

It is difficult to estimate the exact depth to which the cautery extends; it will be found sufficient if the iron be used at a black heat, and drawn slowly along the bowel. On completing the cautery, a pad of cotton-wool should be placed against the anus, and kept firmly in position by a perineal bandage. The after-treatment consists of keeping the bowels confined for some days, and for several weeks only allowing an action in the recumbent position. The patient should be specially cautioned against straining, and the motion should be kept soft by taking twenty to thirty drops of extract of cascara sagrada every evening. If care be taken to prevent the skin of the anus being touched by the cautery, there is very little after-pain.

If the case is not cured by a single application of the cautery, the procedure should be repeated.

THREE HUNDRED CONSECUTIVE CASES OF HÆMORRHOIDS CURED BY EXCISION.¹

By WALTER WHITEHEAD, F.R.C.S.E., F.R.S. EDIN.,
Surgeon to the Manchester Royal Infirmary.

DURING the first five years of my professional career, I employed the ligature in the few cases of severe hæmorrhoids that came under my treatment. I operated according to the most approved method of that time, cutting through the skin and mucous membrane, and applying the ligature to the artificially-produced pedicle. The number of cases operated upon did not, perhaps, exceed a dozen; nevertheless, they were sufficient to convince me that the ligature by no means produced a radical cure. One of my patients returned almost as bad as ever, and the reports I heard of another were anything but satisfactory. Although I have rarely made use of the ligature since, I have, during the last fifteen years, frequently operated a second time on patients whose piles had been previously ligatured. In some of these recurrent cases the operation had been performed by men of eminence in this department of surgery, leaving piles so extensive that it has been difficult to believe that they had ever been subjected to a previous operation. Amongst these, one was a case operated upon by Salmon thirty-six years ago.

After abandoning the ligature, I adopted the clamp and cautery, which to the novice appear to have such fascinating advantages. For eight years I treated all my cases in this manner, and I devoted a considerable amount of attention during this time to the construction of an instrument, which I eventually finished to my satisfaction, and called a Speculum Clamp. This instrument I now produce; and I merely mention it to show that for the time I had a strong prejudice in favour of this method of treatment. My experience of the clamp and cautery, which certainly exceeded fifty cases, resulted eventually in the conviction that it was decidedly inferior to the ligature. The immediate risks I found to be greater, and the failures by recurrence more numerous. Certainly it was more frequently followed by secondary hæmorrhage, and I am acquainted with cases where the bleeding, which is reported to have taken place, must have been little less alarming after the use of the clamp and cautery than that which occurred in those days when hæmorrhoids were unceremoniously excised, and no precautions whatever taken to arrest hæmorrhage. These cases were operated upon by surgeons of recognised repute in this special method of treating piles. I consider that a plan of treatment which fails to compass that special end for which it was designed, and in addition has other obvious disadvantages, besides the further objection of being somewhat difficult to understand and complex in execution, loses its position in surgery, and must give place to other operations which involve less risk, give better results, and do not require any special surgical training.

Being convinced of the disadvantages and the imperfections of the ligature, and the clamp and cautery, I abandoned both in 1876, and I have never used either of them since.

During the last nine years, with the exception of a few cases treated by thermo-puncture, and others by the injection of chemical agents, I have almost exclusively removed hæmorrhoids by excision, and unless I had very ample and sound grounds for advocating the advantages of this plan of treatment, I should have deferred saying anything until such time as much greater experience would have justified the course I am now taking. It has, however, so far exceeded all my expectations, that I have no hesitation in expressing my conviction that it surpasses in every respect every other operation designed for the same purpose. I have now operated upon more than three hundred patients without a death, a single instance of secondary hæmorrhage, or one

case where any complication, such as ulceration, abscess, stricture, or incontinence of feces has occurred. I may go further, and state that I have never had one moment's anxiety about any of the cases, and to the best of my knowledge every patient has been completely and permanently cured.

