The Surgical Treatment of Enlarged Prostate

by

W. A. Rutherford M.B. C.M.

This subject has suggested itself to my mind principally on account of a series of cases I had the opportunity of studying whilst House Surgeon at the Durham County Hospital from October 1845 to May 1846. These cases were with few exceptions cases of Simple Simple Hyper trophy of the Gland and whilst I shall base my remarks as much as possible on these cases I shall for the sake of comparison refer also to some published cases which I have found very interesting and instructive.

The Operative Treatment of Prostatic Hyper trophy is a subject on which there has been an enormous amount of discussion. Various operations have been recommended for its relief and
Very good results have been obtained from each of them. Consequently, each surgeon has his favourite operation and recommends it as being the most suitable. The result is that it is quite impossible, and always will be, to say this is that is the best operation. It would not be right. Indeed, if this were possible, since each case must be studied by itself and it will certainly be found that for each individual case one operation is indicated rather than another.

Before discussing the various operative procedures that have been recommended, I must refer to a mode of treatment which is very simple and which in my experience has been most satisfactory. I allude to catheterization as a curative measure as distinguished from catheterization when a catheter merely is being drawn out residual urine. For three years in hospital and lately in my own practice I have had some very good, although not numerous, opportunities of trying this treatment—and have convinced myself that when adopted with great care and patience it will give most gratifying results and quite obviate the necessity
for any of the more serious operations. This treatment I will illustrate by a few of the cases which I have had the opportunity of studying.

Case I. This was the case of an old gentleman aged 72 whom I saw with Dr. Dickie of Perth in Nov. 1774. He had for several years suffered from symptoms of Prostatic enlargement but had been taught to pass a soft red rubber catheter and that he had always been able to do without any difficulty until about a fortnight ago. At this time he found he could not pass the catheter so readily and that he required to pass it much more frequently. He got gradually worse until he could not get the catheter in at all, so sent for Dr. Dickie. I happened to be the House Surgeon at Perth Dispensary at the time and Dr. Dickie asked me to go and see the case with him. He found the patient in very great pain due to his not having been able to draw off any urine for 9 hours whereas formerly he had required to do so every hour or hour and a half. It was in such pain that the first thing we tried to do was to pass a catheter to relieve
the retention. This we found very difficult
to do. We tried red rubber, solid silver
and prostatic catheters but could not
succeed with any of them. In the end
however I managed to pass a large rigid
guin. Dickie catheter in a method which
I have to thank Prof. Chenu for having
taught me and which I have never seen
described by any one else. This method
is by passing it with a fairly rigid
skeletal tube to the curve of an
ordinary prostatic catheter. This is
passed until resistance is felt when the
skeletal is withdrawn only a very short
way (a quarter of an inch is generally
enough). This has the effect of raising
and lifting the point of the catheter
as to allow it to glide past the ob-
struction caused by the enlarged prostate.

On the instrument passing into the
bladder we drew off a considerable
quantity of red fluid amnionnaeal urine.
The bladder was washed out and the
patient left very comfortable.

Before morning however he had to send
for Dr. Dickie as the discomfort was
rapidly returning and he could not
introduce his soft rubber catheter.
Dr. Dickie after a considerable amount
of trouble passed the firm elastic catheter and gave the patient relief. The next morning I suggested trying to pass a large silver catheter and if successful, tying it in for 12 hours. This we did and washed the bladder out through the mid-in catheter with a large quantity of warm boracic lotion. At the end of 12 hours the catheter was removed and not introduced again till the next morning when it was again passed and left for another twelve hours. On taking it out after this period we found that the patient could pass his soft rubber one easily. On each of the following days for a fortnight the large silver catheter was passed and the bladder well washed out with warm boracic. After each irrigation the catheter was left in for from two to three hours. A few days after this routine treatment was started the pain before passing the catheter was lessened and the necessity for its frequent passage began to diminish. Catheterization became much easier and the frequent irrigation of the bladder rapidly reduced the cystitis.

