A REVIEW OF OVER FOURTEEN THOUSAND SURGICAL ANÆSTHESIAS

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Anæsthetic to St. Mary’s Hospital

SINCE the discovery of ether in 1846 by William Morton, much has been written about anæsthetics and their administration, and still ether and better etherization is more in favor to-day than ever before.

We are indebted to Dr. Bevan and Dr. Mellish for their most excellent articles on this important subject, on the after-effects as well as the administration of anæsthetics.

At St. Mary’s Hospital our preference has always been ether. In 1905, out of 3,828 anæsthesias 2,847 were ether. In 14,380 anæsthesias given by me, I have yet to see a death directly from the anæsthetic, but, no doubt, have had my share of trouble in its administration, although artificial respiration with us is almost unheard of. Our experience with ether has become more gratifying each year. In my series of cases, the “open method” has been the method of choice. We have tried almost all methods advocated that seemed at all reasonable, such as nitrous oxide gas, as a preliminary to ether (this method was used in 1,000 cases), a mixture of scopolamine and mor- phine as a preliminary to ether in 73 cases, also chloroform and ether, and have found them to be very unsatisfactory, if not harmful, and have returned to ether “drop method” each time, which method we have used for over ten years.

On account of this method not being followed properly, it is not always appreciated. We use a four-ounce ether-can and fit an ordinary cork with a groove on either side into its mouth, fill one groove with absorbent cotton and let it extend out of the can about one inch. One can regulate the drop easily by the manner in which the point is clipped. We usually fix two cans, one with a large dropper, and use it until the patient is fully under the anæsthetic, and then change to the other can with the small dropper, and continue its use during the operation.

Patients usually walk into the operating room and mount the table with assistance. All foreign bodies, such as artificial teeth, chewing-gum, etc., are removed. The hands are fastened loosely across the chest with a wide gauze bandage, to prevent the arms falling over the sharp edges of the table, an accident which so often causes musculospiral paralysis. A pad of moistened cotton is placed over the eyes to protect them from the anæsthetic. If, during the course of administration, some of the anæsthetic should fall into the eye, drop a few drops of castor-oil into the conjunctival sac, to prevent the conjunctivitis that would otherwise follow.

It is a mistake to think that the same elevation of the head will do for all patients. The anæsthetist should elevate the chin to such a position as not to bend the neck too far back or approximate the jaw too near the sternum. Proper elevation of the head will relax all tissues of the neck and give more freedom in breathing. This, also, can be said of the jaw. Holding the jaw up and forward, and keeping it in position so that the patient gets the greatest amount of air possible, is an important feature in giving an anæsthetic. While too much emphasis cannot be laid on this necessary requisite in giving an anæsthetic, all jaws cannot be handled in the same manner. When a patient has removed a double set of artificial teeth, the tongue will often cleave to the roof of the mouth during the administration, and raising the jaw sets the gums so firmly together that most of the air is shut out, and this may not be noticed until the patient is cyanotic. We have found, in this class of cases, that if the jaw is held but slightly up and forward and the thumb of the same hand inserted between the gums, thereby holding the tongue down, faulty respiration will be corrected at once and the color restored. This is one of the instances where the holding up of the jaw too firmly can be overdone.

The inhaler used is the improved Esmarch, with two thicknesses of stockinet (frame boiled and stockinet changed after each patient). We use the dropper described, dropping as
plete narcosis is required. If the jaw is relaxed and in place, respiration deep and regular, color normal, quality of pulse good, there need be no fear about the rate of pulse or the pupils. Other points being equal, they are certain to be right.

As a rule, any person fit for a serious operation is also fit for an anaesthetic, but no one is so free from danger that care in watching its effects can be dispensed with. The cases requiring the greatest care are not the young and anemic, for whom a small dose is sufficient, but the strong and vigorous, who inhale deeply and are inclined to struggle.

There is no class of cases that requires more close watching of every detail than the stomach cases, because they are poor subjects for anaesthesia of any kind, and the anaesthetist should be familiar with each step of the operation, so as not to give one drop more of the anaesthetic than is absolutely necessary. We give one sixth of a grain of morphine thirty minutes before the administration of ether, and the patient is given just enough to produce surgical anaesthesia, and as soon as the stomach is explored and the method of operation decided upon, the ether is withdrawn, the surgeon being able to continue operation, no more being given until time to close the incision.

In this class of cases the patients are allowed to become almost conscious many times, as the stomach is not sensitive, and there is no pain in the visceral work; thus we are able to complete the operation and avoid vomiting with an exceedingly small amount of anaesthetic.

The rolling of the eyeballs as noted by Simpson, swallowing, and control of the jaw are signs of returning consciousness, and a call for more ether. While we give less anaesthetic in this class of cases than in any other, it is this class that is most prone to pneumonia.

