Tracheal intubation using pediatric Airtraq® optical laryngoscope in a patient with Treacher Collins syndrome

Sir—The Airtraq® optical laryngoscope (AOL; Prodol, Vizcaya, Spain) is a newly designed indirect laryngoscope for tracheal intubation. The proximal viewfinder of the scope projects images captured at the distal tip of the oropharyngeal airway-shaped blade through a series of lenses, prisms, and mirrors. Increasing evidence shows that the AOL is useful for airway management in adults, especially in difficult airways (1–5). Small-sized AOLs, accepting tracheal tube with an internal diameter between 2.5 and 5.5 mm, have been released recently for use in children. We report a case of difficult intubation in a child with Treacher Collins syndrome. The Macintosh laryngoscope failed to expose the glottis, while the pediatric AOL easily captured the glottic opening and resulted in successful intubation.

The use of AOL in children was approved by the Human Ethics Committee of Jichi Medical University, and parents provided informed consent. A 9-year-old girl with mental retardation, weighing 23 kg, was scheduled for surgical repair of atresia auris congenita. She received ligation of patent ductus arteriosus after birth. At the age of seven, she underwent tympanoplasty under general anesthesia. The anesthesia record described that the best view attained using the Macintosh laryngoscope with the backward, upward, and right-sided pressure on the thyroid and cricoid cartilages maneuver was exposure of the tip of the epiglottis only. An experienced staff anesthesiologist ultimately secured the airway after several attempts of intubation.

Preoperative airway examination revealed marked mandibular hypoplasia, limited mandibular protrusion, acceptable mouth opening, and a large cleft palate. Several airway devices were prepared before induction of anesthesia, including a laryngeal mask airway, fiber-optic bronchoscope, and pediatric AOL. Airway topicalization and awake intubation were not considered feasible because of significant patient anxiety and cooperation issues. The patient received inhalation of nitrous oxide (5 l min⁻¹), oxygen (2 l min⁻¹), and sevoflurane (5% inspiratory concentration); i.v. access was promptly secured, and atropine 0.2 mg was administered. After confirmation of possible bag-mask ventilation using an oropharyngeal airway, rocuronium bromide 2 mg i.v. was injected. Direct laryngoscopy using the Macintosh laryngoscope revealed the tip of the epiglottis but not glottic opening (Figure 1a). An anesthesia resident inserted the pediatric AOL into the mouth and very easily captured the full view of the vocal cords (Figure 1b). An endotracheal tube with cuff (internal diameter of 5.0 mm) was intubated within 40 s, and correct placement of the tracheal tube was confirmed by fluctuations of endtidal carbon dioxide on a monitor. Surgical repair of the atresia auris congenita was performed successfully, and the tracheal tube was removed without adverse sequelae.

Figure 1
(a) Image taken during Macintosh laryngoscopy. Macintosh blade; thick arrow, epiglottis; thin arrow, arytenoids. Note: This image was captured by a CCD camera positioned at the right side space in the oral cavity, and thereby the image was different from the actual direct view of the laryngoscopist who could find the tip of the epiglottis only. (b) Glottic exposure using the pediatric Airtraq® optical laryngoscope handled by an anesthesia resident, who performed successful tracheal intubation within 40 s.
The AOL provides a high-grade, indirect, close proximity view of the glottis without the need for alignment of the oral, pharyngeal, and laryngeal axes. The oropharyngeal airway-shaped blade allows laryngeal exposure with ease even in patients with difficult airways (1–5). In addition, the AOL has a guiding channel that directs the tracheal tube through the glottis; and hence, it facilitates tracheal tube insertion once the glottis is aligned with the center of the laryngeal inlet on the view field. The infant AOL accepts tracheal tube with an internal diameter between 2.5 and 3.5 mm; while the pediatric one accepts tube with an internal diameter between 3.5 and 5.5 mm. The pediatric AOL easily provided a full view of the glottic opening in our patient with Treacher Collins syndrome, in whom the Macintosh laryngoscopy failed to expose the glottis. Anesthesia resident completed tracheal intubation without difficulty within 40 s. The small-size AOL seems suitable for difficult airways in small children.

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References