

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 radio-opaque. 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

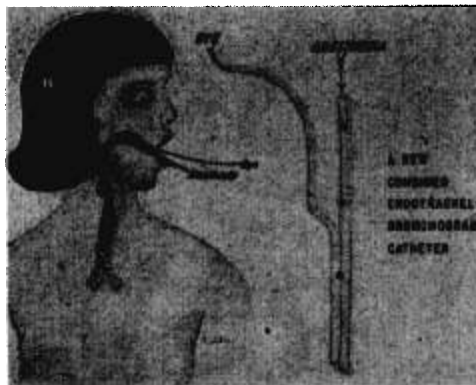


Diagram of combined endotracheal-bronchogram catheter (de Ciutiis Tube).

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.

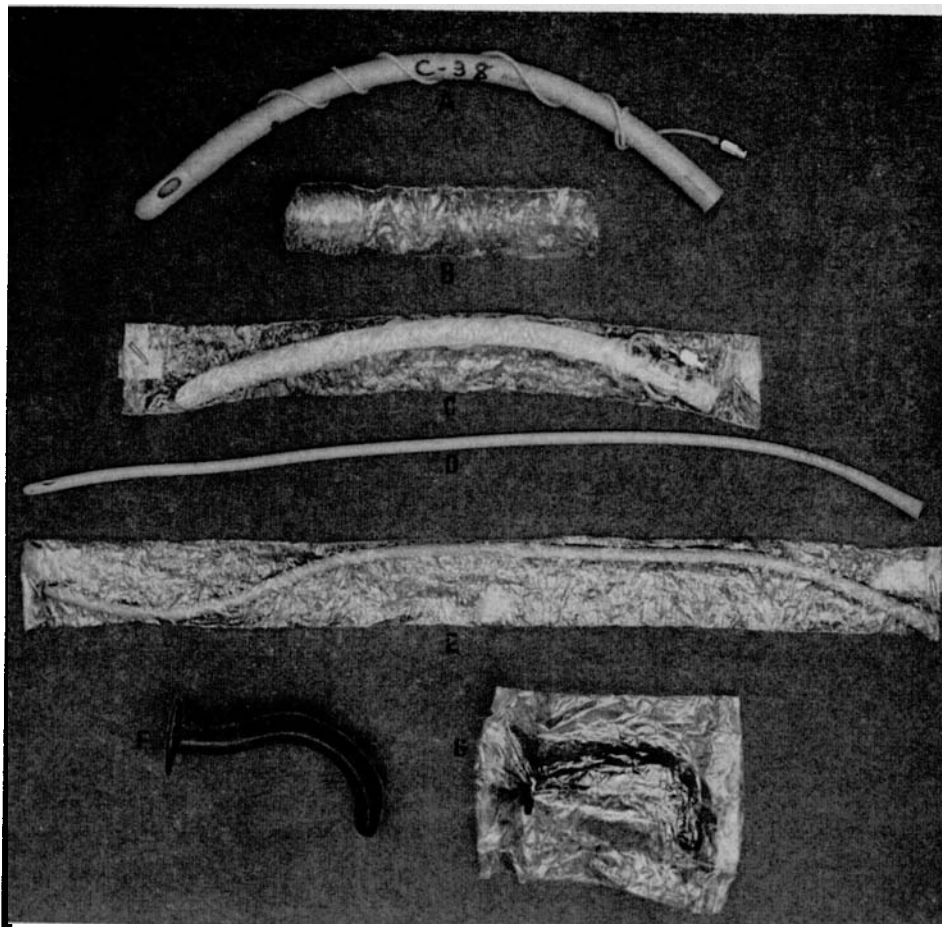
Following a thorough clear water rinse, rubber equipment is placed in 70 per cent ethyl

alcohol for a thirty-minute cold sterilization. Prior to the alcohol emersion, each endotracheal tube 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



Markings and individual packaging for sterilization of anesthesia equipment (details in text).

with the size and the letter "N" for nasal or "C" for cuffed tube. These markings are etched into the tube with a wood burning tool and colored with black India ink. A number 34 cuffed tube, for example, carries the markings C34 and a similar nasal tube N34 (as illustrated).

The manufacturers' markings have been found adequate for identification of suction catheters and airways.

Following packaging, the equipment is

stored in appropriately marked bins in closed cabinets. Nasal tubes and long endotracheal tubes, used for blind endobronchial intubations, are stored in metal dressing cans so that a maximum curve can be maintained.

This technique is carried out at a cost of \$8.00 per week. The cost per individual item is under five cents.

The method has proven practical in application, economical, and insures the patient against upper respiratory cross contamination.

Fitting Anesthetic Face Mask To Relieve Pharyngeal Obstruction

Dr. Glenn J. Potter of Los Angeles feels that the husky patient, if he enters the operating room in a perturbed state, is likely to maintain a strong tonus in the muscles of his an-

terior neck for a half hour or so of surgery. Such a patient will often snore and exhibit marked obstruction at the hypopharynx and rima glottidis unless the anesthesiologist keeps