

Airway Injuries Associated With the Use of Airtraq: A Case Report

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Abstract: Airtraq is a novel optical laryngoscope which provides glottis display without any deviation in the normal position of the oral, pharyngeal or the tracheal axes. Glottis and the surrounding structures are visualised with the help of the display lens, and under direct view, tracheal tube is introduced between the vocal cords. In patients having restricted neck movements or limited mouth opening (provided that it is greater than 3 cm) Airtraq offers the advantage of a better display. We had a 43 year old male, ASA-I patient with restricted mouth opening of approximately 3.1 cm (2¹/₂ fingers), who was posted for elective open cholecystectomy. We considered the case as an anticipated difficult intubation and decided to use Airtraq (size 3 Regular blue) for intubation. Unfortunately not only the intubation was unsuccessful with Airtraq but also patient had soft palate tear, which required suturing. An attempt with Airtraq was failed due to which a bougie guided intubation was done using laryngoscope.

Keywords: airtraq, intubation, tracheal, difficult, optical laryngoscope, soft palatal tear.

I. Introduction

An Airtraq is a recently introduced optical airway device to facilitate tracheal intubation in patients with both normal and difficult airway. The blade of Airtraq consist of two channels , one channel acts as conduit for passing Endotracheal tube , while other channel consist of an optical system that transfers the image from the illuminated tip to proximal viewfinder. The Airtraq is anatomically shaped and standard ET tube of all sizes can be used, using different sizes of Airtraq. Airtraq is a device with 2.8 cm width, as a result, it is not possible to use it in patients with restricted mouth opening (< 3cm). The insertion of Airtraq can damage the mucosal tissue because of its 2.8 cm width. Moreover the pressure exerted by the device through the oropharyngeal region may result in postoperative emergence of sore throat. In this case report the exaggerated curvature and the pointing end of ET tube channel of Airtraq might have led to difficulty during its intraoral insertion, resulting in failed attempt.

II. Case Report

A 43 year old male, 60Kg weight, ASA-I patient, with no any previous significant medical or surgical history was posted for elective open cholecystectomy in view of cholelithiasis. Patient is a chronic alcoholic and tobacco chewer since 5-6 years.

Patient has adequate neck movements with mouth opening of 3.1cm (21/2 fingers), MPC Grade II with thyro-mental distance of approximately 6 cm.

1. General examination:

Patient was conscious, oriented with time place and person,

Pulse: 92/min,

Blood Pressure: 140/83 mm of Hg,

2. Systemic Examination:

2.1 Cardiovascular System: S1S2 Heard, no murmur,

2.2 Respiratory system: Air entry bilaterally equal and clear,

2.3 Central nervous system: conscious and oriented

3. Investigations:

Hb-12.2 gm%,
TLC-4600/cmm,
platelets were
1.14 lacs/cmm
with PT-14/14.1 seconds
and INR-0.99.

III. Anaesthetic Management

A written informed consent for anaesthesia was taken. Patient was taken inside the OT and standard monitoring like ECG (electrocardiogram), pulse oximetry, NIBP (non-invasive blood pressure) were attached. Then a venous access was secured through a 18G intra-venous catheter on left upper limb. Inj. Ondansetron 0.1mg/kg was given i.v. along with Inj. Pantoprazole 40mg i.v. slowly. Patient was induced with Inj. Midazolam 1mg i.v., Inj. Fentanyl 100µg i.v., Inj. Propofol 120mg i.v., and Inj. Rocuronium 50mg i.v. After proper oxygenation of patient through bag and mask ventilation in 90 seconds after giving Rocuronium injection, we tried to intubate the patient with Airtraq which was ready with endotracheal tube no.8 mounted on it. Because of restricted mouth opening Airtraq couldn't be advanced further in mouth. We did not try to force it further. We removed Airtraq immediately and bag and mask ventilation was done for next 30 seconds. After 30 seconds of ventilation, we tried intubation with routine laryngoscopy with Macintosh blade and bougie guided intubation was done (Cormack Lehane Grade II). During Laryngoscopy we noticed little blood on uvula, tongue and soft palate. We immediately looked for source of bleeding in mouth while simultaneously suctioning the collected blood in mouth. We found the source of bleeding was from soft palate, which got injured during previous attempt with Airtraq. A sterile gauze compression was given at bleeding spot using Magills forceps. Bleeding was stopped within next 8-10 minutes. Inj. Dexamethasone 8mg given i.v.

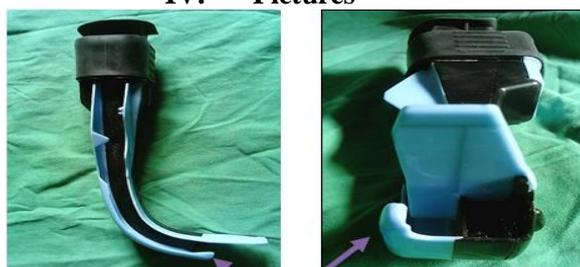
We called an ENT surgeon to manage soft palate tear repair who sutured the same. After about 2 hours procedure ended.

Patient received Inj. Paracetamol 1gm i.v. during procedure and post procedure local infiltration of inj. Ropivacaine(0.25%) for pain relief at incision site.

Gentle laryngoscopy was done to look for any oropharyngeal bleeding before extubation and after thorough oropharyngeal gentle suction and complete reversal of neuromuscular blockade patient was extubated.

Post-operatively patient shifted to ICU for observation and watched for hoarseness, sore throat and intra-oral bleeding for next 24 hours. Patient started on cold saline gargles and betadine gargles. Patient was haemodynamically stable post-operatively.

IV. Pictures



Images of Airtraq Pointing end of ET tube channel
(Probable cause of injury in our patient)

Fig.1. Airtraq and its pointing ends.



Soft palatal tear After Palatal suturing

Fig.2. Soft palatal tear caused by airtraq pointing ends before and after suturing.

V. Discussion

Recently Airtraq is being used to assist a difficult intubation. There are some articles where Airtraq was used for anticipated difficult intubation but they experienced some complications. There was a patient with cervical spine rigidity, restricted mouth opening in whom intubation was failed and emergency cricothyrotomy was needed ^[1]. Reports have shown that the shape of the Airtraq blade is associated with an increased risk of airway trauma. In a number of cases, mucosal bleeding was associated while intubating with the Airtraq. They controlled that posterior pharyngeal wall laceration with compression.^[2] In our case we used Size 3 (7 to 8.5 Regular Blue) Airtraq for intubation. The mouth opening of our patient is 3.1 cm. When we tried to intubate the patient using Airtraq, because of his restricted mouth opening Airtraq couldn't be advanced further in mouth. Also the pointing hard end of its ET tube channel caused right sided soft palatal injury. We couldn't intubate the patient with Airtraq and bougie guided intubation was done with laryngoscope. After intubation we noticed blood on tongue and oral cavity. Gentle suctioning of oral cavity was done and we came to know that patient had soft palatal tear which required suturing. Hence we think some manufacturing modification is needed in the part of Airtraq which is pointed by an arrow in above images and we should be more careful while intubating patients with restricted mouth opening using Airtraq as it may cause oropharyngeal trauma and mucosal injury.

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