CASE REPORTS

Laryngeal Band: Possible Relation to Prolonged Naso-Tracheal Intubation

WILLIS A. WARNER, M.D.*

A 25 year old white woman with tetralogy of Fallot had been anesthetized three times previously for cardiac surgery and its complications. At age 13 she had a trans-ventricular pulmonary valvulotomy during ether anesthesia. No difficulties were reported with intubation or anesthesia. Two years before the present admission a primary repair of her tetralogy of Fallot was performed, using extracorporeal bypass. At that time, the larynx was visualized and sprayed with 4 per cent lidocaine; no abnormalities were observed. Nasotracheal intubation using a no. 34 Murphy endotracheal tube was performed without difficulty. Because of persistent partial euristaxia she was ventilated mechanically in the immediate postoperative period. The patient was returned to the operating room eight hours later in profound shock secondary to intrathoracic hemorrhage. Anesthesia was re-established through the same naso-tracheal tube. Mechanical ventilation was resumed following the re-exploration because of hypoventilation. Daily arterial blood gas analyses indicated considerable intrapulmonary shunting. Recovery was progressive and the endotracheal tube was removed on the fourth postoperative day after having been in place throughout this five-day period.

The present admission was prompted by return of fatigue and dyspnea. Cardiac catheterization showed a recurrence of the ventricular septal defect. She was again scheduled for cardiectomy using extra-corporeal bypass.

Following induction of anesthesia with cyclopropane nasal intubation using a no. 34 Murphy tube was unsuccessful. Laryngoscopy revealed what appeared to be considerable mucoid material in the pharynx and larynx, but even after suctioning the pharynx, the tube could not be inserted into the trachea. After considerable difficulty, oral intubation was achieved with a no. 6 Davol tube, which was snug fitting. At the conclusion of the operation, careful inspection was made of the larynx. This time a white fibrous band approximately 1 cm. in width was seen, spanning the posterior subglottic area 1 cm. below the vocal cords.

Recovery after this operation was uneventful, and no ventilatory support was needed.

* Assistant Professor, Department of Anesthesia, University of Iowa, Iowa City, Iowa.

Fig. 1. Larynx showing sub-glottic laryngeal band. A, vocal cords; B, laryngeal band.
Questioning of the patient failed to uncover any history of laryngeal symptoms. The laryngeal band was later excised under local anesthesia, at which time the photograph (fig. 1) was obtained.

Discussion

This case is presented because of the interesting difficulties encountered with intubation, and because of the possible relationship between the laryngeal band and previous prolonged mechanical ventilation via a nasotracheal tube. Whether or not the endotracheal tube caused the formation of the laryngeal band is conjectural, but the past anesthetic history strongly suggests a causal relationship.

Although many reports have related contact granulomata to endotracheal intubation, a laryngeal band has not been described previously as a sequel of intubation. It possibly represents a variant of laryngeal web formation, as described by Young and Stewart, who postulated the sequence of events as being: initial abrasion or hematoma, followed by infection, ulceration and granulation, with ultimate organization to a nodule or web cicatrix. Continued movement of the tube, and especially the cuff, against the sub-glottic mucosa, could have initiated this sequence in this case.

References


Succinylcholine Danger in the Burned Patient

John D. Tolmie, M.D., Thomas H. Joyce, M.D., George D. Mitchell, M.D.*

Interest continues in cardiac arrest during anesthesia in the severely burned patient. Previously reported cases, and the present case have many things in common: debilitation, anxiety, multiple uneventful anesthetic administrations followed by one or more episodes of cardiac arrest occurring at least twenty-one days post-burn. This cardiac phenomenon has been ascribed to vagal stimulation associated with intubation, effects of succinylcholine on vagal ganglia, depleted levels of pseudocholinesterase, fluid depletion, acidosis, anesthetic overdose, and potassium efflux.1-2 Although all of these may play a part, the latter is probably the major factor in this case and deserves further consideration. Effort was made to alter the anesthetic technique by only one variable on each occasion in an effort to identify the specific mechanism of the arrest.

Case Report

In South Viet Nam, a 19 year old Marine sustained a bullet wound to his left thigh. This exploded a phosphorous grenade in his hip pocket resulting in a compound, comminuted fracture of his left femur, massive soft tissue destruction of his left buttock and 35 per cent third degree burns involving legs, back and occiput. Within four hours, he received 4,500 ml. of whole blood, massive debridement was carried out, a Steinmann pin inserted and the first of many halothane-nitrous oxide-oxygen, endotracheal anesthetics administered. During the next 26 days (from the Philippines to Philadelphia) he had 10 uneventful anesthetics for dressing changes or debridement; one consisted of thiopental-ni-