

Original Articles.

A CONSIDERATION OF THE MANAGEMENT OF PATIENTS DURING ETHERIZATION.¹

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THE patient who for the first time subjects himself to anæsthetization is usually filled with apprehension. He has heard that deaths have occurred under ether; of the horrors of suffocation inflicted during etherization, by surgeons crowding the ether; and that occasionally patients cannot be brought under the influence of the anæsthetic. He is to have an operation performed, a matter of great moment to most people. His life is in danger. He feels that he is passing through a crisis in his existence and all of his faculties are strained to their highest tension. Patients meet this situation with varying degrees of fortitude. They are in a helpless state, in which they place themselves in the keeping of another. This person is selected for his skill, experience, and good judgment. The surgeon for the time being holds an exalted position in the patient's mind. His every act, look, and word are noted and largely influence the patient's feeling of security.

The surgeon has the feeling, the result of experience and teaching, that there *is no* danger. Hence he is apt to pay but little attention to allaying the fears of his patient, who frequently believes that there *is* danger. The effect of this inattention is disquieting to the patient; for he feels that he is not being guarded against danger.

A composed, self-reliant man, who is to be etherized, is recognized as one that will give little trouble during anæsthetization. The patient who is weak, vacillating, or whose nervous balance is easily jarred, may by injudicious preliminary treatment be unstrung and rendered a most uncomfortable subject for etherization. This may be largely prevented by a few words of assurance and encouragement and further by first administering the ether slowly and largely mixed with air.

We occasionally see the following plan of etherization pursued: The surgeon enters the room in a brusque manner; tells his patient to lie down on the bed; two or more strong assistants seize the already thoroughly alarmed patient; a junior surgeon is told "to etherize as rapidly as possible," while the surgeon turns away to some of his confrères and regales them with some professional tale or gossip. The patient meanwhile has a sponge, thoroughly saturated with ether, clapped on; attempts to draw a free breath, is choked; struggles, but is held fast; his face becomes turgid from the struggling and asphyxiation; he struggles again and again, until relief comes in the form of unconsciousness, by a union of etherization and asphyxiation. The two conditions of asphyxiation and etherization are not confounded by surgeons. The writer thoroughly believes that it is a lack of consideration, and not brutality, that occasionally allows this scene to be enacted. To take a child before it has reached the age of reason and "to crowd ether" upon it is humane; as it reduces to

a minimum the suffering, the struggle being quickly over.

It is a pleasure to see a man of tact and skill in etherizing change what may be made a very disagreeable experience into at least a bearable one. I have seen well-bred, trusting children of five years taken by a surgeon, told that they were going to be etherized and that they were to fear no danger, that they were to lie down quietly and breathe some ether and that they would soon go to sleep; that even if the ether did choke a little that they must keep right on breathing good long breaths, and that soon they would pass off into a beautiful sleep.

We rarely hear of any violent struggles occurring in etherizing private patients. The surgeon takes time. To be sure, he has a more intelligent person to deal with; he administers the ether slowly and in small amounts, recognizing that the cough and irritation of the fauces are signals to allow the patient to have fresh air.

When the patient arrives at the stage of excitement all recognize the need of pressing ether; but even in this stage he is not unruly and by a few sharp commands may be guided successfully over this height into the vale of unconsciousness beyond.

This paper is written for the purpose of drawing forth the practical points of individual practitioners, which, with them, are largely the result of experience. I will, therefore, make a series of propositions, which I trust will be freely discussed.

Before etherization, the surgeon should satisfy himself regarding the presence or absence of heart disease. The presence of serious regurgitation in a heart may not contra-indicate the use of ether in an "operation of necessity." In deciding the advisability of an "operation of expediency" it should enter as a factor. In any case the presence of serious heart trouble is a source of danger; and to the careful surgeon a matter of consideration. It is not necessary that each patient should be carefully ausculted; in most cases a glance at the patient, a few questions addressed, or the knowledge of the patient's previous life and habits, are all that is necessary.

The safety of the patient and the comfort of the etherizer largely depend on the use of pure anhydrous sulphuric ether. There are two principal manufacturers of ether. I prefer Squibb's. The kind of ether the surgeon is in the habit of using will be the most successful in his hands.

The best medium for administering ether is the one which can give the anæsthetic ether in a condensed form or largely mixed with air. We desire to use the ether largely mixed with air until the patient has become accustomed to its strangling effects; we wish to use it in a condensed form at the approach of the period of excitement.

In general, all inhaling apparatuses having automatic valves for the entrance of air should be condemned.

