Endotracheal Intubation and Treacher-Collins Syndrome

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Treacher-Collins syndrome, a first-arch congenital defect, causes severe facial deformity. The syndrome is caused by a fetal vascular anomaly depriving the first visceral arch of its blood supply, mainly from the stapedial artery, between the third and fifth weeks of gestation. First-arch syndromes may occur in varying severity, some so slight as to be unnoticed. The disease was first described by Treacher-Collins in 1900 and later described by Franceschetti and Klein. It is characterized by antimongoloid obliquity of the palpebral fissure; notched lower eyelids; coloboma; microphthalmia; hypoplasia of malar and mandibular bones; large mouth with irregular teeth and malocclusion; deformed external, and sometimes middle and inner, ears. Associated with these characteristics may be deafness; preauricular blind fistula; dwarfism; cardiac defects; and occasional skeletal defects.

REPORT OF A CASE

The patient, a 4-year-old black boy, weight 15 kg, height 102 cm, congenitally deaf and mentally retarded because of Treacher-Collins syndrome, was scheduled for a canalopectomy. General anesthesia with tracheal intubation was considered for this patient because of his age, the location of the operative site, and use of an operating microscope. The patient was anesthetized with halothane, nitrous oxide and oxygen via a nonrebreathing system. No muscle relaxant was used.

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Fig. 1. Front view of patient.

Fig. 2. Side view.
Conventional forward traction on the tongue worsened the obstruction, which was relieved only when the tongue was displaced downward and forward. At this time, the anesthetic was changed from halothane to ether to provide more time for laryngoscopy, while still maintaining spontaneous respiration. Direct laryngoscopy with Miller and MacIntosh blades was unsuccessful. A variant of blind nasotracheal intubation with a 5-mm tube was successful. The tube was placed in the nose, and connected to the anesthesia apparatus, so that it was functioning as a nasal airway through which anesthesia was maintained. The index and middle fingers of the left hand were used to palpate the epiglottis and the tube was directed between the two fingers into the larynx with little difficulty and no coughing or reaction by the patient. A 3-hour middle-ear exploration was then performed using halothane–nitrous oxide–oxygen anesthesia. The postoperative course was unremarkable, and there were no anesthetic complications.

**COMMENT**

Treatment for this disease is regional reconstructive surgery on each ear and cosmetic facial surgery. Such operations require that the patient’s head be shared with the surgeon, thus necessitating endotracheal anesthesia. Direct glottic visualization may be impossible.3–9 Airway obstruction is likely, and indeed, our patient’s airway became obstructed with laryngoscopy, but with proper head position he could maintain his own airway (Figs. 3 and 4). Use of muscle relaxants in such a patient could thus be quite dangerous. Ross7 describes a near-fatality with the use of succinylcholine in Treacher-Collins syndrome. The use of cyclopropane or halothane often does not afford adequate time for a difficult intubation. Divekar and Sircar8 reported failure with the use of muscle relaxants, and recommended spontaneous ventilation. Tracheostomy with local anesthesia prior to induction of general anesthesia has been suggested,9 but this would obviously be difficult in a retarded deaf-mute child. Similar problems might be encountered in attempting awake nasotracheal intubation with topical anesthesia. Another possible means of endotracheal intubation, fiberoptic laryngoscopy, was not possible in this patient as the diameter of presently available instruments was too large.

We feel that deep general anesthesia with ether–nitrous oxide–oxygen and tactile oral or nasotracheal intubation may be advantageous,
Reversal of Innovar-induced Postanesthetic Somnolence and Disorientation with Physostigmine

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Innovar, a popular intravenous anesthetic, consists of a short-acting narcotic (fentanyl) and a long-acting tranquilizer (droperidol). It is associated with a number of undesirable side-effects, including respiratory depression, prolonged somnolence, and disorientation.¹⁻³ Respiratory depression is easily reversed with nalorphine or naloxone; however, there is no known antagonist for the somnolence and disorientation. Physostigmine is effective in reversing anticholinergic poisoning⁴⁻⁹ and phenothiazine-induced coma.¹⁰ It has been suggested that physostigmine might have non-specific analeptic actions in the central nervous system and thus be of value as an antagonist to other CNS depressants.¹¹ This study was undertaken to evaluate physostigmine as an antagonist to somnolence and disorientation after Innovar—nitrous oxide anesthesia.

METHODS

We studied a total of 169 patients, A.S.A. Class 1 or 2, scheduled to undergo short (<60 minutes) operations and premedicated with pentobarbital (50–100 mg) or hydroxyzine hydrochloride (50–100 mg), meperidine (50–75 mg) and atropine (0.3–0.5 mg) 60–90 minutes prior to operation. In each case, intravenous infusion was begun and routine monitoring (precordial stethoscope, blood pressure cuff, and electrocardiogram) initiated prior to anesthetic induction. Innovar, 1–3 ml, was administered iv, then 1 per cent methohexital was given in 10–20-mg increments, iv, until loss of eyelid reflex occurred. Anesthesia was maintained with intermittent 0.5–1-ml increments of Innovar, iv, and 50 per cent nitrous oxide in oxygen administered through a semiclosed circle system with CO₂ absorption and a total fresh gas flow of 5–6 l/min. Muscular relaxation was achieved with a solution of 0.1 per cent succinylcholine in 5 per cent dextrose in water administered intermittently. At the end of operation, those patients breathing at a rate of <6 breaths/min received 0.1–0.2 mg naloxone, iv, and were excluded from the study. All patients were then taken to the postanesthetic recovery room. Those who responded to verbal command on arrival in the postanesthetic recovery room and those who needed analgesics or antiemetics at any time in the postanesthetic recovery room were excluded from the study.