

the patient is unable to talk, and therefore constant reassurance by the anesthesiologist that the procedure has been successfully done and that the patient is cooperating well, will be appreciated by the patient. From this point on, with a guaranteed airway, complications are negligible. I prefer then, in each case, to induce general anesthesia with intravenous sodium pentothal, after the manner of Lundy, using a 2.5 per cent solution. I can see no additional advantage to changing over to any other anesthetic at this point, unless relaxation is important for the surgical procedure to be performed. It is perfectly feasible to induce general anesthesia with sodium pentothal, and then to maintain anesthesia with any of the inhalation anesthetic agents. I believe that it is advisable when using sodium pentothal to administer 100 per cent oxygen or 50-50 per cent oxygen and nitrous oxide through the intratracheal tube after the patient has become unconscious. Postoperatively, I leave the intratracheal tube in place until

the patient has definitely recovered from the general anesthetic agent.

Most anesthesiologists have seen the following circumstances develop when a patient has been brought to surgery for an anesthetic. General anesthesia has been started, the patient has developed laryngeal spasm, has had difficulty with the tongue falling back into the pharynx, has had complications as a result of muscle relaxation allowing cysts to shift and cause respiratory obstruction, has been too light a plane of anesthesia for oral intubation and, at the time of an attempt at nasal intubation after induction, may be found to have abnormalities of the nasal passages or of the pharyngeal structures that make either oral or nasal intubation difficult. The method I describe obviates all of these complications, increases the peace of mind of both the surgeon and the anesthesiologist, and contributes to the safety of the patient.

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### CURARE IN ADULT TONSILLECTOMY

The reports in the literature have absorbed themselves primarily with the use of curare in abdominal surgery. It occurred to us that it might be advantageously employed in adults undergoing tonsillectomies under general anesthesia. We appreciate the fact that local infiltration has been the method of choice in adult tonsillectomy and will probably continue as such. But occasionally, for some reason or other, an adult insists on "going to sleep." It is this particular case that has always proved to be the dread of our anesthetic staff because of the extreme depth of ether anesthesia required to relax the jaw and permit adequate exposure for surgical procedure.

Our series consisted of 12 cases varying in age from 16 to 40 years and in weight from 105 to 200 pounds. In determining the dosage of curare, we took into consideration several previously established facts. In the first place, it has been shown that the head muscles are among the first to respond to the action of curare. Fur-

thermore, ether, which was the basic anesthetic employed, has in itself a curariform action thereby permitting a reduction in dosage of curare used. Owing to the paucity of cases we were permitted no experimental latitude but arrived at an arbitrary technic that was used throughout the series.

### TECHNIC

Morphine gr. 1/4 and scopolamine gr. 1/100 was given one hour preoperatively in all cases. Nitrous oxide-oxygen in a semi-closed system was used for induction and ether gradually added until the first plane of anesthesia was reached. At this point the jaw was rigid. Thirty mg. (1 1/2 cc.) of curare (Intocostrin, Squibb) was given intravenously. Within one minute the mandible was sufficiently relaxed so as to permit the use of a mouth gag and the surgery started. Maintenance was by oral insufflation of ether as usually employed. No additional curare was necessary for the initial or for maintained relaxation.

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## RESULTS

The results obtained were uniformly excellent. Only  $\frac{1}{2}$  to 1 ounce of ether was required for induction in each case, while 4 ounces or more were ordinarily employed. In addition, the pharyngeal relaxation was so pronounced as to facilitate the surgery to a remarkable degree. Possibly the best commentary on this technic is that of the surgeon who remarked that whereas he used to dread adult tonsillectomies under general anesthesia, he now looks forward to them! No untoward effects from the curare were observed and all cases made uneventful surgical recoveries. Postoperative vomiting was absent in most cases probably due to the reduced amount of ether required.

## SUMMARY

In 12 cases of adult tonsillectomy under general anesthesia, curare was employed to obviate the need of extreme ether saturation and permit improved surgical exposure. Adequate premedication of morphine-scopolamine and induction by nitrous oxide-oxygen-ether to the level of the first plane of anesthesia were employed,

followed by curare intravenously. The results obtained were so dramatically successful as to warrant the continuation of the technic as a routine procedure with further attempts at determining the optimum dosage of curare required.

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## AN ENDOTRACHEAL TUBE FOR BABIES

In an earlier communication (1) the use of a compound endotracheal tube was suggested for infants. This tube has now been improved and has been used by the author, in two sizes, as illustrated, in many cases. As suggested originally, it has been possible, by the use of these tubes, to intubate infants who would otherwise have been denied the privileges of endotracheal anesthesia. It has also been the means of less traumatic intubation in 2 to 3 year old babies, as it can be inserted in tiny larynges with the greatest of ease.

A smaller tube is used in infants up to 1 to 2 years; the larger tube from 1 to  $2\frac{1}{2}$  or 3 years.

Insertion, as has been said, has always been easy. The airway has proved adequate in all cases. It has proved advantageous to couple the use of these tubes with the administration of ether-oxygen vapor by Ayre's technic.