work. Gwathmey of New York uses a combination of ethyl chloride, ether, and chloroform, while McKesson of Toledo recommends a saturation of nitrous oxide. Personally I have not tried this method up to the present, and I have preferred to rely on my mixture of equal parts of ether and chloroform, but I hope before returning to London to have an opportunity of seeing Dr. McKesson use this method. I have been using this mixture for the last two years, and have only substituted ethanesal for ether during the last three months, with, I think, a great improvement, not only in the anaesthesia but also in the after-effect, and I am only now beginning to realize what a good relaxation I can obtain, and how easily it is to produce almost at will, and within a few minutes.

Now, turning to the use of this combination in nose and throat work, when I first began to use this method I had nothing to guide me; so far as I knew, my friend Gwathmey of New York was the only man who had tried to give gas and oxygen for throat work, and he had only begun, for the war cut short his work in New York and he came over to Europe. Our technique is, briefly, as follows:

Hypodermic injections (in children, none or at most 1/200 gr. atropine; in adolescents, morphine 1/6 gr. and atropine 1/150 gr.; in adults, hyoscine, morphine and atropine, in Burroughs Wellcome's hyoscine compound "A" or "B") are given half an hour before the time of operation. The patient is then anaesthetized with gas and oxygen, and the anaesthesia deepened with ether or mixture until the breathing is deep, regular and slightly stertorous; the colour should always be pink. The face-piece is then removed, a gag placed in the mouth for those cases—for instance, enucleation of tonsil—when it is necessary, and the anaesthetic is continued by means of a tube placed in the mouth. Let me hasten to say that one of the astonishing things about this method is the small amount of mixture that is necessary to maintain the requisite anaesthesia. Indeed, in a certain proportion of cases hardly any mixture at all is necessary for the rest of the operation—that is to say, after the face-piece has been removed; after that, as I have said, in a certain proportion of the cases gas and oxygen alone is sufficient.

In this connexion I must mention one particular type of case in which I have been forced to use chloroform alone as my adjuvant. I refer to cases of diathermy. In our throat department Mr. Harmer is treating cases of carcinoma of the tongue, fauces, etc., with the diathermy cautery, and, I gather, with excellent results. Occasionally in these cases there is a certain amount of sparking—either accidental or intentional—and so one cannot have any ether in the adjuvant bottle lest there be an explosion, so that one has to use chloroform. In a large number of these cases the best way to continue the anaesthesia is to pass one or two small rubber tubes through the nostrils and lead the anaesthetic into the post-nasal or endopharyngeal space, and I do this by means of a metal stirrup and tubes. A still further development of this method has become necessary when dealing with certain plastic operations on the face and with such cases as laryngo-fissure and the like.

The first occasion on which I used endotracheal gas and oxygen was on October 9th, 1918, for a case of laryngo-fissure. In this case, after the tracheotomy was performed, I gave gas and oxygen by means of a small catheter through the tracheotomy tube, and with excellent result. Since then I have resorted to endotracheal gas and oxygen on many occasions for similar operations and for plastic face operations.

THE VALUE OF SPINAL ANAESTHESIA FOR URGENCY OPERATIONS IN THE AGED.

BY

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THIS method of inducing anaesthesia, for operations upon the abdomen and lower limb, is of distinct value in urgency surgery; particularly so in elderly subjects where the use of inhalation anaesthesia may be a matter of considerable risk. In fifty cases where I have employed spinal anaesthesia, a general anaesthetic being at the time contra-indicated, I have had no difficulties or complications, and in half this number the patients have been 70 years of age or more. In every case the anaesthesia has been completely successful and the results distinctly satisfactory.

In elderly patients where shock, pulmonary and other complications are liable to follow general anaesthesia, spinal anaesthesia should be employed. It can be used for practically all operations upon the abdomen and lower extremity. I have found it satisfactory even when operating upon the upper abdomen, though here more care must be used in handling the abdominal contents, otherwise the patient may complain of discomfort and pain. Pulling upon the stomach is apt to cause retching or even vomiting, and contact with the abdominal surface of the diaphragm gives rise to pain in the shoulder, through the connexions of the phrenic nerve and the cervical plexus.

Spinal anaesthesia has been used with complete success for the following operations: Strangulated femoral, inguinal, and umbilical herniae; intestinal obstruction, acute appendicitis, perforated duodenal ulcer, acute pancreatitis, retention of urine due to enlarged prostate, amputation of lower limb for senile and diabetic gangrene. The following cases will serve as examples of its usefulness:

A male, aged 75 years, admitted with a strangulated femoral hernia of four days' duration. He was very distended, and the vomit was faecal in character. He had well marked bronchitis. His recovery after the operation was uninterrupted.

A female, aged 73 years, with a large strangulated umbilical hernia, cardiac weakness, and a bad chest. She made a satisfactory recovery after operation and her bronchitis became no worse.

