A NEW METHOD FOR TRACHEOTOMY*

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A patent airway is of vital importance in every patient. The indications for tracheotomy in the treatment of respiratory obstructions have long been recognized. The technic is well established, and has been changed little if any during the past fifty years.

Tracheotomy as standardized is a surgical procedure, consisting of skin incision, dissection of the soft tissues, exposure of the trachea, incision of the cartilaginous rings and insertion of a silver tube into the trachea.

The standard operative method is satisfactory for elective tracheotomy for relief of a chronic tracheobronchial obstruction. As an emergency procedure it has several obvious disadvantages. Hospital facilities are required, as well as a complete set of surgical instruments. Considerable time is required, especially by those not familiar with the technic, which adds additional trauma to the patient already in critical condition.

Our interest in tracheotomy stems from the care of patients with serious acute head injuries. Associated fractures of the jaw or facial bones, as well as lacerations of the soft tissues of the face, mouth or pharynx result in excessive bleeding, much of which gravitates into the tracheobronchial tree, causing acute respiratory embarrassment. Spinal fluid escaping from basal skull fractures frequently adds to the obstruction.

A patient with a severe head injury is often deeply comatose, has lost his protective gag reflex and literally drowns in his own secretions. Lesser accumulations of blood and secretions in the bronchial tree may cause partial obstruction with secondary cerebral anoxia and increase in carbon dioxide sufficient to produce severe cerebral edema and a marked increase in intracranial pressure.

This vicious cycle can be interrupted only if the air passages are aspirated of all foreign material. The administration of nasal oxygen is of no value if the trachea or bronchi are obstructed. Aspiration through the nose is difficult as only occasionally can a soft rubber catheter be passed between the vocal cords into the trachea.

Tracheotomy in such patients is a life-saving procedure. The tracheotomy tube allows frequent adequate aspiration, assures a continued supply of oxygen, and prevents accumulation of carbon dioxide.

Many patients in dire need of tracheotomy are denied the benefits of an artificial airway because of the complexities of the present methods. If a simple, rapid means of tracheotomy were available, it no doubt would become a routine procedure, thus saving many hundreds of lives each year.

The method described below fulfills these requirements. The tracheotomy tube

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can be inserted rapidly and safely. No surgical instruments or hospital facilities are necessary. It can be used by any physician, or in the Armed Services could easily be used by hospital corpsmen.

**METHOD**

The instrument at the present time consists of four parts (Fig. 1):

1. A needle with a retractable barb that is first inserted to transfix the trachea (A). Thus the trachea can be elevated (B) against the overlying skin and lateral motion of the trachea can be prevented while the tube is being inserted.

2. A silver tracheotomy tube with three narrow slots in the tapered distal end.

3. A cutting trocar that slips through the tracheotomy tube and projects beyond the distal tapered end. The cutting blades are two in number. One is a long tapered spring steel blade sharpened on both edges. On the end of this blade is a small ball tip which prevents the tapered horizontal blade from piercing the posterior wall of the trachea. The second vertical