ANAESTHESIA IN MINOR SURGERY*

BY

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Under this heading it would be possible to discuss every type of anaesthesia, past and present. Obviously this would serve no useful purpose, so it is proposed to limit the remarks to a definition of the ideal and then give the advantages and disadvantages of a few of those anaesthetics in constant use for this type of surgery.

The definition is covered by the following six requirements: (1) That the anaesthetic is safe. (2) That the patient should not be hindered from continuing his work up to the time of the anaesthesia. (3) That the necessary depth of anaesthesia be induced for the successful performance of the particular operation. (4) That the patient should regain consciousness quickly and be capable of resuming his occupation in the least possible time. (5) That the minimum damage is done to the tissues of the body. (6) That the type of anaesthesia shall not be unpleasant to the patient.

Choice of Anaesthetic

It is obvious that all these requirements cannot be fulfilled. Certainly the nearest approach to the ideal is local anaesthesia, which has a very wide field of usefulness; but, luckily for the anaesthetist, even this type of anaesthetic is not possible in every case, owing perhaps to the patient's nervousness or to infection of the operation site.

The second anaesthetic of choice would be evipan or pentothal sodium; but here again we fall far short of the ideal, as this type of anaesthetic is difficult of use if not dangerous in small children, who probably form the largest group requiring minor surgery, such as removal of tonsils and adenoids, circumcisions, and dental extractions. Again, evipan and pentothal sodium are contra-indicated in toxic patients, in the old and feeble, in liver diseases, and in hyper- and hypo-tension. In suitable cases, such as good anaesthetic risks, it is advisable to prepare patients before the administration of these two drugs, and in the case of evipan premedication in the form of 1/3 grain of omnopon and 1/150 grain of scopolamine should sometimes be given and allowance be made of anything up to eight hours for recovery after operation.

Nitrous Oxide and Oxygen

We have in this combination perhaps the most useful anaesthetic, working as we do in this country under social conditions that do not permit of patients lying about in dental surgeries and hospital out-patient departments for hours recovering from the after-effects of anaesthesia.

Now the essential pre-operative treatment of a patient about to receive nitrous oxide and oxygen is starvation for three hours before administration. It is a real advantage, but by no means essential, to give some sedative drugs such as omnopon 1/3 grain and scopolamine 1/150 grain one hour prior to induction. Should the surgical procedure permit immediate return to work and the surgeon be willing and able to operate on a patient who may move slightly and is not relaxed, there is no indication for any premedication.

During the past few weeks patients have been given an alkaline powder—biscodol, two teaspoonfuls in a little water—immediately before the administration of nasal gas for dental extractions. It appears from a very limited experience that these patients make a better and quicker recovery than those who have not received this alkaline treatment. In these cases nitrous oxide and air, not oxygen, were given, as it was felt that oxygen administered from a cylinder tends to cause giddiness and an inclination to vomiting much greater than with nitrous oxide and air. The method just described is adopted only for short dental extractions, and while I fully realize that it is more difficult to maintain a good colour and steady anaesthesia with this technique, the after-results seem to justify it.

Vinyl ether, which certainly has a definite place in anaesthetics for minor surgery, is dealt with by my colleague in detail in another paper (see p. 1265).

Ethyl Chloride

When administered either in a closed bag or on an open mask this drug has many points approaching those of the ideal anaesthetic. It is not unpleasant, and if given in the sitting position most children can be put to sleep without fright, struggling, or those unpleasant scenes so often associated with the induction of anaesthesia without premedication. The absence of depth and length of anaesthesia are perhaps its greatest handicaps, and although methods have been devised for continuous ethyl chloride anaesthesia it is felt that these are not as safe as the administration of gas, oxygen, and a small quantity of ether, should the necessity arise. Therefore the use of ethyl chloride is usually limited to the induction of anaesthesia or to those surgical procedures requiring at the most one to two minutes for their performance.

Ether

This drug fulfils only two of the requirements of this type of anaesthesia—first, it is certainly the safest; and, secondly, any stage or depth of anaesthesia required can be reached and maintained for as long as necessary. Owing to its unpleasant induction, post-operative vomiting, slow elimination, and damage to tissues generally, it is only used in conjunction with nitrous oxide and oxygen to assist in maintaining a quiet and even anaesthesia, and then in quantities just large enough to obtain relaxation should this be necessary. There is at least one surgical condition in which the induction and maintenance of anaesthesia should be performed by ether, and ether alone—namely, a second surgical intervention in a patient who has become exsanguinated and is still bleeding after the removal of tonsils. It is felt that this second surgical procedure, which is realized by all to be a most serious undertaking, would be greatly endangered should the anaesthesia cause any cyanosis or further fall in blood pressure, as is certain to happen with the administration of nitrous oxide, chloroform, or any of the barbiturates.

Chloroform

This has its definite uses, and if it were not for the fact that it is the cause of the majority of anaesthetic deaths it would still hold a primary place in the list of anaesthetics administered. In spite of this great disadvantage it is certainly the anaesthetic of choice in a few minor surgical procedures, such as the production of analgesia or perhaps the first stage of anaesthesia when opening a

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quinsy; also for those minor surgical operations associated with midwifery, when the more elaborate apparatus required for the administration of nitrous oxide and oxygen or cyclopropane is not available.

