

General Practice Series

ANAESTHESIA FOR MINOR GYNAECOLOGICAL OPERATIONS

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In speaking of minor gynaecological operations I am referring particularly to evacuations of the uterus for incomplete abortion, diagnostic dilatation and curettage, hystero-grams, the insertion of radium for the treatment of carcinoma, cauterization of the cervix uteri, drainage of Bartholin's abscess, and the many other minor procedures which aid in the diagnosis and treatment of the lesser ills of the female.

These minor procedures make up a formidable part of the total volume of operative gynaecology. At Groote Schuur Hospital in 1958 a total of 2,768 anaesthetics were administered for the commoner minor procedures in gynaecology. The total of gynaecological anaesthetics was 4,194 so that these particular minor procedures made up 66%. They included the following:

Evacuations for incomplete abortion	1,192
Diagnostic dilatation and curettage	749
Diagnostic biopsy and cauterization	429
Hystero-grams	192
Insertion of radium	206
Total	2,768

These operations seldom require prolonged anaesthesia, nor do they call for deep anaesthesia. Many of the patients do not need to be hospitalized at all, or else they need to be kept in hospital overnight only.

In general the patients are reasonably fit, with the obvious reservation that some of them, especially amongst the group requiring evacuation for incomplete abortion, and particularly those who require this treatment urgently to stop haemorrhage, may well be gravely ill from acute blood loss, and must be handled with despatch but with more than ordinary caution. But the great majority do not present any real problems from the point of view of the anaesthetist and are, as a rule, quite safely and speedily anaesthetized along the lines I wish to describe.

AIMS OF ANAESTHESIA

It is too often forgotten that the anaesthetic technique should be tailored to suit the requirements of the type of surgery to which the patient is to be subjected. As an extreme example of 'frozen foresight' I cite the example of the patient who was given, by a specialist anaesthetist, an anaesthetic admirably calculated to provide suitable facilities for cholecystectomy, viz. endotracheal intubation under thiopentone and a relaxant, but one far too elaborate and hazardous for the diagnostic curettage for which the patient was scheduled and to which she was actually subjected. This was an example of sending a man on a boy's errand. When I see such displays I am moved to speculate, un-

charitably, that the choice of anaesthetic is perhaps dictated, not by the needs of the patient, of the surgeon or of the surgery, but those of the anaesthetist's ego; and 'egotistical anaesthesia' is perhaps not un-descriptive of the rut into which that anaesthetist has sunk.

Needs of the Patient

The lady who is to have one of the minor operations we are discussing will almost certainly be placed in the lithotomy position as being the one best calculated to assist the surgeon. It is, however, an undignified position and not one the patient would care to assume while conscious and in the presence of onlookers. From that point of view unconsciousness is something she would appreciate. She usually has no other demands to put to the anaesthetist except the unvoiced, but assumed, wish to be spared any pain while awake or asleep.

Needs of the Surgeon

The surgeon who is to perform the operation (and at Groote Schuur Hospital 76% of the gynaecological surgery in 1958 was done by registrars and interns) wishes to have a patient with relaxed abdominal wall so that he may palpate her pelvic organs with ease. The lithotomy position flexes the thighs on the trunk and flexes the trunk also, so that the abdominal muscles are well relaxed in this position, and the anaesthetist needs only to prevent any active muscular contraction to satisfy the surgeon on this score. Adequate anaesthesia with the avoidance of any hypoxia and hypercarbia will provide this quiet musculature. Drug-induced muscular paralysis, either from great depth of anaesthesia or from the use of curare, is unnecessary and, indeed, to be condemned for such brief operations as these. Any other demands the surgeon may make are usually unwarranted and run parallel, too often, with the old adage that it is only the inept workman who blames his tools or his assistant for a job badly done.

The cervix cannot be relaxed by deep anaesthesia or by curare.

Needs of the Anaesthetist

The anaesthetist asks that his anaesthetic shall act with rapidity, produce relief from any pain or discomfort of the operation, and then release the patient to a rapid return to consciousness and a minimal degree of after-effects such as nausea, headache or spots-before-the-eyes.

