Letter to the Editor

Prevention of Tooth and Gum Damage: Novel Application of Airtraq Laryngoscope

Conventional laryngoscopy with the Macintosh Laryngoscope has been the gold standard for tracheal intubation since 1940s.[1] Failed attempts to intubate the trachea and secure airway, both in the operating room and outside, still remains a cause of anesthesia-related mortality and morbidity.[2-5] Investigation is, therefore, in progress to find the best methods and/or equipment to augment the success rate and lessen the potential complications of tracheal intubation.[6, 7]

The Airtraq Laryngoscope (Prodol, Meditec, Viscaza, Spain) (Figure 1) was first reported as a useful device for indirect laryngoscopy and tracheal intubation in 2006.[8] Applications of the Airtraq are not limited to difficult intubation.[9] Some studies have shown its advantages over the Macintosh Laryngoscope with regard to "first attempt success" rate and less intubation time.[10] Others have focused on the Airtraq role as recommended intubation device in special situations such as emergent intubation in the operating room[11] and outside the operating room[12, 13] as well as cervical spine immobilization.[14] These studies have sought to assess the hemodynamic response to tracheal intubation, hypoxemia, esophageal intubation, regurgitation, airway trauma, and cardiac arrest. None of these studies has, however, mentioned the probable role of the Airtraq in decreasing dental trauma.

Figure 1. Airtraq laryngoscope

Tooth damage is one of the most prevalent complications of tracheal intubation and the most common cause of litigations.[15-17] Dental damage occurs as a consequence of several predisposing factors such as preexisting dental pathology; fragile tooth structure; mobility of teeth; presence of prostheses, which increases the likelihood of damage; anterior edentulism, which puts the patient at increased risk of damage to the gums (Figure 2); and the space created after tooth loss, which causes blade lodging between the teeth during conventional laryngoscopy (Figure 3). The conventional direct laryngoscopy exerts more pressure on the maxillary incisors than does indirect videolaryngoscopy.[18] Such problems can be minimized using the Airtraq Laryngoscope for tracheal intubation. The Airtraq blade is not as hard as the metallic blade of the Macintosh Laryngoscope; in addition, its special curve and the view it provides for intubation facilitate intubation without imposing extraordinary pressure on the teeth and soft tissue of the oral cavity (Figure 4).

2A

2B

2C

2D

2E

Figure 2. Different features of poor dentition in patients undergoing laryngoscopy and tracheal intubation

3A

3B

Figure 3. Macintosh Laryngoscope lodging between the teeth in a patient with anterior edentulism (A) before and (B) after tracheal tube placement

4A

4B

4C

4D

Figure 4. Airtraq Laryngoscope prevents trauma to teeth and gum before (A, B&C) and after (D) tracheal tube placement

Poor dentition, the most common cause of dental damage, is more probable in higher age.[19] The recent substantial increase in the aging population and concomitant rise in the number of candidates for surgical procedures such as coronary artery bypass surgery requires that novel means and ways be devised to reduce the risk of dental damage in laryngoscopy. Further research is needed to shed more light on the pros and cons of the usage of the Airtraq Laryngoscope in patients with maldentition and/or anticipated difficult tracheal intubation.

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