



Special chin strap for extending head and fitting anesthetic face mask.

### Endolaryngeal Topical Anesthesia

Drs. Robert H. Smith and Mack S. Bonner of the Medical College of Georgia have developed a method of accomplishing intermittent endolaryngeal and endotracheal topicalization during anesthesia with an endotracheal tube in place.

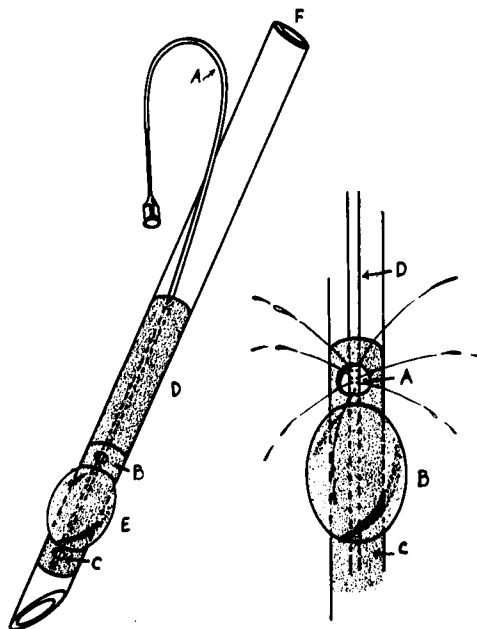
They accomplish this by using a standard cuffed endotracheal tube with a spray tube built in. The patient's trachea is intubated in the usual manner. Immediately following intubation, the intralaryngeal surface is sprayed by injecting one or two milliliters of the topical anesthetic agent of choice through the spray tube, before the cuff is inflated. The patient may be ventilated prior to cuff inflation with a minimum of gas leakage and the danger of hypoxia avoided. At any time thereafter, whenever conditions warrant it, the cuff is deflated, the intralaryngeal surface resprayed, and the balloon reinflated.

They feel that the tube has been especially useful in neurosurgery, particularly for anesthesia for surgery in the occipital area, close to the vital centers when it is thought best to have the patient on assisted rather than on controlled respiration. With this technique, depressant drugs can be kept to a minimum. The tube is also valuable in other types of surgical procedures, including intrathoracic, intra-abdominal and thyroid surgery. It al-

lows maintenance of older, poorer risk patients in a much lighter depth of anesthesia for any procedure by the elimination of buck-

up a strong digital pressure just below the symphysis mentis. This can become tiresome and interfere with his other duties. A mechanical substitute for this digital pressure has been obtained by the invention of a special chin strap (as illustrated). The metal strut clips on the head end of the operating table. The chin strap is cut from a standard mask halter, and is fastened under tension to the harness knobs atop this strut.

When the best selection of mask and strap tension in the conventional manner fails to overcome leakage and obstruction, the desired result may usually be achieved by employment of the suggested chin strap. It is most often needed for the edentulous, the bull-necked, and the short-jawed patient.



Endotracheal tube with built-in spray tube. *Left:* Tubule carrying fluid to spray sites B and C above and below balloon cuff E. The tubule travels under a tight rubber sleeve D. *Right:* A is spray site showing spray pattern above the balloon cuff B. D is the conducting tubule before it goes under the tight rubber sleeve C.

ing on the tube. The anesthetist employing this technique may ascertain the usual duration of the topical agent of his choice and respray the larynx before the previous topicalization wears off.

They use a no. 40 Forreger tube (wall 2 mm. thick) which is grooved on the anterior curve, with a dental burr. A groove 1 mm.  $\times$  1 mm. is produced, from the upper end of the bevel to just above the trademark and size printing. Into this groove is cemented, with plastic cement, a no. 200 polyethylene tubule, heat sealed at the distal end. This is allowed to dry 12 to 24 hours. Over the tube, covering the area traversed by the groove, is rolled  $\frac{3}{8}$  inch Penrose tubing. The Penrose is cemented at proximal and distal ends. Then a standard double wall endotracheal balloon is put on the tube, over the Penrose tubing. The distal end is  $\frac{3}{8}$  inch above the end of the plastic tubule. The balloon is cemented onto the Penrose at proximal and distal ends.

A fine mosquito hemostat is used to lift a bit of Penrose which is cut off with curved scissors, leaving a hole in the Penrose tubing, directly over the plastic tubule. This is done above and below the balloon. The lower hole is  $\frac{1}{4}$  inch  $\times$   $\frac{1}{4}$  inch, the upper  $\frac{3}{8}$  inch  $\times$   $\frac{3}{8}$  inch. Rubber cement is used to seal the edges of the holes to prevent water seepage under the Penrose. Let the cement get quite dry. Pressure, applied by rubber tubing overlying waxed paper, will seal these two holes in 4 to 6 hours.

A 25 gauge needle, inserted at angles, will make the holes to produce a spray effect. Two holes point back toward the cords, one forward over the cuff, and one toward each side, at the upper spray site. At the lower spray site one hole points back over the cuff and one downward towards the carina. Two milliliters injected rapidly into the tubing gives a fine spray which provides the required result.