In selecting his agents and techniques he must bear in mind the needs of the patient and the surgeon which have just been discussed. He must remember, too, the needs of the surgery and the anatomy and physiology of the parts

which are to be subjected to surgical interference. These parts were designed to absorb a considerable amount of physical punishment, and have been innervated accordingly, chiefly through the autonomic nervous system. Their threshold of perception, moreover, varies with the psychical state of the patient.

Under conditions requiring digital examination of the pelvic organs, touch is not well appreciated unless it causes pain, and pain is usually only produced if there is local inflammatory reaction or unusual trauma on the part of the examiner. Thus, for the vast majority of patients undergoing minor gynaecological surgery, examination *per vaginam*, which is always an important part of any procedure, may be uncomfortable but is not likely to be painful, so that no great depth of anaesthesia will be required to prevent reflex increase in tone of the abdominal muscles. The lithotomy position, except in the aged arthritic, is not painful, nor is catheterization of the female bladder—a usual prelude to operations in this area. The single manoeuvre which is most likely to cause pain is the rapid, forceful dilatation of the cervix uteri.

The cervix can be dilated in a conscious, unanaesthetized patient without pain *only* if the dilatation is done very gently, very slowly, and with an almost infinite gradation in dilator sizes. As far as is known (and anatomy text-books read like 17th century treatises on this aspect) the cervix is not innervated from the central nervous system at all but only from the autonomic system, so that *tension* is the only pain-stimulus the cervix will appreciate. Thus, the cervix can be seized, crushed, cut or burned without pain, as is well known by professional abortionists.

There lingers still, in reputable anaesthetic text-books, the century-old observation that rapid, forceful dilatation of the anal sphincter or the cervix causes pain such that only deep anaesthesia can obtund and that, as a result, these manoeuvres can be resorted to as a last measure in resuscitating the patient apparently dead from an anaesthetic. It is of interest to uncover the origin of this myth, which dates back to John Snow, the first specialist anaesthetist, and James Young Simpson who introduced chloroform to gynaecology. In those days patients were exhorted to 'breathe deeply' as anaesthesia was being induced and they usually obliged. In addition to aiding in the uptake of the anaesthetic vapour, this overventilation washed out carbon dioxide. As a result, and particularly in susceptible patients, the blood pressure fell¹⁻³ and the patients became apnoeic although only very lightly anaesthetized. Under these circumstances of apparently approaching death, *any* painful stimulus will cause the patient to gasp. It needed only a single observation of this phenomenon to brand the value of this 'resuscitative measure' on the brain of every anaesthetist of that generation and, indeed, of every succeeding generation. How many other empirical measures in the practice of medicine are based on as tenuous a coincidence?

The method of providing anaesthesia for minor gynaecological operations which I am about to describe takes into account all that I have outlined above, and can be speedily and *safely* applied to at least 80% of patients presenting for such surgery. The remaining 20% can be handled as safely with intelligent modifications of the technique, but in this respect I draw particular attention to the last, but by no means the least, of the requirements listed below.

A METHOD OF ANAESTHESIA FOR MINOR GYNAECOLOGICAL OPERATIONS

Required

1. A patient who has been properly examined and prepared for an anaesthetic, including the pre-anaesthetic administration of hyoscine hydrobromide, 0.4-0.6 mg. by injection, with or without morphine sulphate, 6-10 mg., or pethidine, 20-50 mg. Atropine (also in a dosage of 0.4-0.6 mg.) can be used in place of hyoscine but is less valuable.
2. An anaesthetic machine capable of delivering nitrous oxide and oxygen mixtures in the ratio of 8 l./min. of nitrous oxide and 2 l./min. of oxygen (20% of oxygen).
3. A 20-ml. syringe fitted with a sharp, sterile needle of adequate size and charged with 20 ml. of a 2.5% solution of sterile thiopentone.
4. An intelligent and alert anaesthetist.

Method

The patient is placed on the operating table and an arm extended on an armboard. A sphygmomanometer cuff is fitted snugly to this arm above the elbow and the patient's blood-pressure is measured and recorded. The cuff is then re-inflated to a pressure midway between systolic and diastolic pressures and a suitable vein sought.