Cyclopropane (C₃H₆)

This comparatively new anaesthetic has a definite place in anaesthesia for minor surgery, as premedication can be dispensed with entirely, although it is an advantage to administer small doses such as 1/100 grain of atropine and 1/6 grain of morphine. It is not unpleasant from the patient's point of view, and any stage of anaesthesia required can be quickly and easily produced, although the profound relaxation of deep ether or spinal anaesthesia cannot be obtained. Complete and absolute recovery with cyclopropane is rapid; post-operative complications are rare, with the exception of vomiting, which, strange to relate, is usually unassociated with nausea and does not distress the patient to any extent.

Cyclopropane cannot be classified as an entirely safe anaesthetic, although, unlike chloroform, some warning of impending disaster is certainly given by failure of respiration, rapidly increasing pulse rate, or a pulse rate below 50; but, owing to its quick elimination, it is easy, by washing out or diluting the anaesthetic with oxygen, to get the patient to a lighter and safer plane of anaesthesia. The high cost of this gas makes it essential that it be administered always by a close-circuit system, of which there is no standard pattern in Britain at the moment; but many types of apparatus are being experimented with, and it is possible that in the near future an apparatus which is easily portable, efficient, and moderately inexpensive will be on the market.

Conclusion

From these remarks on the relative merits of the various anaesthetic agents at our disposal for administration in minor surgical procedures it is obvious that no one drug is much in advance of the others in efficiency and safety, and that choice of the anaesthetic must depend on the surgical operation to be performed and the social and economic conditions of the patient. In conclusion it might well be stressed that so-called minor surgical proceedings require as much skill and ability on the part of the anaesthetist as major operations where the patient has been properly prepared, examined, and premedicated. Too often does one hear a surgeon tell a patient that a mere whiff of anaesthetic is all that is necessary before, say, a manipulation which we all know requires full and profound surgical anaesthesia.

A. Jores (*Med. Welt*, October 2, 1937) discusses the relations between the hypophysis and renal affections as met with in pregnancy, in eclampsia, in Cushing's syndrome, and in nephritis. There seems to be a connexion between the basophil cells of the hypophysis and increased blood pressure. It has been proved experimentally on rabbits that the administration of large doses of extract of the posterior lobe of the pituitary gives rise to patches of necrosis in the liver and to changes in the kidneys similar to those observed in eclampsia. On the other hand, in about one-third of the cases of Cushing's syndrome the kidneys showed histological evidence of sclerosis at the post-mortem examination. Similarly there seems to be a definite connexion between acute nephritis and the system composed of the hypophysis and the middle brain. The author, however, warns against exaggeration of the importance of the hypophysis in renal affections.

VISCERAL PAIN*

BY

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The subject of visceral pain is a large one and some limitation of my subject is essential. We can consider visceral pain first as Nature's danger-signal, and our most valuable aid to diagnosis. This involves a determined attempt to unravel and understand its mechanism, for we may be sure that if we cherish any illusions as to that mechanism our diagnosis will go astray. But there is an alternative and no less necessary point of view. We may consider visceral pain not as a warning, grim at times, yet on the whole beneficent, but as a calamity from which our patients implore us to deliver them. When the pain originates in a hopeless condition such as an inoperable carcinoma of the rectum or intractable angina pectoris, though the surgeon must still be familiar with the nervous pathway by which the pain is transmitted to the sensorium, he is less concerned with what he can learn from that pain than with what he can do to relieve it. I propose, therefore, to limit my remarks to the mechanism of visceral pain from its diagnostic aspect, and to deal for the most part with pain originating in the gastro-intestinal tract.

The problem here is a peculiar one, differing, for instance, from that of pain in the genito-urinary system, since the gastro-intestinal tract is quite insensitive to the stimuli—cutting, burning, etc.—which cause pain when applied to the somatic nerves, and yet is supplied with afferent nerve fibres capable of causing direct visceral pain in response to an adequate stimulus. We have quite discarded, I think, the theory of Lennander that there is no such thing as true visceral pain in the gastro-intestinal tract, and also the theory of Mackenzie that all pain in gastro-intestinal lesions is referred to the somatic nerves of the abdominal wall. The one stimulus adequate to produce direct visceral pain in the gastro-intestinal tract appears to be tension on the afferent nerves in its muscular coats, and this tension is usually caused by spasmodic and exaggerated peristaltic contraction.

The afferent nerves supplying the insensitive intra-peritoneal viscera show no anatomical features that distinguish them from the somatic sensory nerves, but their physiological limitations are so striking that we are justified in regarding them as a separate system, to which we may perhaps give the name of viscerosensory nerves. It must not be forgotten that the mesentery and mesocolon are supplied by somatic sensory nerves to within a short distance of their attachment to the bowel, though the great omentum appears to be devoid of any sensory nerves subserving pain. The sensitive mesentery is often involved in such lesions as strangulation and volvulus, and this causes a combination of visceral and somatic pain that is not easy to unravel.

Characteristics of Pure Visceral Pain

We can study the features of visceral pain in the intestine in its purest form in strangulation of a small knuckle of the lower small intestine in a femoral hernia. I insist that the knuckle must be a small one, because then the sensitive portion of the mesentery is not involved. Another equally good lesion for our purpose is a stenosing

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