Choosing an endotracheal tube that is too large can cause trauma to an airway. However, choosing an inappropriately small size is not without its potential issues as well.1,2 Too small of a nasal endotracheal tube can result in the cuff resting at the glottis causing trauma to the vocal cords and glottis structures. This case describes a nasal endotracheal tube placed without difficulty intentionally chosen small to reduce nasal trauma but had cuff malposition secondarily to the size and shape of the nasal endotracheal tube resulting in clinically significant airway trauma.

Case Description

A 5 year old 20 kilogram healthy male presented for outpatient dental surgery under general anesthesia. Direct laryngoscopy with a macintosh 2 blade revealed a Cormack-Lehane grade 3 view of the larynx. The endotracheal tube was then placed through his vocal cords without difficulty using forceps in one attempt. The case proceeded uneventfully for 1.5 hours and was extubated without difficulty at the end. He was then transported to the recovery unit where he spent 45 minutes. He was noted to have an oxygen saturation of 99% and difficulty at the end. He was then transported to the recovery unit where he spent 45 minutes. He was noted to have an oxygen saturation of 99% and was breathing easy without stridor at the time of discharge. 5 days later he was admitted to the emergency room with significant stridor and increased work of breathing

Case Description

direct laryngoscopy found to have swelling and erythema of his vocal cords and subglottic area. He was managed with intravenous steroids and his stridor resolved on day 8 and he was discharged home on day 9. He was brought to the operating theater a third time on day 28 after the case proceeded uneventfully for 1.5 hours and was extubated without difficulty intentionally chosen small to reduce nasal trauma but had cuff malposition secondarily to the size and shape of the nasal endotracheal tube resulting in clinically significant airway trauma.

Discussion

Tracheal injury is a known complication of nasal endotracheal intubation. This case shows the importance of selecting an appropriate sized endotracheal tube in which the cuff rests at the correct location. In our case this last curve left the cuff at the level of the vocal cords. Upon review with a radiologist the distance from the nares to the area of stenosis was 14.1 centimeters. The proximal curve of the ruschtm 3.5 nasal endotracheal tube is located at 16 cm with the cuff 1 cm from the distal end. The fact that the cuff length is 3 centimeters in the rusch tm 3.5 nasal endotracheal tube would leave the cuff lying in the area of tracheal injury and vocal cords as shown in the lateral neck film.