A sponge is open to the following objections: The difficulty of finding one of fine enough texture to exclude sufficient air and its wastefulness of ether. These difficulties may be partially overcome by moistening the sponge with water, and covering it with a towel. It is especially objectionable inas-

¹ Read before the Boston Society for Medical Observation, December 1, 1884.

much as it may have been used on persons having all sorts of disease, diphtheria as an example. My preference is a towel, stiffened by a newspaper folded within, in the form of a cone. This has the disadvantages of collapsing at times during etherization, and the cone may be made almost impervious to air. Its advantages are its readiness on all occasions and its cleanliness.

As a rule the patient should have a brief, clear description of the sensations he is about to experience.

This description would be contra-indicated in a class of hysterical patients and malingerers. It will, I feel sure, be of great assistance in warding off a struggle, especially in full-blooded, active men, for the last impression on their minds clings even into stupor.

A room free from bustle and confusion, before and after an operative procedure, is an essential for quiet etherization.

This is, perhaps, a matter of small moment, but in many patients it is the extra pressure that unbalances their nervous force.

The mental condition of a patient recovering from ether is one in which there is occasionally much suffering. This condition is best met by the admission of fresh, cool air, bathing the patient's head in cold water, and especially a freedom from obnoxious sights and sounds.

Ether should be administered on a empty stomach. This should not exclude a cup of coffee or of beef-tea, for we might weaken our patient by prolonged fasting: it is intended to apply to nourishment that may leave a solid detritus for vomiting. In certain debilitated cases a glass of liquor is particularly appropriate.

The knowledge of the effect of a glass of wine upon a patient is frequently an indication of the exciting or stupefying effects that ether may have. Dr. Thorndike tells me that he frequently asks the patient: "What is the effect of a glass of wine upon you?" If they answer that it excites them greatly, he anticipates trouble; if, on the other hand, they say that the wine stupefies them, he expects little trouble.

No mechanical impediment should exist to respiration. This means loose clothing about the neck, chest, and abdomen, the removal of artificial teeth or obturators.

Ether should be administered in a semi-recumbent position; the head should be thrown slightly forward and a little to one side, by a doubled pillow. At least the head should not hang backward.

The etherizer should do nothing else. He should hear every respiration and know of the heart's action. The sponge or towel may be steadied by the left hand, one finger of which may rest within the cheek. The right should rest on the temporal artery and may be used to supply fresh ether, to ascertain the conjunctival reflex, or the amount of lividity.

The pulse and respiration are the safeguards of etherization. One of the first signs of impending danger is the diminution of the force and frequency of the pulse-beat. It is surprising to observe with what certainty the force and frequency return on allowing a few inspirations of fresh air. The

sudden changing of arterial blood, in a wound, to a dark color, or the cessation of arterial spouting indicates approaching asphyxiation. This I have often seen illustrated by an operator stopping the administration of ether, without glancing at the patient's countenance.

One of the first symptoms of returning consciousness in protracted etherization is a long, deep sigh on the part of the patient: this is a signal for the administration of more ether, and has been observed by the writer to occasionally precede the return of the conjunctival reflex.

In the early part of etherization "a lull precedes a storm." In the first stage of etherization we may have a patient that is remarkably quiet, drawing short, superficial breaths which increase in frequency until they reach a climax; when apparently an explosion of nervous force takes place and violent struggling ensues.

The less ether used in an operative procedure the better the recovery of the patient.

The first effects of ether are stimulating. The secondary effects are decidedly depressing and I doubt not have occasionally turned the scale against the patient after a severe prolonged operative procedure. This subject was thoughtfully considered by Dr. G. W. Gay, in a paper on "The management of patients during capital operations,"² in which he says: "Use the least possible quantity of the anæsthetic, and allow the patient to rally early, depending upon opiates to control subsequent pain and inquietude."

A full dose of morphia administered an hour before etherization is largely used in certain localities, and it is said that "it quiets the nervous excitement of the patient, reduces the amount of ether otherwise necessary, and prolongs its effects, lessens the tendency to nausea and vomiting, and diminishes shock." I have had but slight experience in the use of morphia under these conditions.

A little ether in children goes a long way. It is remarkable to see how long children will remain etherized, and it is well to use a small amount and to frequently remove the anæsthetic entirely. The effects on young children of a given quantity of ether are usually out of all proportion to their age and size. We therefore must regard children as especially susceptible to ether.

Tongue forceps or the wooden gag are rarely necessary. The skilful management of the anæsthetic by the etherizer may largely prevent their use.

In complete anæsthesia the glottis may become stopped by the falling backward of the tongue. This manifests itself by a peculiar ineffectual pumping of the diaphragm and cyanosis. This closure of the glottis should be at once relieved by pushing the jaw forward, by the two forefingers or thumbs applied behind the angle of the jaw; this brings forward the tongue and thus opens the glottis and allows the entrance of air to the almost collapsed lung. A marked degree of swelling of the glands in the neighborhood of the angle of the jaw and persistent pain may result from the overzealous application of this useful procedure.

It certainly must be a very rare event, when a patient cannot be etherized.