I am now, with all due diffidence and respect, going to make what may appear a very bold statement. I do not consider that any surgeon has a thorough conception of hæmorrhoids until he has performed the operation of excision. He may have dissected the cadaver any number of times with the special object of studying the structure of hæmorrhoids, but it is only on the living subject that dissection will reveal their true nature. It is these vivisections that have confirmed my belief in the inefficiency of the ligature and the clamp, and they have revealed also the cause of failure. In surgical literature we read of hæmorrhoids as distinct individual tumours, but the vivisections I have referred to demonstrate that the entire plexus of veins surrounding the immediate interior of the gut is invariably at fault. Without doubt the hæmorrhoidal condition is marked by special protuberances at certain points in the circumference of the gut, and these I find have a pretty uniform position, owing no doubt to the regular disposition of the fibrous septa.

But the essential fact remains that, though possibly concealed by these masses, there are minute venous radicles behind and between the main tumours. They are now as small as their larger neighbours once were, but let the latter be removed by clamp or ligature, and the apparently insignificant venules will dilate and take their place, the very removal, perhaps, affording room for growth, and whilst taking off external pressure leaving the tension within increased. It is on the removal of these rudimentary piles, that the permanence of the cure and the future welfare of the patient depend; and I contend that the operation of excision alone satisfactorily accomplishes this object.

The principles of the operation are exceedingly simple, and its performance requires no special apprenticeship. I have received numerous letters from provincial practitioners, who had only read the original description I gave in the *BRITISH MEDICAL JOURNAL* for February, 1882, expressing their entire satisfaction with the operation. As I have since slightly modified the operation I will first briefly describe it, and afterwards discuss in more detail some of the stages which, perhaps, require further explanation and some vindication at my hands, as the operation is opposed to some of the most cherished practices of modern surgery.

1. The patient, previously prepared for the operation and under the complete influence of an anæsthetic, is placed on a high narrow table in the lithotomy position, and maintained in this position either by a couple of assistants or by Clover's crutch.

2. The sphincters are thoroughly paralysed by digital stretching, so that they have no "grip," and permit the hæmorrhoids and any prolapse there may be to descend without the slightest impediment.

3. By the use of scissors and dissecting forceps, the mucous membrane is divided at its junction with the skin round the entire circumference of the bowel, every irregularity of the skin being carefully followed.

4. The external and the commencement of the internal sphincters are then exposed by a rapid dissection, and the mucous membrane and attached hæmorrhoids, thus separated from the submucous bed on which they rested, are pulled bodily down, any undivided points of resistance being snipped across, and the hæmorrhoids brought below the margin of the skin.

5. The mucous membrane above the hæmorrhoids is now divided transversely in successive stages, and the free margin of the severed membrane above is attached, as soon as divided, to the free margin of the skin below by a suitable number of sutures. The complete ring of pile-bearing mucous membrane is thus removed.

Bleeding vessels throughout the operation are twisted on division. This brief description comprises the several stages of the operation.

1. In the first place it will be observed that beyond the chloroformist the operation requires no skilled assistance. A single nurse is quite sufficient, and I have on more than one occasion dispensed with assistance altogether.

Contrary to general recommendation I prefer the lithotomy position, with the legs well flexed on the thighs and the thighs on the body. This raises the whole pelvis, and gives the surgeon a commanding view of the field of operations. I sit in front of my patient, with my work on a level with my shoulders.

2. I have a strong objection to the use of instruments in the dilatation of the sphincters. Not only are they apt to produce sloughing, which would jeopardise the success of the final step in the operation, but the danger of rupture and possible future incontinence is also

¹ Read in the Section of Surgery at the Annual Meeting of the British Medical Association at Brighton.

greater, for the resistance can only be very imperfectly estimated, and the pressure cannot be regulated with delicacy, and is moreover unequally applied; I therefore invariably employ digital stretching. With the fingers the pressure can and ought to be distributed all round the circumference of the bowel, so that the muscles are uniformly stretched and not torn. If the sphincters be firm I generally introduce my two first fingers or thumbs, and knead the muscles all round, but if the parts are more relaxed, I at once collect the fingers in the form of a cone, and gradually pass in as much of the hand as is necessary. If ordinary prudence is exercised, the sphincters will invariably be restored to the full exercise of their natural function within three weeks.