When the vein has been found and is maximally distended with blood (the cephalic or basilic veins just below the elbow are the best), the needle of the thiopentone syringe is inserted into it, the cuff deflated and 2 ml. of the thiopentone injected. The syringe is fixed to the arm with adhesive tape, the anaesthetist moves to the patient's head, and while he is turning on his nitrous oxide and oxygen in the ratios described, he asks the patient, 'do you have any pain in your hand?' The answer to this question tells him (a) whether he is injecting into an artery, and (b) how much thiopentone the patient is likely to need. The patient who is already asleep from 50 mg. of thiopentone is not likely to require very much more.

When he has turned on his gases and has obtained the answer to his question the anaesthetist injects a further 4-6 ml. of thiopentone, and announces pleasantly, 'I am going to give you some gas as well, while you are going to sleep', and gently applies the mask of the anaesthetic machine to the patient's face to commence the administration of nitrous oxide and oxygen, the chief prop of his anaesthetic technique.

He then announces, 'Mrs. X, we are going to bend up your legs and wash you. Just relax and lie still'. Mrs. X may very well not hear this, but it is surprising how effective this psycho-anaesthetic approach is. At this stage the surgeon and nursing staff, with gentle, deliberate movements, proceed to position the patient and clean the vulva and vagina with antiseptic solution. Seldom is additional thiopentone needed for this but it can, of course, be given if needed.

If the surgeon is a person who uses tinctures on the vaginal mucosa, he is best avoided. Alternatively he can be prescribed a Sitz bath in alcohol for himself.

The draping of the patient follows the cleaning and is a painless procedure, unless towel clips are unnecessarily inserted into the patient's skin. Painless also is the catheterization of the bladder, but it is a signal to the anaesthetist that the examination of the pelvic organs is shortly to begin.

He therefore, in anticipation, administers another dose of 4 - 6 ml. of thiopentone. As he had 10 - 14 ml. in his syringe before this, he will have at least 4 ml., and perhaps as much as 10 ml., in reserve for the balance of the operation, after giving this pre-examination dose, which should be so timed that administration of the dose ceases at least 45 seconds before the surgeon inserts his hand into the vagina.

When the examination has been completed, the operation begins. Even if the cervix is to be dilated, no further thiopentone is administered until the patient stirs, when another dose of 2 - 4 ml. is usually ample to quiet her.

The anaesthetic is continued in this way, with intermittent doses of thiopentone supplementing a basic nitrous oxide and oxygen anaesthetic, until the operation is ended. It is very seldom necessary to use more than a total of 500 mg. of thiopentone. Ill and anaemic patients will need less, while those few patients who will obviously need more are introduced early in the course of the anaesthetic to a more potent supplement, such as trilene or ether.

The blood pressure is determined from time to time and a remarkable volume of information on the behaviour of the cardiovascular system under anaesthesia can be acquired in this way.

When the operation has been concluded the syringe and needle are removed from the arm and the mask from the patient's face. Most patients will be waking up as they leave the operating theatre and very few will be still asleep when they reach their bed.

Some Don'ts

(a) Don't jerk any part of the patient suddenly and roughly. It may cause coughing and laryngeal spasm.

(b) Don't use any harness to hold the anaesthetic mask in place. The anaesthetist's hand is best for this purpose and the use of airways is avoided. The mask can be removed more quickly also, in an emergency.

(c) Don't use any airway if it can reasonably be avoided. These patients are usually so lightly anaesthetized that they will cough or vomit if an airway is used, and may develop laryngeal spasm.

(d) Don't exceed a total dose of 500 mg. of thiopentone except under completely justifiable circumstances.

(e) Don't give the patient less than 20% of oxygen or a total gas-flow volume of less than 10 litres per minute. To do this will lead to *anoxia* and *hypercarbia*. Anoxia causes restlessness and fighting during anaesthesia and nausea and vomiting during recovery. Hypercarbia causes muscular contraction during anaesthesia and leads to apnoea and a fall in blood pressure during recovery.

(f) Don't allow your attention to wander *in any way* from the patient, the anaesthetic she is receiving, and the operation she is being subjected to. Accidents always seem to happen when one is not looking.

The figures from Groote Schuur Hospital are quoted with the permission of the Medical Superintendent, Dr. J. G. Burger.

REFERENCES

1. Henderson, Y. (1908): Amer. J. Physiol., 21, 126.
2. *Idem* (1909): *Ibid.*, 25, 310.
3. Hill, L. and Flack, M. (1910): J. Physiol., 40, 346.