² Boston Med. and Surg. Jour., October 11, 1883.

Lack of skill or timidity in the use of ether on the part of the administrator will probably explain all of the cases reported by the laity.

Under difficult etherization we may consider a class of patients who have been steady drinkers, who pass slowly under the influence of ether. As the patient approaches the period of excitement, he becomes livid, is seized with a succession of tremors, froths at the mouth, his jaws are set rigidly, and altogether he presents anything but a pleasant picture. Possibly we attempt to crowd the ether, or perhaps we wisely allow the patient to have more fresh air, the symptoms subside and we again press the ether; the same tetanic state ensues and we again allow the entrance of more air. This state of affairs frequently continues until the operative procedure is finished, the patient never being fairly etherized. It has been my experience that when one meets such a patient, the best course to pursue is to first crowd the ether: failing in this, to allow the patient to come almost entirely out from under the influence of the anæsthetic, so that he sits up, looks about, vomits, or thoroughly clears the whole of his respiratory tract; then make a new start with fresh ether and frequently the patient will quickly become profoundly etherized.

As a result of this consideration we have certain propositions which I take it all will accept. They are:—

First, Before etherization, the surgeon should satisfy himself regarding the presence or absence of heart disease.

Second, The safety of the patient and the comfort of the etherizer largely depend on the use of pure anhydrous sulphuric ether.

Third, The best medium for the administration is one in which the ether can be given in a condensed form or largely mixed with air.

Fourth, As a rule the patient should have a brief, clear description of the sensations he is about to experience.

Fifth, A room free from bustle and confusion before and after an operative procedure is an essential for quiet etherization.

Sixth, Ether should be administered on an empty stomach.

Seventh, The knowledge of the effect of a glass of wine upon a patient is frequently an indication of the exciting or stupefying that ether may have.

Eighth, No mechanical impediment should exist to respiration.

Ninth, The pulse and respiration are the safeguards of etherization.

Tenth, The less ether used in an operative procedure, the better the recovery of the patient from the immediate effects of the operation.

Eleventh, A little ether in children goes a long way.

Remaining we have a number of questions on which possibly there is difference of opinion. The following suggest themselves to my mind:—

The comparative value of the different brands of ether?

Whether it is better to pull the tongue forward or to push the jaw forward?

Whether any patient exists that cannot be etherized?

The comparative values of a sponge, towels, and inhalers?

The use of opiates and stimulants as adjuncts to etherization.

FIVE CASES OF OVARIOTOMY.¹

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CASE I. was referred to me by Dr. J. J. Minot. Mrs. S., widow, aged thirty-two; had one child five years old. She complained of an enlarged abdomen, irregular catamenia, and constipation. She had first noticed a slight abdominal enlargement one year before. It had grown rapidly of late and was unfitting her for work. Her general health was poor. The tumor was quite large, filling nearly the whole abdomen. It was fluctuating and could easily be felt in Douglas's fossa pushing the uterus up behind the pubes. The right broad ligament was very resistant.

At the operation a large part of the tumor was easily removed, but one cyst-chamber and a mass of solid matter were deeply and firmly imbedded between the folds of the right broad ligament. This part of the tumor was with difficulty enucleated, the peritonæum being extensively lacerated. The whole broad ligament formed the pedicle and was ligatured close to the uterus in two separate parts. The left ovary being enlarged was also removed. Drs. Cabot, Watson, Strong, and Kennedy kindly assisted me. Dr. Baker was present. The patient made a good recovery. The stitches were removed on the tenth day, when the wound was found united by first intention without a drop of pus. The highest temperature was 101° F. The patient did not walk for several weeks on account of a slough on the feet caused by the careless use of a hot-water bottle.

CASE II.—Mrs. C., aged forty-nine, had had two children and a miscarriage. I first saw her with Dr. F. W. Johnson. She was in miserable health, complaining of a swollen abdomen, profuse flowing, frequent micturition, and pain in her left side. Six months previous she had consulted a physician on account of flowing and had been told that she had a fibroid tumor of the uterus. Three months later Dr. Johnson found her still flowing. At that time he could easily feel a very hard, small tumor, which he then supposed to be a fibroid. One month later the abdomen had increased enormously in size and the tumor fluctuated. Early in March she entered the Free Hospital for Women. The tumor then distended the whole abdomen as high as the sternum. The uterus was retroverted and fixed. A sound could not be passed. In view of this exceptional history, the whole tumor having grown within nine months and most of it in one month, we drew off three quarts of fluid with the aspirator for diagnosis. This fluid was characteristic of ovarian tumor.

At the operation a large dermoid cyst was found containing hair, bone, fat, skin, and teeth. There were few adhesions and the tumor was easily re-

¹ Read at the Surgical Section of the Suffolk District Medical Society, January 7, 1885.