METHOD FOR DETERMINING TRACHEOLARYNGEAL BREATH SOUNDS DURING ANESTHESIA

The tracheal and laryngeal breath sounds are of great value in the conduct of an anesthesia; if the stethoscope is placed on the neck, as a convenient method is at hand for making them continuously audible to the anesthetist.

We use an ordinary stethoscope connected to a bell-type chest piece. The chest piece is secured to the anterolateral aspect of the neck at or near the level of the cricoid cartilage with adhesive tape or with its attached strap. For obvious reasons the application of the chest piece is best made after the patient has lost consciousness; in spinal anesthesia the patient should be told the purpose of the device.

The method of having the stethoscope on the neck can be used alone in this manner or it can be connected with the bell on the arm for the blood pressure determinations. In this latter case the breath sounds can easily be distinguished from the sharp, short impacts made by compression of the brachial artery under the cuff.

We have found this method especially valuable in the following situations:

1. In tonsillectomy and adenoidectomy in children. The conventional anesthesia here seems to be the insufflation of ether by air or oxygen by way of a "mouth-hook." The airway can be obstructed by laryngeal spasm, blood, mucus, inefficient tongue retraction, a gauze plug, unexpected vomiting, or perhaps a hitherto unnoticed wad of chewing gum. The slightest obstruction will be apparent at once in a change in the tracheal and laryngeal breath sounds, and we are convinced that it will be noted several seconds earlier by this method than by any other. The operations of tonsillectomy and adenoidectomy are usually noisy, the suction tip being the worst offender. Sounds made by the suction tip are absent or very faint with the stethoscope on the neck.

2. During the administration of sodium pentothal generally, and especially in the fluoroscopic dark room. It is often difficult to estimate the tidal volume and to determine the presence of slight obstruction with sodium pentothal. The Lundy butterfly is convenient under normal conditions but useless in the dark room. If 50 per cent nitrous oxide and oxygen is administered concurrently in the dark room, much can be determined by a hand held lightly on the bag, but even here the tracheolaryngeal breath sounds often give additional information.

3. In spinal anesthesia, especially for counting the respiratory rate.

4. In inhalation anesthesia generally, particularly when not using an endotracheal tube. Unless the tube is unusually soft, obstruction is unlikely; however, the sounds come through well with endotracheal technic and can be utilized for other information.

Several important findings can be obtained by auscultation of the tracheolaryngeal breath sounds. The presence of obstruction is promptly determined and its nature is usually apparent at the same time. The amplitude of the tidal volume can be estimated with a fair degree of accuracy. The plane of anesthesia can usually be determined by comparing the length of inspiration with that of expiration.

Finally the more or less continuous auscultation of the tracheolaryngeal breath sounds is of great psychologic value to the anesthetist in that it partially isolates him from the diverting noises of the operating room and fixes his mind on the anesthesia. His eyes and hands are freed from constant attention to the bag; while starting a difficult infusion, for instance, he still remains "in contact" with the anesthesia. Should he become unduly absorbed in the technical details of insertion of the needle, any slight change in the sounds promptly brings his mind back to the business at hand.

JAMES P. B. ZWEIGHAFT, M.D.,
4532 Hylan Boulevard,
Staten Island 12, N. Y.