During the thirteen years' work at St. Mary's Hospital all patients have been anaesthetized on the operating-table in the operating room, and preparation of the patient was going on at the same time. Experience has taught us that preparation of the patient while going under the anaesthetic is one of the important factors in producing a rapid surgical narcosis; for it diverts his attention, and much less anaesthetic is required. It matters not in what position the patient must be for operation, we fix him accordingly, and the preparation is begun at the same time as the anaesthetic, and we feel certain that this procedure enables us to hasten narcosis.

In the Trencklenburg position, where the preparation is in progress during the administration of the anaesthetic, the deep respiration, etc., empties the pelvis, so that by the time the operation is started the small bowel will be found in the lower abdomen and out of the way, and maybe packed off. We have found this practice more helpful to the surgeon than placing the patient in position after the completion of narcosis.

In giving an anaesthetic for this class of surgery, the skill and patience of the anaesthetist is tried to the extreme; the patient must be fully anaesthetized, but not too profoundly. Patients having an acute peritonitis, as is so often found in this class of cases, require a much larger amount of anaesthetic to produce relaxation of the abdominal muscles. When the patient is prepared during the administration of each anaesthetic, there is no time lost, the surgeon and his assistant being ready by the time the patient is surgically anaesthetized. Another important reason for anaesthetizing the patient on the operating-table is, that in lifting and shifting a patient about, he is apt to regain consciousness, with vomiting, etc., and the administrator is not positive of the condition of his patient. Should ether produce difficult breathing, profuse secretion of mucus, or cough, lift the mask from the face, allow a liberal amount of air, and then continue with the ether. In giving plenty of air when needed, and less anaesthetic, we have found little use for an oxygen-tank, a loaded hypodermic syringe, or tongue-forceps. It is far better for the anaesthetist to become skillful in watching for symptoms and preventing them, than to become so proficient in the use of the three articles mentioned. We are exceedingly careful in our selection of cases with colds. An acute cold is a contraindication to any anaesthetic, but as soon as the cold becomes chronic there is not much danger from etherization, and instead of operating during an acute cold and giving chloroform (unless in an emergency), we wait a few days until the acute
SLOWLY AND CAREFULLY IN GIVING THE ETHER AS THOUGH IT WERE CHLOROFORM, UNTIL THE PATIENT'S FACE IS FLUSHED, AND THEN A FEW LAYERS OF SURGEON'S GAUZE ARE ADDED, AND THE ETHER GIVEN A TRIFLE FASTER UNTIL THE PATIENT IS SURGICALLY ETHERIZED; THEN RETURN IS MADE TO THE SAME COVERING AS AT THE START, AND THE REGULAR DROP CONTINUED THROUGHOUT THE OPERATION.

AS IT REQUIRES VERY LITTLE ETHER TO KEEP A PATIENT SURGICALLY ETHERIZED, ONE CAN CHANGE TO THE SMALL DROPPER DURING THE OPERATION. A MUCH DEEPER NARCOSIS IS REQUIRED TO START AN Operation OR TO MAKE THE INCISION THAN LATER ON, WHEN THE OPERATION IS IN PROGRESS. IT IS USELESS TO TOUCH THE CORNEA, AS SO MANY ADVOCATE, AS IT TELLS US NOTHING AND IS UNSCIENTIFIC. ONLY THE INEXPERIENCED TAKE THE PULSE AND TOUCH THE CONJUNCTIVA WHEN GIVING ETHER.

SUGGESTION IS A GREAT AID IN PRODUCING A COMFORTABLE NARCOSIS. THE ANESTHETIST MUST BE ABLE TO INSPIRE CONFIDENCE IN THE PATIENT, AND A GREAT DEAL DEPENDS ON THE MANNER OF APPROACH. ONE MUST BE QUICK TO NOTICE THE TEMPERAMENT, AND DECIDE WHICH MODE OF SUGGESTION WILL BE THE MOST EFFECTIVE IN THE PARTICULAR CASE: THE ABRUPT, CRUDE, AND VERY FIRM, OR THE REASONABLE, SENSIBLE, AND NATURAL. THE LATTER MODE IS FAR THE BEST IN THE MAJORITY OF CASES. THE SUBCONSCIOUS OR SECONDARY SELF IS PARTICULARLY SUSCEPTIBLE TO SUGGESTIVE INFLUENCE; THEREFORE, DURING THE ADMINISTRATION, THE ANESTHETIST SHOULD MAKE THOSE SUGGESTIONS THAT WILL BE MOST PLEASING TO THIS PARTICULAR SUBJECT. PATIENTS SHOULD BE PREPARED FOR EACH STAGE OF THE ANAESTHESIA WITH AN EXPLANATION OF JUST HOW THE ANAESTHETIC IS EXPECTED TO AFFECT HIM; "TALK HIM TO SLEEP," WITH THE ADDITION OF AS LITTLE ETHER AS POSSIBLE. WE HAVE ONE RULE: PATIENTS ARE NOT ALLOWED TO TALK, AS BY TALKING OR COUNTING PATIENTS ARE MORE APT TO BECOME NOISY AND MISBEHAVING. NEVER BID A PATIENT TO "BREATHE DEEP," FOR IN DOING THIS A FEELING OF SOUFFOCATION IS SURE TO FOLLOW, AND THE PATIENT IS ALSO APT TO STRUGGLE.

