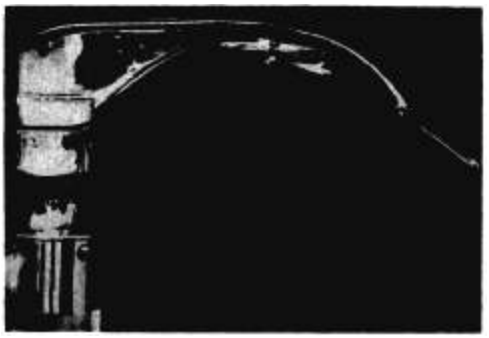

Modification of McIntosh laryngoscope—lateral view.

Inferior view of modification of McIntosh laryngoscope.

tongue" and, secondly, to hold the cheek at a distance and thereby enable the anesthesiologist to pass the endotracheal tube without assistance.

After the initial trial of the laryngoscope and the production of the first pilot model, it was noted that the laryngoscope could be introduced almost directly toward the larynx without any right to left motion as had been found necessary with the old design of the McIntosh larnygoscope. This has proved to be an advantage for the beginner in endoscopy and especially useful for the thick-tongued individual in whom, occasionally, the motion of right to left, in order to push the tongue out of the way for introduction to the tube, resulted in a flopping of the tongue into line of vision of the anesthesiologist. This new laryngoscope prevents the tongue from dropping. A new design in similar proportion for infants has been tried and found completely satisfactory. It is recommended that this laryngoscope be used in the stocky bull-necked individual, in edentulous individuals, and in infants.

Superior view of modification of McIntosh laryngoscope.

Combined Endotracheal-Bronchogram Catheter

Dr. Vincent de Ciutiis also designed an endotracheal catheter to solve a problem with which he was constantly presented during bronchography for children. Prior to the development of this catheter all children were anesthetized with Vinethene and open drop ether. When a sufficient depth of anesthesia was achieved, a urethral catheter was passed under direct laryngoscopy. Too often the following problems were encountered: (1) During the introduction of the dye the child was moved from side to side in a darkened room. Under this particular condition it became difficult, if not impossible, to observe any changes in the child due to airway obstruction. (2) It was very difficult to adequately resuscitate these children if the introduction of the dye precipitated complications such as severe laryngospasm, or what was feared even more, bronchospasm. (3) As the procedure con-

tinued it was almost impossible to maintain an adequate level of anesthesia. (4) At the end of the procedure there was difficulty in resuscitating the child and evacuating the dye from the large respiratory passages.

In addition to the above problems the radiologist, bronchographists and the thoracic surgeons desired to direct the dye into one main stem bronchus or another. To assure that the tube was not passed too far down the trachea it was decided that the catheter be radioopaque. The opacity also facilitates directing the catheter toward one main stem bronchus or another. As can be noted in the accompanying diagram, the catheter is essentially a double lumen endotracheal tube. The part of the tube that was designed to administer the anesthesia or to facilitate resuscitation was purposely designed much larger than the part through which dye is injected. The tube is also so designed that the small part coming off at the proximal end (oral end) of the tube demonstrates clearly which side the dye is flowing down. This permits injection of the dye with the patient in a dependent position. The whole tube is rotated 180 degrees from

Diagram of combined endotracheal-bronchogram catheter (de Ciutiis Tube).

right to left or from left to right according to which side the dye is to go down. In this manner the dye can be prevented from flowing across the airway part of the tube and thereby obstructing the airway.

Since the introduction of this endotracheal tube into clinical use, Dr. de Ciutiis no longer has the problems associated with maintaining anesthesia adequately or resuscitation of the child in a darkened room.

TECHNIQUES

Sterile Packaging of Anesthesia Equipment

In an attempt to alleviate the problems of cross contamination of surgical patients through anesthetic equipment, Drs. Dean H. Morrow and V. K. Stoelting of the Indiana University Medical Center have introduced a system of sterilization and packaging of that equipment which is in closest contact with the patient.

Suction catheters, oropharyngeal airways, endotracheal tubes and adapters are brought from the operating room to a sink in the anesthesia department. Here, away from all areas used by the surgical staff, an initial, thorough cleansing is carried out using Actamer surgical soap and hot water. Brushes stored in a solution of the soap are kept at the sink and are used only for this cleansing. The equipment is then stored in a pan of Actamer solution until definitive sterilization and packaging can be carried out.

Following a thorough clear water rinse, rubber equipment is placed in 70 per cent ethyl alcohol for a thirty-minute cold sterilization. Prior to the alcohol emersion, each endotrachea ltube cuff is inflated under water and those found to be defective are replaced.

Packaging is carried out in transparent plastic tubes (used for sterilization) which are closed at either end by a double fold and staple (as illustrated). The technician carrying out this packaging uses a surgical hand scrub and "clean" technique throughout.

Metal airways, after the initial soap cleansing and rinse, are similarly packaged and autoclaved at 250 degrees, 18 lbs. pressure for 30 minutes. Additional metal equipment, including adapters, "Y" connectors, Water's elbows, etc., are autoclaved, but not individually packaged.

To facilitate the selection of proper endotracheal tubes and to minimize the difficulties in packaging and storing, each tube is marked