A female, aged 64 years, sent in with a diagnosis of perforated gastric ulcer. Her pulse was so irregular and intermittent that it was uncountable. Operation was thought to be her only chance, but the anaesthetist did not consider she would stand a general anaesthetic, her condition being so bad. Stovaine was given. Laparotomy showed she was suffering from acute gangrenous pancreatitis, and the pancreas was freely drained. After discharging sloughs of pancreatic tissue for nearly three weeks she subsequently made a good recovery.

The technique adopted is as follows:

An injection of omnopon, 1 c.cm., and scopolamine, 1/300 gr., is given about half an hour before the operation. For producing the anaesthesia Barker's solution of stovaine, prepared by Billon of Paris, is used. This contains 0.05 gram of stovaine and glucose respectively in each cubic centimetre of the solution. The usual dose given was 2 c.cm., a smaller dose not being found sufficient in adults. For the injection the patient lies on his left side on the operating table, with the thighs and knees well flexed, and the head drawn down to the chest. By this means the intervertebral spaces are opened up and the introduction of the needle facilitated. His head and shoulders are raised on two pillows. The spinal needle, with stylet in position, is inserted between the second and third lumbar vertebrae, a little to one side of the middle line, and pushed inwards and slightly upwards for a depth of 2 to 2½ inches. The stylet is then withdrawn and a few cubic centimetres of cerebro-spinal fluid are allowed to flow out. Two cubic centimetres of stovaine are then slowly injected with the syringe and the needle withdrawn. Absolute asepsis must be maintained during this procedure. The patient is now placed on his back, a single pillow being left under his head and shoulders. It is of great importance not to raise the head more than this.

There is a considerable fall of blood pressure following the injection, due to the loss in tone and dilatation of the vessels of the alimentary canal and lower extremities. If the head is raised symptoms of faintness or even syncope may follow, due to cerebral anaemia. Readings of the blood pressure taken before and after the injection show the pressure may fall as much as 30 to 40 mm. of mercury after the stovaine has been administered. The patient's head and shoulders are therefore only raised sufficiently to prevent the solution reaching and paralysing the vital centres in the cervical cord. If high abdominal anaesthesia is desired, the buttocks should be elevated immediately after the injection, to enable the drug to reach the higher dorsal nerves.

The operation is commenced as soon as the screen and towels are arranged and the surgeon is ready. The patient's expression is watched when the first incision is made to see if the anaesthesia is successful; if not, the operation is delayed for a few minutes until anaesthesia is complete. I have not found that the preliminary injection of omnopon and scopolamine has any ill effects in the aged. It acts as a preventive of shock, and the patient frequently sleeps peacefully throughout the operation and is quite unaware of what is being done. If thirst is complained of, fluids may be given by the mouth.

After the operation is completed the patient must be kept flat in bed for several hours, until the blood vessels regain their tone and the blood pressure returns to normal. An injection of pituitrin may with advantage be given

during this stage. Where this procedure has been carried out I have had no failures and no fatalities due to the anaesthetic. The absence of post-operative shock, vomiting, and pulmonary complications has been remarkable in all cases.

Spinal anaesthesia has also distinct advantages over local anaesthesia in operating for strangulated herniae. It is in these cases often impossible to obtain satisfactory anaesthesia of the parietal peritoneum by local infiltration, and much pain and discomfort are thereby caused to the patient. Further, the pain experienced after operations performed under local anaesthesia is frequently a marked and disagreeable feature.

I would therefore emphasize the advantages of spinal anaesthesia for urgency operations in the aged. Where the patient's condition is so bad as almost to negative operation, spinal anaesthesia enables the operation to be safely undertaken. No preliminary preparation is necessary, and fluids can be taken by the mouth during and immediately after the operation is completed—a great gain to elderly patients. Shock, post-operative vomiting, and pulmonary complications are completely avoided. The extreme relaxation of the abdominal wall makes the handling of distended gut an easy matter in cases of intestinal obstruction.

All these details are of equal importance to surgeon and patient alike, and tend appreciably to reduce the mortality for these operations.

EIGHTY-NINTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Newcastle-on-Tyne, July, 1921.

SECTION OF PROCTOLOGY.

J. P. LOCKHART-MUMMERY, F.R.C.S., President.

DISCUSSION ON

OPERATIVE TREATMENT OF HAEMORRHOIDS.

OPENING PAPERS.

I.—Sir C. GORDON-WATSON, K.B.E., C.M.G., F.R.C.S.,
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At the Annual Meeting at Cambridge last year, when speaking on the subject of the operative treatment of cancer of the rectum, I affirmed that there was no surgical subject on which surgeons differed so much or had varied their views so often. To-day, in discussing the operative treatment of haemorrhoids, I feel that we are dealing with a subject which is in the main stabilized, but I recognize that there are differences in practice in different schools and details in the technique and after-treatment which may afford useful material for discussion.

