Endotracheal intubation in patients with fractures of the cervical spine

Technical note

JOHN P. KAPP, M.D., PH.D.
Panama City, Florida

The author presents a safe method of endotracheal intubation for anesthesia without moving the neck in patients with fractures of the cervical spine.

Key Words • anesthesia • cervical spine • endotracheal intubation • spinal fracture

Endotracheal intubation for anesthesia carries significant risk in patients with fractures of the cervical spine. In most cases, the neck cannot be hyperextended without risk of injury to the spinal cord. Retropharyngeal edema and hematoma add further to the problem of visualization of the vocal cords and insertion of an endotracheal tube under direct vision. Patients who are anesthetized or curarized for intubation may be difficult to ventilate by mask and become hypoxic if initial attempts at orotracheal intubation are unsuccessful. Multiple attempts at blind nasal intubation with the patient awake are extremely uncomfortable to the patient and often are unsuccessful.

A simple, safe technique has been devised for inserting a nasotracheal tube in an awake patient without moving the neck.

Technique

The nasal and pharyngeal mucosa are anesthetized with a topical anesthetic spray. A small plastic or rubber catheter of the type used for endotracheal suction is inserted by way of the nasal route into the trachea. Usually this can be accomplished without difficulty. The patient can help by inhaling as the catheter passes the region of the epiglottis. A curved tip or catheter coudé may facilitate entry to the trachea in difficult cases. When the small catheter has been passed into the trachea, a heavy suture is attached to the protruding end. The suture is passed through a small lubricated tracheal tube. The tracheal tube is then advanced over the catheter, through the nose and into the trachea. Tension is held on the suture to prevent the small catheter from advancing too far into the trachea. When the tracheal tube is in place, the small catheter is withdrawn. The technique is analogous to the Seldinger technique of introducing an intravascular catheter over a smaller guide wire.

Comment

The only problem we have encountered using this technique was in a patient with a deviation of the nasal septum. The small catheter was passed through the obstructed...
nostril without difficulty. The smallest tracheal tube would not pass through the nostril, however, and the entire procedure had to be done from the other side. So far we have been able to perform this technique successfully in every case. Since the patient is neither anesthetized nor curarized, there is no risk of hypoxia if the first attempts to enter the trachea are unsuccessful, and since there is no reason to move the head or extend the neck during intubation, there should be no risk of increasing injury to the spinal cord.

Address reprint requests to: John P. Kapp, M.D., Ph.D., 717 E. 7th Street, Panama City, Florida 32401.