

THE USE OF SPINAL ANÆSTHESIA IN PROSTATECTOMY.

By R. ATKINSON STONEY, M.B., F.R.C.S.I.;
Surgeon to the Royal City of Dublin Hospital.

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ONE of the most important points that arises in the operative removal of enlarged prostates is the question of anæsthesia. Many of the patients affected by this disease are for various reasons not suitable subjects for a general anæsthetic. They are usually advanced in years; enlargement of the prostate is practically unknown in men under fifty, and by the time that the obstruction has advanced sufficiently to make removal of the gland desirable or necessary, the age is more commonly between sixty and eighty, or even more. Even in the cases where the actual age of the patient is not so great, the condition of the circulation is frequently that of old age. It has been well said that "a man is as old as his arteries," and in no instance is this truer than when a patient has to undergo an operation accompanied by the administration of a general anæsthetic. Frequently these patients are the subjects of advanced emphysema of the lungs or chronic bronchitis, both of which conditions may be considered as contraindications to a general anæsthetic, and especially to the use of ether. In other cases there may be circulatory troubles, valvular disease of the heart, fatty degeneration of the heart, atheroma of the vessels. Here again general anæsthesia, especially the use of chloroform, is contraindicated. In a large proportion the kidneys are

diseased, and are already considerably handicapped in performing their functions, either by the presence of chronic Bright's disease, or by the results of back pressure from the obstruction caused by the enlarged prostate often complicated by sepsis, producing hydronephrosis, pyonephrosis, or pyelonephritis. In these cases a general anæsthetic, with its recognised injurious influence on even the normal gland, may prove the last straw which puts an end to the already impaired function of the kidneys, with uræmia as the result. That a great deal may be done by the careful preparation of the patient, reduction of the duration of anæsthesia, and suitable treatment of the patient after operation, to mitigate the evil effects of general anæsthesia in these cases, is proved by the low mortality reported by many well-known operators. I do not intend to speak to-night of these measures, such as the use of urinary antiseptics, flushing of the kidneys by the administration of large quantities of bland fluid drinks, as barley water, and even drainage of the bladder before operation; nor of how the time of anæsthesia may be reduced by administering it only while the actual operative measures are being performed, and the rapidity gained in operating by practice; nor of the advantage of ether administered by the open method in combination with oxygen; nor, finally, of the after-treatment, one of the most important points of which is to get the patient propped up as soon as possible, and out of bed and sitting up in a chair even on the third or fourth day. But I wish to bring before you the use of spinal anæsthesia in these cases, and the advantages that may be claimed for it. They are both many and obvious. A spinal anæsthetic has no deleterious effect on either the heart or lungs, and may be safely used even in cases of advanced disease of

these organs. It to a large extent does away with the shock arising from the operation, and entirely with that which is the invariable accompaniment to a greater or less extent of the administration of a general anæsthetic. It apparently has no harmful or inhibitory effect on the functions of the kidneys. Complete relaxation of the recti muscles allows the operation to be done with ease, and can only be obtained by pushing a general anæsthetic till the patient is deeply under, and is often nearly, if not quite, impossible of attainment with safety in these cases, especially when using ether either alone or combined with oxygen. Lastly, when the anæsthetic fluid is combined, as it frequently is, with a small quantity of adrenalin, it greatly reduces the amount of hæmorrhage that occurs both during the operation and afterwards. The question of hæmorrhage is one that is not, as a rule, sufficiently seriously considered, and in many cases even where not unusually excessive, it must have an important effect in delaying, if not actually preventing, the recovery of the patient. The disadvantages in the use of a spinal anæsthetic are practically *nil*. First, there is the difficulty of injection, and occasional failure; this may be overcome or reduced almost to vanishing point by practice. Secondly, there is the danger of unpleasant or even alarming and fatal results from the injection itself. These are undoubtedly rare and generally of a minor character, as headache and sickness, even when they do occur. Probably the safest anæsthetic to use is novocain, as it is apparently the least toxic of the various drugs which have been advocated, and in a 5 per cent. solution is quite efficient in producing a lasting anæsthesia and complete relaxation of the muscles.

I shall now briefly describe a case recently operated on

which illustrates many of the points that I have mentioned.

CASE.—J. W., aged seventy-five, was admitted to the Royal City of Dublin Hospital on February 1st, 1911. For some years he had had increasing difficulty in passing his water, and for the last three months had to depend entirely on the use of the catheter for emptying his bladder. On examination he was a very old-looking man, appearing more like eighty-five than seventy-five, which was the age he gave. His pulse was weak and intermittent, and there was well-marked atheroma of the vessels. On auscultation of the chest no valvular lesion of the heart was found, but the sounds were weak and irregular. There was also well-marked chronic bronchitis. By rectal examination a large, rather soft prostate was easily felt. The urine was normal in quantity, acid in reaction, and contained a trace of albumen. The patient was given a heart tonic and stimulating expectorant mixture, without any very definite improvement in the condition of either his heart or lungs. He was also given a urinary antiseptic mixture, and large quantities of barley water to drink, and he was catheterised four times daily. It was decided that the use of a general anæsthetic, either chloroform or ether, was almost certain to be followed by a fatal result, owing to the condition of his heart and lungs, and it was, therefore, decided to remove the prostate with the aid of spinal anæsthesia.