3. It is better to commence the separation of the mucous membrane from the skin at the lowest point and deal with the two sides in succession, before completing the circle above, so that any oozing that may occur shall be below the work as it proceeds. The incisions must be made through the mucous membrane and not through the skin. It is very important that no skin should be sacrificed, however redundant it may appear to be, as the little tags of superfluous skin soon contract, and eventually cause no further inconvenience. If this precaution be taken there is no fear of stricture, which, as Treves has shown, is much less common even after elimination of a complete segment of gangrenous bowel than was once imagined.

The attachment of the mucous membrane and piles to the sphincters is so slight that I either employ the closed scissors as a raspatory or use my fingers in their separation. The firmest adhesions are always found at the highest and lowest points where the fibres of the external sphincter converge. With a very little patience the whole of the hæmorrhoidal plexus can be isolated and the membrane drawn down, leaving the external sphincter almost bare and cleanly dissected. Up to this stage of the operation there is practically no hæmorrhage, for, as is well known, the arteries which supply the rectum run immediately beneath the mucous lining, and not in the loose tissue separating it from the sphincters. They are, however, necessarily cut in the next step, which consists in the transverse division of the mucous membrane just above the piles. To prevent hæmorrhage it is advisable to cut through the bowel by degrees and to twist each bleeding vessel as it is divided. After securing the vessels, before making any further incision in the bowel, I attach the free edge of the piece of mucous membrane first divided to the corresponding portion of skin at the verge of the anus. This procedure is repeated until the entire circumference of the bowel is secured to the skin. By this means I almost invariably secure healing by first intention.

The arteries met with are exceedingly small, easily seized, and only require a few twists of the forcipressure forceps to prevent both immediate and secondary hæmorrhage. Ligatures may slip off, be torn off by the first action of the bowels, or ulcerate through before the vessel is occluded, but torsion never fails.

I have often operated on severe cases and not found it necessary to twist a single vessel, and very frequently only one or two. The rectum and four inches of the bowel can be excised as I have excised it, without securing a single vessel, and I have proved that 300 operations for the radical removal of piles can be effected without a single instance of secondary hæmorrhage; consequently I consider that special instruments and extraordinary precautions may be finally dismissed, and the excision of hæmorrhoids once more be admitted within the pale of general surgery.

I do not make use of any sponges during the operation, as I very much prefer little squares of lint wrung out in hot spirit and water.

Before closing the wound I insufflate iodoform between the raw surfaces, as I find it checks any tendency to sanguineous oozing, and facilitates primary union. For the purpose of suturing the mucous membrane to the skin, I always employ carbolised silk, and I never take out the stitches, as I find they come away of themselves without creating the needless alarm to the patient which their removal generally occasions. Indeed, after the operation, there is no real necessity ever to look at or touch the parts again.

Whilst the patient is still on the table, I introduce into the rectum a suppository containing two grains of extract of belladonna, give the external parts a final dust with iodoform, and place over all a strip of oiled lint, which is retained in position by a T-bandage.

For the first few days, with highly neurotic patients, I keep a bag of ice in close proximity to the rectum, and I generally recommend a dose of castor-oil to be taken on an empty stomach on the morning of the fourth day. The patient sits up on the fourth day, and is in a condition to resume work within a fortnight.

I rarely find that the patient suffers much pain after the operation, though this depends chiefly on the nervous susceptibility of the individual. Some aching in the back may be complained

of, as in other pelvic operations, but this is generally relieved by change of posture. If the change of posture does not answer, a hot water-bag or hot salt applied to the back will generally give immediate relief.

Retention of urine occasionally follows, and sometimes I have found it desirable to use a catheter; but, as a rule, I direct the patient to pass water on his hands and knees, and after a little patience he succeeds. I have never but once known the use of the catheter absolutely and urgently required, and that was in a case in charge of another medical man, who confessed that he had prematurely attempted to pass an instrument and failed, and admitted that the retention was more due to his clumsiness than to the real necessities of the patient. I am of opinion that this complication is met with less frequently after excision than after any of the other operations which aim at the same result.