In gall-bladder work, nearness to the diaphragm causes an irregular respiration, and this is sometimes mistaken for a call for more anaesthetic, when more often it is just the reverse. If the patient is surgically anesthetized, the irregular breathing and grunting does not interfere with the surgeon. Instead of drown-
attack has passed, and then they are as good subjects for ether as for any other anesthetic. Chronic bronchitis is often improved by an anesthetic.

Pulmonary tubercular cases stand ether well. It has been proven that pneumonias follow a local anesthetics as well as a general, so the trouble is not wholly from the anesthetic. We often have a lung edema present during the administration of an anesthetic, and for several hours after an operation, that is often mistaken for ether pneumonia, but the edema will clear up about the time an ether pneumonia should begin.

There is also an embolic and septic pneumonia that occurs independently of the anesthetic and is due to an infection, and will sometimes occur with or without a general anesthetic.

The dangers of general anesthesia depend more on the lack of experience and incompetency of the anesthetist than on the drug itself, in most instances. Many operations do not demand the long anesthetics of ether, with its discomforts, neither do they warrant the dangers of chloroform anesthesia. In this class of operations we have been using primary anesthesia, and find it preferable to nitrous oxide gas, chloroform, or ethyl bromide.

Formerly, operations for exophthalmic goiter were looked upon with a great deal of dread, on account of the anesthetic. We have found these cases, when properly managed, and the ether given by the "drop method," were as good subjects for anesthesia as any other class of cases of the same gravity. We also give these cases 4 of a grain of morphine and \(\frac{1}{3}\) of a grain of atropine, the latter to avoid tracheal mucus, thirty minutes before operation, and find it very helpful in tiding the patient along with but a small amount of anesthetic.

The method of giving chloroform is quite like that of ether; yet there are marked differences to observe. Chloroform should be given with more air and in less quantity, with the regular and small drop. Chloroform acts quickly, and should be given slowly and carefully, the pulse being taken at the facial or temporal arteries. Anesthetists should never allow the patient or themselves to feel hurried. Stop inhalation as soon as patient has reached surgical anesthesia, giving just what is needed, and not one drop more. When struggling occurs, withdraw the chloroform entirely until the patient is quiet, as struggling will produce deep inhalation; hence the danger. Embarrassment in respiration during the administration of chloroform should always be considered serious, and it requires prompt attention and an immediate withdrawal of the drug.

The pulse often misleads the novice. It may be very weak just before vomiting, when one might think there was less need of anesthetic, while really it is a call for more. A thread, intermittent pulse indicates trouble. As Dr. Finney says: "It is well to watch the character and rate of pulse, but of far more importance to watch the respiration as the earliest indication of danger." The eyes may give warning of danger. A rapidly dilating and fixed pupil is a danger signal, while a pupil contracted to a normal size or a little less indicates surgical anesthesia. The color of the blood is also important. Watch all symptoms, but do not rely on any one of them. When giving chloroform to children, I never feel safe if the child is profoundly under, and I try to avoid this condition, aiming to keep it as nearly as possible in moderate anesthesia. An unsatisfactory pulse or respiration is a call for plenty of air. By doing this there will be little need of the numerous drugs so often resorted to.

Nearly all fatalities on the operating table due to an anesthetic are from chloroform, either mixed with some anesthetic or given unadulterated. Public opinion is so much in favor of ether at the present day, that if accidents in its use occur, the surgeon will not be blamed, and it is to his interest, as well as to that of his patient, to see to it that his anesthetist becomes proficient in the administration of all anesthetics, especially ether.

While surgeons know that a competent anesthetist is one of the important factors in the operating room for his own comfort, as well as for that of his patient, there is no class of work that has so little encouragement, and few are willing to follow this line of work (that, in difficulty and nerve-strain, is next to that of a surgeon) long enough to become familiar with the first requirements of a good anesthetizer.
To give an anesthetic properly is all one person can do, and he who undertakes to learn surgery at the same time makes a serious mistake. It has been my privilege to instruct several in the administration of anaesthetics, and I must say that nurses become the most proficient in this line of work. They do not aspire to be either a surgeon or an assistant surgeon; hence it is not difficult for them to give their undivided attention to the anesthetic. I am sure the time is not far distant when nurses will be looked upon as best fitted for the administration of anaesthetics.

One derives little or no benefit from textbooks. While one should be competent in the theoretical part of this important work, there is nothing so helpful to the anesthetist as the hard school of practical experience.