

Letter to Editor

Elongated cuff-endotracheal tube to decrease the chance of pulmonary aspiration

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If we change the original model of cuffed endotracheal tubes to an elongated type, it may be more effective against aspiration of the oropharyngeal secretions into the pulmonary airway and eventually will decrease aspiration because it would be a longer tube length than a conventional tube and may have a protective role against ventilator-associated pneumonia (VAP). Also, due to the relatively larger contact surface of the cuff with the tracheal mucosa, it may exert lower contact pressures on the mucosal cells and may decrease the incidence of tracheal mucosal injury. Endotracheal tubes nowadays are routinely used to assist artificial ventilation as the gold standard device in airway protection and assisted ventilation. One of the major concerns regarding the routine cuffed tubes is the potential risk of mucosal injury. Also, prolonged intubation is associated with the risk of aspirating the oropharyngeal secretions. So, prolonged intubation is considered a risk factor of VAP and mucosal injuries. Many therapeutic options have been defined to reduce the chance of VAP.¹⁻⁴ As shown in figure 1, the suggested model of elongated cuff endotracheal tube has an 8 cm cuff, which is a low-pressure high-volume one.

This elongation may exert a more effective and prolonged impediment against the oropharyngeal secretions simply because there is a longer distance for secretions to go directly below the vocal cords and then, down the tracheobronchial tree. Also, elongated cuff tube may decrease the chance of air leakage due to the length of the cuff; so, there is no need for over-inflating the cuff. Prevention of cuff over-inflation may effectively prevent the mucosal pressure injury. This tube has been registered in the Iranian Office of Industrial Property Organization as an intellectual property right.



Figure 1. Schematic presentation of the Elongated cuff-endotracheal tube. (TVC: True Vocal Cords)

Keywords: Airway management, endotracheal tube, cuff, aspiration.

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