Such, gentlemen, is the operation I wish to advocate for the removal of hæmorrhoids by excision, or I might rather say, for the removal of the hæmorrhoidal area by excision; and I claim:

1. That it is the most natural method, and in perfect harmony with the most approved principles of surgery.

In illustration of the inconsistencies that have from time to time been introduced to support special departures from the ordinary practice of general surgery on this subject, I will quote the arguments which have recently appeared from the pen of a distinguished surgeon. In the *BRITISH MEDICAL JOURNAL* for 1882, he states, with reference to the ancient plan of excision of the mamma: "The breast was laid hold of with great pincers, and having been cut clean off, the surface was rubbed over with a red-hot poker. Against a proceeding so shocking to the age, modern taste revolted." And yet this distinguished surgeon writes in 1884: "There have been three great strides in the surgery of the rectum, and one of them is the treatment of hæmorrhoids by the clamp and cautery." Now, I ask, what does the clamp-and-cautery treatment imply if it does not mean that the tumour is laid hold of by pincers, and having been cut off, the surface is rubbed with a red-hot poker. The rectum has its rights, I consider, as well as the breast, and I therefore claim for it the privileges of modern surgery. Curiously, the same author, in 1886, takes exception to the scientific construction of the clamp now almost universally employed.

2. Excision, in addition to its simplicity, requires no instrument which is not found in every practitioner's pocket-case.

3. It is a radical cure. It removes the peculiar pile-area, and I believe recurrence to be impossible.

4. Though no operation is absolutely devoid of risk, I consider that excision in this respect is at least on a par with the safest method yet recommended for the removal of piles.

5. The pain after excision is slight in amount, of short duration, and, I believe, less severe than follows any of the other operations.

6. The loss of blood at the time of operation is so small as hardly to merit notice; though perhaps in this respect it must give precedence to the ligature and clamp; but, so far as secondary hæmorrhage is concerned, the risks are unquestionably less.

In conclusion, allow me to recapitulate briefly what my contention is. I contend that the internal hæmorrhoids, which are generally regarded as localised distinct tumours, amenable to individual treatment, are, as a matter of fact, component parts of a diseased condition of the entire plexus of veins associated with the superior hæmorrhoidal, each radicle being similarly, if not equally, affected by an initial cause, constitutional or mechanical.

I am of opinion that, when surgical treatment becomes imperative, the extent of the mischief can only be appreciated and effectively dealt with by a free exposure of the diseased vessels, and that no procedure fulfils this purpose short of a deliberate dissection of the lower rectal area.

And, finally, I consider that any operation, which has for its object the removal of hæmorrhoids, is not complete which does not provide for the readjustment of the healthy tissues, with the object of securing primary union and rapid convalescence.

The dread of hæmorrhage in excision of hæmorrhoids, is a delusion which has been fostered and sustained by potential authorities who have, I consider, for the last thirty years, indulged in unjustifiable departures from the sound principles of general surgery.

Dr. WARD COUSINS said that excision was undoubtedly the best and safest method of removing piles; but he thought that many cases could be cured by a less severe operation than complete excision of the whole mucous surface just within the anus. He was in the habit of making free separation between the skin and the portion of diseased mucous membrane, and then securing the little pedicle with a silk ligature. He thought, also, that Mr. Whitehead had laid too little

emphasis on that ring of ligatures which he so carefully applied around the anus. This was really the real protection against hæmorrhage.