For the purpose of this discussion I have prepared some figures based on a series of 1,000 consecutive cases treated at St. Mark's Hospital, and I am much indebted to Mr. Clement Chapman for the trouble he has taken in examining the records and preparing these figures. I think I cannot do better than go through them and consider their bearing on the operative treatment of haemorrhoids.

The first point to note is that, excluding external haemorrhoids, which are in reality haematomata, only 560 out of 904 cases of internal haemorrhoids—that is, 62 per cent.—required to be operated on as in-patients. It is possible that if more beds were available this figure might have been higher, but I do not think it would be appreciably so, because all cases considered to require operation go on the waiting list, and very rarely fail to come in when sent for—that is, they have not sought admission elsewhere. In other words, it is possible to cure some 40 per cent. of cases of piles proper without operation. We are not concerned to-day with non-operative treatment.

With regard to the cases of external haemorrhoids little need be said, for they are cured, and cured quickly, by incision and turning out the clot, or cutting off *en bloc* with or without a local anaesthetic. They have, in my opinion, little relationship to true piles, and are usually due to

haemorrhages from the venous radicles of the inferior haemorrhoids which occur as the result of straining at stool, and are of little consequence unless they become inflamed.

The subject of the treatment of internal haemorrhoids by injections is of some interest and one of the points which I hope will provide fruitful discussion. My personal experience of this treatment is limited to a small number of cases treated some years ago in the out-patient department at St. Mark's Hospital and to an occasional case injected in private. So far as the practice at St. Mark's is concerned, you will see that only 49 cases out of 598 internal haemorrhoids were submitted to treatment by injection, and that the results were as follows: Cured 33, or 67 per cent.; improved 9; required operation 7, or 1 in 7. A perineal abscess followed in one case. It would appear from inquiries made at St. Mark's Hospital that there is a prevalent impression that this form of treatment is freely practised there—an impression which may have arisen from an article having been written on the subject in the BRITISH MEDICAL JOURNAL by an advocate of this method who did temporary work at St. Mark's during the war. The method does not, however, find much favour with the assistant surgeons of the hospital at the present time. Without doubt carbolic injections are most useful for and frequently cure the single bleeding pile, which is a great inconvenience, and yet hardly seems to justify an operation; sometimes by a single injection, but more often after three or four weekly injections. Treatment by injection, so far as experience at St. Mark's goes, is not satisfactory for multiple piles or for the inter-external variety. Failure to replace a thrombosing pile, if it prolapses after injection, may result in active inflammation, and though only one case of abscess occurred in the 49 under review, perianal and even ischio-rectal abscess is well known to be a serious complication of this form of treatment, though probably due to faulty technique. No doubt, like all surgical methods, experience improves results, and it may be that we ought to give a more extended trial to this method, especially amongst those who can ill afford the time to lie up and do not enjoy the benefits of national insurance, out-of-work pay, and the like, and also for those who for some cause or another are unsuitable patients for an operation under an anaesthetic.

The important factor to arrive at is the percentage of cases who, after treatment by injection, subsequently require operation. In the present series of 49, 7 were not cured by injection and required operation—that is, 14 per cent. The author of a recent article in the *Practitioner*, Mr. Eadie, a whole-hearted advocate of injection^{*} in preference to operation, gives injections two or three times a week, and finds that some nine applications are usually necessary for a cure. He goes on to say:

"There appears to be a tendency for other veins of the anal canal to become varicose when the supporting pressure of the piles is removed, and by seeing the patient from time to time we can inject these as these show in the speculum and before they give rise to symptoms. I therefore like to keep the patient under observation for a year, seeing him every two or three months."

I think that this prolonged period of treatment must prove irksome to the patient, and it seems to me that twelve days or so in bed after a clamp and cautery operation might prove not only more efficacious in the long run but more economical, both as regards time and money. It seems to me, however, that treatment by injection is entitled to more consideration than it has met with in the past, and it is one of the points which I expect to hear freely discussed at this meeting.

The next point I wish to consider is the type of operation to be recommended and the special advantage and disadvantage of each. You will see that in the series under consideration the ratio of the Whitehead operation to ligature is about 1 in 60 and the clamp and cautery to ligature about 1 in 40. At the present time the clamp and cautery percentage is higher, because I believe I am more partial to this operation than either of my colleagues on the senior staff, and during a good part of the period involved in these statistics I was absent at the war. During 1920 there were 272 ligature operations, 23 clamp and cautery, 10 Whitehead, or about 1 in 27 Whitehead to ligature, and 1 in 12 clamp and cautery to ligature.

* Carbolic 10 parts, hamamelis 10, and water 80.