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Airway management in a patient with occipital encephalocele with retrognathia and complete bilateral cleft palate

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To the editor: Airway management is challenging in pediatric patients with craniofacial anomalies. We report a case of successful airway management in an infant with occipital encephalocele and complete bilateral cleft palate with retrognathia. It was anticipated that this facial anomaly would make both mask ventilation and tracheal intubation difficult. As we believed that the case may be of academic interest, consent was obtained from the parents prior to the writing of this report. We report a 30-day-old male infant, weighing 3.8 kg, who had multiple craniofacial anomalies; a ventriculo-peritoneal shunt and repair of the encephalocele was planned. On examination, two swellings, 5×4 cm and 3×2 cm in size, were seen over the occipital and frontal areas, respectively. There was also complete bilateral cleft palate and lip, along with retrognathia. There was proptosis of the right eye, with a hazy cornea. Ophthalmic examination revealed blindness in the right eye, with corneal ulcer due to exposure keratitis, and a normal left eye. No other congenital anomaly was present. Airway assessment predicted difficult ventilation via mask and also difficult tracheal intubation. However, there were no signs of airway obstruction. Atropine 0.12 mg, orally, was used as premedication. After preoxygenation for 3 min, anesthesia was induced with sevoflurane, and a 22-G intravenous cannula was placed. Fentanyl 7.5 μg was given. It was difficult to maintain an adequate seal with a Rendell Baker Soucek mask, due to air leak from the clefts. A small piece of gauze was then placed in the cleft to facilitate sealing. This improved the situation to some extent. The exposed right eye was covered with a piece of gauze after the application of eye ointment. A larger size anatomical mask (size 0) was then used to provide an adequate seal. Tracheal intubation was attempted with a size 3.0 uncuffed tracheal tube and Miller's blade. As the extension of the head was limited due to the occipital encephalocele, the patient was placed in the semilateral position so that some head extension was possible. After external laryngeal manipulation, the patient's Cormack and Lehane grade was II, but on attempting to intubate, we found that the laryngeal view was completely obscured by the tube. Another attempt at intubation was made using a Macintosh blade (size 1) and the trachea was easily intubated. Equal bilateral air entry was confirmed. Muscle relaxation was provided with rocuronium 1.5 mg, and mechanical ventilation was started using O_2:N_2O (1:1). After the fixing of the tracheal tube, air entry was found to be decreased over the left chest. On closer inspection, the tracheal tube was found to have migrated inside, possibly while it was fixed over the angle of the mouth. The tube was then re-fixed over the lower jaw (Fig. 1). Rolled gauze was placed between the alveolus to prevent tube movement. The surgical and anesthetic course was uneventful and the trachea was extubated at the end of surgery. The patient was taken to the intensive care unit for postoperative care.

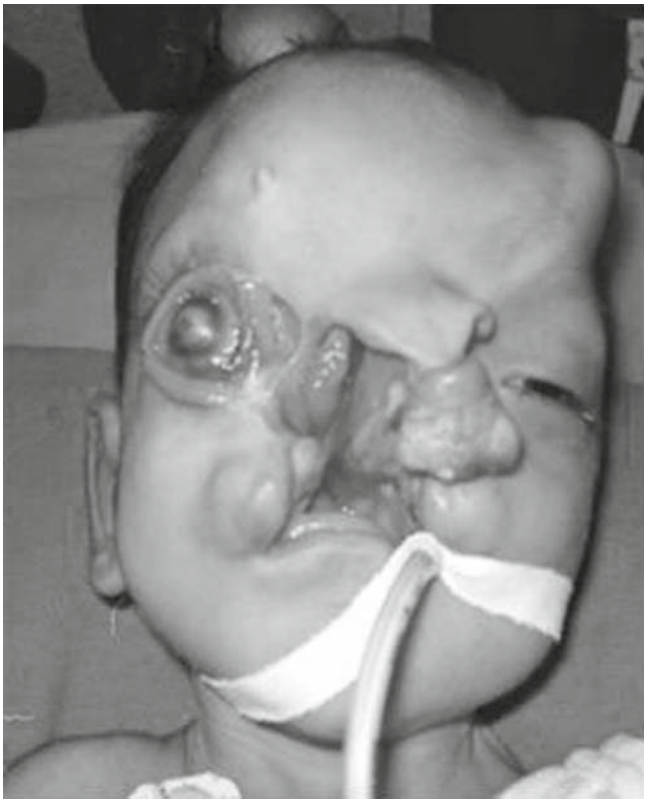

Fig. 1. Tracheal tube fixed to the lower jaw and not at the angle of the mouth, to prevent displacement

Various methods of managing a difficult airway have been described. Some of these methods are: specially designed light wands and laryngoscopes [1], digitally assisted tracheal intubation [2], fiberoptic techniques, laryngeal mask-guided fiberoptic intubation [3], and retrograde techniques [4]. Equipment for some of these techniques, such as special light wands, and equipment for fiberoptic techniques is not readily available,

and other techniques have a high failure rate, e.g., retrograde techniques. Gunawardana [5] reports an incidence of 7.3% of difficult laryngoscopies in 800 pediatric patients undergoing cleft lip and palate surgery; the difficult laryngoscopies mainly occurred in patients with extensive clefts, those with retrognathia, and those aged less than 6 months. All three of these features were present in our patient. For such patients, we suggest a simple maneuver of proper patient positioning during laryngoscopy, keeping in view the craniofacial anomalies. We believe that inhalational anesthetic induction and a curved Macintosh laryngoscope blade may be best suited for such patients. A larger size anatomical face mask, with the use of gauze in the clefts to decrease leak, may make mask ventilation easier. Neuromuscular blockers may be used once the tracheal tube is in place.

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