At the end of a fortnight of this treatment the cystitis had quite disappeared.
and we were gratified to find that on
discontinuing the daily passage of the solid
catheter the patient was able to pass urine
quite easily and in a remarkably good
stream. This he has not been able to
do so well for 7 years. In a few
months, during which he had never re-
quired to use his rubber catheter, it
was noticed that the stream was getting
shineller and that there was an increasing
difficulty in starting the act of miction.

Dr. Dickie again started treatment by
means of the Robert rigid catheter and
trying it in as before. The effect was
quite apparent in a day or two and
in 10 days the patient was able to
pass water himself without difficulty.

I must add that in addition to the
above treatment the patient was taking
internally half drachm doses of Liquid
Extract of Bryon three daily. I have
heard of this patient several times
since 1875 and have seen him on
two occasions. The last occasion was
in January of this year when he said
that he then had no difficulty what-
ever in miction and only on one
occasion during the last two years
had he found it necessary to pass his
Soft Catheter. He has never required any further treatment with the rigid instrument and expresses himself as being quite cured of his old urinary troubles.

Case II. This case although not showing quite such severe symptoms as the last resembled it in the main and a similar treatment was adopted with equally good results.

T.R., an old sailor aged 76, was admitted into the Durham County Hospital on Jan. 16th, 1896. He complained of pain and difficulty in passing his water, which sometimes had culminated in complete retention. The colling doctor who had sent him to the Hospital had on several occasions had to pass a Catheter for the relief of his retention. On Rectal Examination the prostate was found to be enormously hypertrophied. There was considerable tenderness on pressing the gland which was no doubt due to a certain amount of inflammation being super-added to the state of hypertrophy. After a little patience a large rigid Gum Elastic Catheter was passed into the bladder in...
the method described in the last case. Only a small quantity of urine was found in the bladder but this was loaded with blood and the products of decomposition. The bladder was thoroughly washed out with warm boric acid and the Silver Prostatic Catheter passed and tied in till the next morning. This did not prove at all satisfactory as the patient complained of great discomfort which he referred to the Perineum. His temperature was 102° and during the night he had had a slight rigor during which his temperature had been 103.4. It appeared to me that I had tied the Catheter in rather too soon, especially since I had formed the opinion that the gland was in an inflammating state.

I removed the Catheter and did not pass it again for 7 days but emptied the bladder every 4 or 5 hours by means of a soft rubber Catheter. This was sufficient to keep the patient quite comfortable and by the end of the 7 days the pain and inflammation had subsided and as the urine itself had very much improved I did not think any bladder irrigation indicated. I now started having a Silver Prostatic
catheter and leaving it in for an hour to an hour and a half every morning. The patient bore it very well and the treatment was continued for nearly three weeks, during which time a gradual improvement took place, so much so that by the time of his discharge from the Hospital on February 23rd he was quite free from any urinary trouble. Except that he was still bothered with a slight frequency of micturition. This patient was also treated internally with half drachm doses of Extract of Ipecacua three times a day. He came back to the Hospital in December 1896, or about 10 months after his discharge and said that since he left he had never had any difficulty with his urine. He could make a full stream, the bladder emptying itself every two or three hours. The urine was normal and his general health very good. He expressed himself as being delighted with the result so he had been told by his doctor that he was going to the Hospital to have some cutting operation performed, without which he could never hope for any relief.
Case III. A carpenter aged 69 came to the Durham County Hospital in April 1897 complaining of pain and difficulty in micturition. These symptoms had been in progress for six years but lately had become very much more troublesome and on two occasions within the last six weeks he had been quite unable to pass his water at all and had it drawn off by means of a rigid catheter. On his coming into hospital the pain both before and after the act of micturition was very severe and the stream itself, although the patient did not consider it bad, was extremely sluggish. He had been introduced to catheter's life four years before and had to use his instrument every 14 or two hours. On a previous occasion the urine was faintly acid, Sp. Gr. 1025 and contained no blood or pus but had a trace of albumen. On Rectal examination the Prostate was found to be very much enlarged and tender on pressure. It was evidently a very suitable case for operation (except for the slight albumen) but it was decided to give a trial to treatment by Catheterisation. Like the two preceding cases, this patient...
was given Liquide Extract of Bryot, half a dramum three daily.
A No. 8 Catheter (Silver) was passed with considerable difficulty, and it was left in for six hours. On each successive day a Catheter one size larger could be introduced and left in for the same length of time. On the 5th day a No. 12 was passed without any difficulty. This was left in for three hours each morning and three each evening; this was continued till the 15th day when the patient was discharged. By that time he could pass his urine without any pain either before or after the act and in a remarkably good stream. There was still a slight trace of albumen, but otherwise the urine was normal.

