Endotracheal Intubation Complicated by a Palatal Tooth in a Patient With Treacher Collins Syndrome

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We report a case of difficult endotracheal intubation in a patient with Treacher Collins syndrome. A sixteen-year-old female patient scheduled for general anesthesia had a displaced palatal tooth that interfered with laryngoscope insertion into the pharyngeal space. To address this problem, we successfully performed endotracheal intubation using a fiberscope while elevating the epiglottic vallecula using a King Vision™ video laryngoscope. A later operation was performed after tooth extraction without difficult laryngoscopy. Our experience stresses the importance of removing obstructions to laryngoscopic inspection prior to general anesthesia.

Key Words: Treacher-Collins syndrome; Difficult airway; Video laryngoscope; Fiber optic scope.

A 16-year-old female patient with Treacher Collins syndrome was scheduled for general anesthesia for iliac bone grafting. Preoperative computed tomography showed apparent retraction of the jaw and hypoplasia of the condylar head of the temporomandibular joint bilaterally (Figure 1). The maximum vertical distance between the upper and lower incisors was 22 mm. These findings suggested potential difficult airway management. Therefore, we slowly induced general anesthesia by inhalation of oxygen, nitrous oxide, and sevoflurane. Spontaneous respiration was easily suppressed, but a nasopharyngeal airway was required to maintain the airway during mask ventilation. Once the patient was anesthetized, we tried to insert a thin-blade video laryngoscope (Airway Scope; MIC Medical Corporation) into the pharynx, but a displaced tooth in the hard palate prevented insertion of the laryngoscope. We then used another type of

video laryngoscope (King Vision; Acoma Medical) with a thinner blade. We were able to insert this second blade into the pharynx; however, the tooth affected manipulation of the endotracheal tube in the oral cavity, resulting in failed oral endotracheal intubation. To proceed, another anesthesiologist elevated the epiglottic vallecula using the King Vision video laryngoscope, and the first anesthesiologist was then

Figure 1. Lateral computed tomographic view of the patient's head showing hypoplasia of the condylar head of the temporomandibular joint and microgenia.

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Figure 2. Photograph of the malpositioned palatal tooth.

able to introduce the fiberscope to complete endotracheal intubation.

Two years later, another general anesthesia for genioplasty and upper jaw advancement was scheduled. The palatal tooth had been extracted prior to the operation to resolve the difficult intubation. Although general anesthesia was induced similarly to the first procedure, the King Vision video laryngoscope was again useful to visualize the vocal cords, and endotracheal intubation proceeded without difficulty.

DISCUSSION

Direct visual laryngoscopy and endotracheal intubation are extremely difficult in patients with Treacher Collins syndrome because of the narrow pharynx compared with other maxillofacial malformations.¹ In contrast with other facial malformations such as Pierre Robin sequence, the Cormack classification of Treacher Collins syndrome does not improve with age.² In our patient, the short distance between the upper and lower jaws and the displaced palatal tooth restricted access further, resulting in difficulty visualizing the vocal cords,

even with a video laryngoscope. Compared with the thickness of standard laryngoscopes (18 mm), the thinner blades of the Airway Scope and King Vision video laryngoscopes measure 13 mm and 9 mm, respectively. These thin blades allowed us to insert the video laryngoscope, but the displaced tooth limited the space available for manipulating an oral endotracheal tube. The different tip shapes of the blades of the King Vision and Airway Scope should be noted, as the former has a longer tip and a larger bend angle than the latter. These characteristics effectively allowed us to use the laryngoscope to easily spread the laryngeal folds and introduce the fiberscope in this patient. The effectiveness of the smaller angle of the blade for securing the laryngeal visual field is consistent with another report stating that the C-MAC D-Blade (Karl Storz) was more useful for observing the larynx than the C-MAC (Karl Storz) Macintosh type of laryngoscope.^{3,4}

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