considered to be the gold standard and the safest option in patients of difficult airway. However, awake intubation is technically more difficult and a relatively painful procedure. Moreover, some patients remain apprehensive about the procedure and refuse to remain awake. Supraglottic airway devices i.e. LMA/ILMA are of proven value in difficult airway situation, but present limited value in patients with limited head extension and airway patency in these situations cannot be guaranteed. Ishimura<sup>7</sup> et al described that success of LMA/ILMA insertion for airway management is determined by angle between oral, pharyngeal and laryngeal axis. An angle greater than 90 degree is required for insertion of LMA/ILMA. Any condition where angle is smaller than 90 degree, the LMA has a tendency to kink at the corner leading to airway obstruction<sup>7</sup>. Our patient had an adequate mouth opening, but the difficulty in conventional laryngoscopy was because of a huge lipoma at the posterior aspect of neck causing extremely restricted neck movements leading to improper positioning of the patient. Awake intubation was not planned because of the refusal of the patient to remain awake during the procedure. Intubation with Airtraq® laryngoscope was therefore planned because of number of advantages it offers in these situations. Airtraq® laryngoscope (Prodol Ltd. Vizcaya, Spain) is a newly introduced intubation aid. The extreme curvature of the blade and the optical components help to visualize the glottis without the need for aligning the three airway axes, i.e. oral, pharyngeal and laryngeal. It also does not obstruct the endoscopic view of the vocal cord during laryngoscopy because of its inbuilt conduit for endotracheal tube<sup>8</sup>. Studies have reported the effectiveness and utility of the Airtraq® for tracheal intubation in patients with cervical spine immobilization and in morbidly obese patients<sup>9,10</sup>. Dimitriou et al.<sup>11</sup> reported a case series of four patients with difficult airway with successful awake intubation using Airtraq® laryngoscope<sup>11</sup>. Basaranoglu et al.<sup>12</sup> also used Airtraq® successfully as rescue device following failed awake fiberoptic intubation in a patient with severe ankylosing spondylitis<sup>12</sup>.

The conclusion was that Airtraq® can be used for elective intubation in patients of restricted neck movements and many other situations where conventional laryngoscopy fails.

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