After some remarks from Mr. HEMMING, Professor PANCOAST stated that he was much interested in Mr. Whitehead's paper. He liked the surgical character of the treatment, and was impressed by the statement that the patients were able to get up and go about in ten days. In regard to the sewing the mucous membrane to the skin, and ligaturing bleeding points, and also in secondary hæmorrhage, Dr. Pancoast suggested that Mr. Whitehead should try the non-inflammatory iron-dyed silk, which he (the speaker) had introduced into surgery. It was much used in the United States and in Canada; also in Paris by M. Panas, Professor of Ophthalmology; in Switzerland, and at Antwerp, Belgium, by Dr. Servais and others. Dr. Pancoast described the different sizes and strength of the silk, from No. 1 to No. 14. The most delicate was for operations on the conjunctiva and in plastic surgery, and the strongest was for any form of ligature, as it was the strongest ligature made. Dr. Pancoast added that there was no such thing as pure white silk in the market; the natural colour of silk from the cocoon of the worm was a dead white or some shade of yellow. The bright white silk in the market was dyed with lead. He was led to the use of the black silk by finding, about twenty-five years ago, in performing a plastic operation on the face, that a fine black silk which he took from an ordinary spool for the sake of its distinctive colour did not cause suppuration or inflammation in its track, which the fine white silk did. Again, he found that the black silk could be left for ten days, while he had to remove the white. The pure iron-dyed silk was made by a manufacturer in New York, and Mr. Snowden, the instrument-maker at Philadelphia, was the agent for the firm. Dr. Pancoast said that he used this black silk, almost exclusively, in all operations. He had tied the common carotid with it, cut short the ligature, and left it, the ligature coming away ultimately without any pulling. He had also operated for varicocele with it, cutting off the ligature, and leaving it. In operations for strangulated hernia, he had sewn up the external ring with it, and left it there. Professor Montgomery, a distinguished gynaecologist in Philadelphia, told him that he used it in his operations, and that he left the ligature of black silk in the abdomen. Dr. Pancoast, in using it in cavities or deep wounds, would leave it there. The ligature either became encysted or came away with the discharges. The ligature could be carbolised or saturated with the mercurial lotion. Dr. Pancoast further stated that for twenty-seven years he had always used the chain *écraseur* in removing hæmorrhoids, applying one *écraseur* on each side of the rectum over the hæmorrhoidal tumour, so as to leave a space between, which thus prevented any stricture. Like Mr. Whitehead, he removed not only the vascular tumour, but also part of the adjacent mucous membrane, so as to take away the nascent enlarged vessels or capillaries. He had operated in about one hundred cases with uniform success. He emptied the patient's bowels well before the operation, and in a week or ten days afterwards gave oil to remove the fecal matters, which were dark and sometimes fetid, though the patient had been fed only on broth. Then he allowed him to get up. One point in the operation, suggested by his father, was that he always put a hollow pipe up the rectum before finishing, so as to let out any flatus or blood, and to show any secondary hæmorrhage should it possibly occur; this had happened only two or three times, and was stopped by a plug of lint pushed up around the hollow tube. Dr. Pancoast had tried the galvanic wire *écraseur* in several operations, but did not like it in the case of hæmorrhoids, as the platinum wire, unless used very slowly, cut like a knife, and was followed by bleeding. This also might occur even if it was used very slowly. In the United States some irregular practitioners had gained much patronage from the public by promising to cure piles without any operation. This was found to be cauterising them deeply with some strong acid—a very painful process—or injecting carbolic acid. Dr. Pancoast said he had operated with the *écraseur* upon patients who had been thus treated, and not cured until he had extirpated the hæmorrhoids finally with the *écraseur*. Some distinguished surgeons now used the injection of carbolic acid, and in small tumours this may be very useful.

Mr. T. R. JESSOP advocated the use of the galvano-cautery in the treatment of internal piles, as having proved more successful in his hands than the old ligature or the clamp and cautery. He briefly described the method: dilatation of the sphincter, separate seizure of individual piles, and removal by means of the heated wire. His results so far encouraged him to continue its use.

Mr. LENNOX BROWNE, from daily experience during many years with galvano-cautery in analogous hæmorrhoidal conditions at the base of the tongue, had never seen any secondary hæmorrhage follow separation of the eschars, nor had he seen any adhesive contraction

follow galvano-caustic operation in any portion of the throat or nose. In these, and in other respects, the galvanic possessed considerable advantage over any form of actual cautery.

