introduced under the epiglottis and finally inserted into the trachea. His intraoperative course was uncomplicated with halothane, N_2O, and O_2.

After the operation, because of the presence of edema of his tongue and incomplete nasal airway due to the repair of cleft palate, we decided to keep the tracheal tube in until the swelling of the tongue had subsided. Two days after the operation, his tongue became small and his trachea was extubated, and thereafter his postoperative course was uneventful.

Treacher-Collins syndrome is the most common mandibulofacial dysostosis,[2] with which upper airway problems are easy to occur. Because of micrognathia and macroglossia, a laryngoscope cannot be inserted easily into the mouth. The pharyngeal hypoplasia also causes some difficulties in airway maintenance and tracheal intubation.[6]

The technique, "pulling out the tongue," we used could have two effects on enhancing our vision. One is that it should help lift the tongue with the laryngoscope, and the other is by helping to extract the pharynx upward. The vocal cords could not be visualized by a direct laryngoscopy with this technique, but the epiglottis came into our direct vision with aid of external cricoid pressure, and the trachea was intubated. Therefore, we believe that this technique facilitates tracheal intubation for pediatrics with micrognathia and macroglossia. Following this procedure, the trachea should remain intubated until the tongue edema has subsided.

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Elective Tracheal Intubation in the Prone Position for a Neonate with Pierre Robin Syndrome

To the Editor:—The tracheas of infants with the Pierre Robin syndrome[1] are often difficult to intubate.[2] We recently encountered such a patient who required general anesthesia for a tongue–lip adhesion. We placed the infant in the prone position, hyperextended his neck, and then inserted a nasotracheal tube blindly (fig. 1).

REPORT OF A CASE

A 2-week-old, 2.2-kg term male infant presented with Pierre Robin anomalad that included severe micrognathia, extreme glossoptosis, and a wide cleft palate. The infant had difficulty in breathing and feeding that required keeping him in the prone position and feeding through a nasogastric tube since birth.[3] Despite these steps, cyanotic episodes had occurred during gavage feedings, and marked intercostal retractions were observed. Because of this severe upper airway obstruction, a tongue–lip adhesion was performed. After atropine (0.06 mg iv), ketamine in 2-mg iv increments (total dose 6 mg) was given to provide sedation while maintaining spontaneous ventilation with an $F_{I_{O_2}}$ of 1.0. For 40 min, we employed various intubation techniques but were unsuccessful in securing the airway. We elected to attempt blind nasotracheal intubation in the prone position because the airway improved in that position. A 2.0-mm tracheal tube was passed through the nostril into the pharynx and placed where the expiratory flow was maximum. A drop of 5% lidocaine was introduced through the tube to anesthetize the glottis. Following three or four blind attempts, the trachea was intubated successfully. The infant then was anesthetized for 70 min with the use of halothane–oxygen. He then was returned to the intensive care pediatric unit, where extubation was accomplished 4 h later. When respiratory distress recurred 48 hours later, general anesthesia was required for insertion of a tracheostomy. Neither the pediatric nor the otolaryngologic staff were able to intubate the trachea. However, in approximately 4 min after three attempts, we were again successful in placing a nasotracheal tube blindly using the same technique (prone position and topical anesthesia).

Hyperextension of the head in the prone position brings the occiput near the intrascapular area, maximally distracting the epiglottis from the glottis. When inserted into the nose, the curve of the endotracheal tube allows it to pass behind the epiglottis into the larynx, allowing

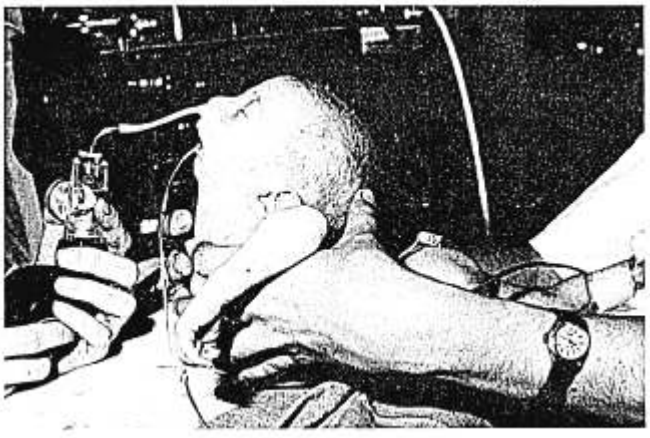

FIG. 1. Child in prone position with head in hyperextension.

intubation of the trachea by a blind nasal technique. The prone position may allow fortuitous gravity effects[3] on the tongue and the mandible and permits an hyperextension of the head that is not possible when the patient is supine. We, therefore, believe that when one has difficulty intubating the trachea in patients with Pierre Robin syndrome, the prone position should be considered.

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