On February 11th the patient was brought to the theatre and placed in a sitting position on the operating table; his body was bent forwards and the needle inserted in the middle line under the spine of the third lumbar vertebræ; it was pushed in a slightly downward direction, till it was felt to enter the spinal canal. On the withdrawal of the stylet there was a free flow of cerebro-spinal fluid, about 5 c.cs. of which was allowed to escape, and then 3 c.cs. of a 5 per cent. solution of novocaïn, with adrenalin 1 per 1,000, was injected, and the patient placed on his back with the pelvis slightly elevated, and a pillow under the head. The bladder was then washed out, and about 12 ozs. of fluid left in it. The abdomen was washed with ether and painted with

iodine, and it was found that there was complete anæsthesia up to the level of the umbilicus. The operation was proceeded with in the usual manner. The peritoneum was accidentally opened, owing to the fact that the reflection of the peritoneum had not been lifted above the symphysis, in spite of the distension of the bladder; it was closed at once with catgut sutures, and led to no serious result. The prostate was found as a large projecting collar inside the bladder, and was easily shelled out, being about the size and shape of a turkey egg. The projecting collar behind the internal meatus formed a definite tongue-shaped flap which acted as a valve, causing complete retention. The removal of the prostate caused no pain; the patient said he could feel that something was being done, but there was no discomfort even, except just as the prostate was being separated from the triangular ligament, where it was more adherent than elsewhere. The bladder was washed out with hot saline, after which there was no bleeding. The operation was concluded in the usual manner, and the dressings were applied, and the patient left the theatre thirty-five minutes after entering it.

Immediately on his return to the ward he was propped up in bed and given a cup of hot tea to drink. He had had his usual breakfast a couple of hours before operation. The following day, when the dressings were being changed, it was found that the bleeding had entirely ceased, and the urine escaping was not even blood-stained. On the 14th (the third day after operation) the patient was allowed to sit up in a chair. He complained of some pain in his heels, and this was the only discomfort that could be put down to the credit of the anæsthetic. On the 15th the tube was taken out and the wound was looking well. On the 19th a full-sized soft catheter was passed. On the 28th the patient passed 2 ozs. of urine naturally during the night. From this on practically all the urine was passed per urethram. The wound healed rapidly, and the patient was discharged completely cured on March 15th.

The special points of interest in this case are two :—
First, the unusually slight hæmorrhage, both during and

after the operation; the amount of bleeding was extraordinarily slight, all tinging, even of the urine, having ceased within thirty hours of the operation. Though hæmorrhage is not usually considered a great danger in prostatectomy, I have seen one case where it was certainly the chief cause of a fatal result, and two other cases where plugging of the cavity had to be resorted to, though in each case fortunately with success. The loss of even a moderate amount of blood must be a serious handicap to these patients. The absence of hæmorrhage in this case must be attributed, I think, partly to the absence of venous congestion caused by a general anæsthetic, but chiefly to the action of the small quantity of adrenalin added to the novocaïn.

Secondly, the absence of any aggravation of the condition of the heart or lungs. The pulse remained practically the same after as before operation, and the bronchitis, though severe at the time of operation, was not made any worse. I am quite convinced that if a general anæsthetic had been used the result must have been fatal.

Though I do not consider spinal anæsthesia should replace general anæsthesia with ether or chloroform in general surgery, I think that it might be used with advantage in, at any rate, a large number of cases of prostatectomy. In fact, I would almost go so far as to say that it should be looked upon as the normal procedure in this particular operation.

SIR CHARLES BALL said some years ago, when novocaïn first came into use he saw a considerable number of cases of spinal anæsthesia in Paris. In most cases that he saw while in Paris the anæsthesia was not complete, and in many chloroform had to be administered before the operation was finished. He had also

heard of several serious complications arising after operation with spinal anæsthesia, notably paraplegia. He was of opinion that the risk of ether, properly administered, even to old people, is very largely exaggerated, and, exercising proper care, he would not hesitate to give ether to very old and decrepit patients. On the whole, he would say that ether was safer than spinal anæsthesia of novocaïn, cocaïn, or other spinal substitutes.

MR. GUNN said he had tried spinal anæsthesia in five cases of prostatectomy, and while in theory it may be an admirable proceeding, he could not say it worked successfully with him. In one of his cases the patient nearly died through the anæsthesia going too far. The drug used was stovaïn, and whether it went too high or not the patient had the greatest difficulty in breathing. One point that Mr. Stoney had emphasised in his paper was that spinal anæsthesia lessened the hæmorrhage following the operation. He was of opinion that the bladder regained its tone more quickly after light ether anæsthesia, and that this was a most important factor in the control of *post-operative* hæmorrhage. He was inclined to think that the general anæsthetic got too much blame, as in the great majority of cases of prostatectomy there is sepsis, and this, in many instances, accounted for the chest complications. He was informed by those who used spinal anæsthesia in a large number of cases that chest complications were more numerous after it than after general anæsthesia.

MR. PEARSON said he understood Mr. Stoney to say that spinal anæsthesia had no effect on the heart and lungs, but in his (Mr. Pearson's) opinion it had a very marked effect on the blood pressure. He had known the blood pressure to have been taken during the administration of spinal anæsthesia, and the effect was found to be very serious indeed.

MR. STONEY said that as far as he could judge stovaïn did not appear to be as satisfactory as novocaïn. The latter is apparently the least toxic of all the drugs, especially when combined with adrenalin, and he thought that in this combination it had not the effect of reducing the blood pressure. He believed that the technique was probably the cause of a great many of the failures.

The patient is either allowed to sit up too long or is put in a too upright position, and, in consequence, no anæsthesia of the nerves of the abdomen is produced. In his first case this happened. However, when the patient is put in a position with lumbar region lower than the sacral region, so as to prevent the anæsthetic from going up too high, perfect anæsthesia is produced as high as the umbilicus. Regarding Mr. Gunn's remarks, adrenalin, he thought, had the effect of reducing hæmorrhage, and, seeing that the recovery is fairly rapid, the effect of adrenalin in contracting the small vessels more than counteracted the loss of tone in the bladder during the first hour after operation.