Surgeon-Major BOUSTEAD stated that in all his experience the treatment of hæmorrhoids by excision and free removal of all varicosities of the mucous membrane with the scissors was decidedly the best in tropical countries. The galvano-cautery, the clamp and cautery, and the ligature, were attended by risks which excision did not offer. The disadvantages of any form of cautery were sloughing of the charred parts; inflammation, which might sometimes be extensive; septicæmia; hæmorrhage after separation of the slough; contraction of the cicatrix, and the long time required for recovery from the cauterisation treatment. The risks from excision were almost *nil*; the operation was cleanly, and the healing process was more speedy and more lasting.

Mr. CHARLES SMITH had fully expected to hear some allusion made to the operation of simple crushing. The danger of secondary hæmorrhage after the use of the clamp and cautery, or ligature, was so great, that those operations had practically been abandoned for simple crushing, from which he had never seen secondary hæmorrhage. Recovery took place in as short a time as in the cases described by Mr. Whitehead.

Mr. REEVES did not consider that the operations devised by clever and experienced surgeons in the past ought to be laid aside too eagerly. He said there were many cases of piles curable by dilatation alone. With reference to crushing piles, he remembered a very severe case of secondary hæmorrhage which had occurred in a patient of his after the crushing operation. As to the mischief alleged to follow the use of the clamp, he thought it was essential to know whether the method had been properly followed out. His own experience was certainly favourable to this method.

EXPERIENCES WITH DRUMINE AS A LOCAL ANÆSTHETIC.¹

By ALEXANDER OGSTON, C.M.,

Regius Professor of Surgery in the University of Aberdeen, and Surgeon to the Royal Infirmary.

ON January 6th, 1887, I received from John Reid, M.A., M.D., of Port Germein, South Australia, a copy of the *Australian Medical Gazette*, of October 15th, 1886, containing a paper by him on "Drumine: a new Australian Local Anæsthetic," and a box containing 40 grains of drumine. The drug was in the form of a semi-crystalline, waxy mass, of a greyish-white colour. Dr. Reid requested that the drug should be submitted to trial as to its anæsthetic properties.

Twenty grains of it were, on January 7th, dissolved, by boiling in equal parts of absolute alcohol and water, and filtered, the strength of the solution being 4 per cent. of drumine. It tasted faintly of apples on the tongue, and caused a slight feeling of tingling and harshness where it had been applied to that organ. Next day, January 8th, 4 minims of the solution were injected hypodermically into two patients who were about to be subjected to operation, one for gouging out of tubercular cervical glands, and the other for the opening and scraping out of a chronic cervical abscess. The injection was made at 10.45 A.M., in the immediate neighbourhood of the diseased parts. At 11.45 A.M., when the operations were performed, no anæsthesia was observable, and the patients were therefore rendered insensible by chloroform until the operations were completed. At this time (11.45 A.M.), 4 minims were injected hypodermically into the backs of the forearms of Mr. Middleton, student of medicine, and myself. A quarter of an hour, half an hour, and an hour later, neither of us was aware of any diminution of sensation on or near the injection site, but pretty smart pain was felt, which lasted for several days, and then disappeared. During the afternoon of the day of injection, Mr. Middleton felt as if under the influence of a small dose of morphia. I was unconscious of any unusual feeling, save the pain and tenderness at the injection site.

Next day, January 9th, the remaining 20 grains of the drumine were dissolved in pure water by boiling, and the solution filtered, the strength being, as before, 4 per cent. of drumine. On January 12th, 6 minims of this solution were injected hypodermically into the back of each of our other forearms; no anæsthesia resulted, but a sharp aching pain was felt in the arms, lasting a day. The pain diminished sensibly on the following day; but the site of the injection showed an area of firm swelling and tenderness over a spot the size of a crown-piece (a phenomenon not observed in the alcoholic solution). This

¹ Read before the Aberdeen, Banff, and Kincardine Branch.