The patient was instructed to come back to the Hospital if he noticed any signs of a return to his original condition. This he did in August, four months after his discharge, saying that he had noticed a diminution in the size of the stream but that he was quite free from any pain. He was kept in the Hospital for three days and twice a day the No. 12 Catheter was passed and retained in position for two hours.
He was discharged on August 23rd and up to August 1840 he used frequently report himself at the Hospital. When last seen he stated that he was absolutely free from any urinary trouble could carry his water for four or five hours quite comfortably, was quite free from pain and that the stream was as good as he ever remembered it. The urine was normal - the trace of albumen having entirely disappeared.

There are three of the cases which have impressed me very much as far as the treatment is concerned. I do not think that catheterization as a curative means is adopted to such an extent as it deserves. Considering how simple the performance of it usually is, and how slight the effect on the general health of the patient is compared with the effect following the performance of some of the more severe operations on the prostate, I have come to the conclusion that it ought to be tried in every case before resorting to such operations as Perineal or Supra-Pubic Prostatectomy. The right I think to be only one exception to this rule and that is when it is found impossible to
introduce a Catheter past the obstructing gland. In all other cases it ought to be given a try patient and thorough, although it will no doubt be found to give much more satisfactory results in some cases than others.

Can we form any idea beforehand which class of case is likely to receive most benefit by this sort of treatment? It is necessary, before discussing this, to ask oneself the question: Why should such a treatment have such an effect on the gland? No doubt the presence of the Catheter, acting as it does as an aseptic foreign body, has an absorbent or solvent action on the tissues immediately in contact with it, causing their cellular elements to become atrophic from the effect of the continued pressure. Taking for granted that it is this action that the improvement is brought about, it follows that the most suitable cases for this treatment are those in which the Catheter is most likely to be brought into intimate contact with the obstructing tissues. Such cases are those in which the hyper trophy is principally affecting the lateral lobes of the gland. Probably retention in more often due to
Hypertrophy of the middle lobe which when in that state does not bring about retention in the same way as hypertrophy of the lateral lobes. The middle lobe when hypertrophied acts as a ball valve blocking up the entrance of the urethra into the bladder, whereas the lateral lobes, surrounding as they do the urethra itself, cause obstruction in the size of the passage by direct pressure on it.

A catheter passed and tied into the bladder would have a certain amount of contact with an enlarged third lobe but not to anything like the extent that it would have with the lateral lobes. The method of treatment is quite comparable to the treatment of urethral stricture by the passage and tying in of bougies.

I have found that in a great many cases of Prostatic Hypertrophy it is not at all easy to make out the 3rd lobe by a rectal examination. This may be due to my own fault because most surgeons seem to have no difficulty in recognizing it. But I have always been on the look out for some surgeon expressing his failure in this respect although I have not yet
accounted for. It is thus difficult in making out the third lobe that leads me to recommend the use of Calutieus in all cases of Prostatic Enlargement as an initial attempt at treatment.

The symptoms in a case of Prostatic retention may help one to diagnose whether it is due to middle or lateral lobe enlargement. When it is caused by the ball valve action of the middle lobe it is more apt to come on with greater suddenness and the stoppage in the stream may come on in the middle of the act of micturition, very much resembling a stoppage in the stream due to stone in the bladder. When the retention is due to third lobe enlargement it may often be suddenly relieved as it then comes on by changing the position of the patient from the erect to the supine. In hypertrophy of the lateral lobes retention, if it occurs at all, is more likely to come on more gradually. It is very doubtful however whether simple hypertrophy of the lateral lobes ever produces complete retention in itself.

It will undoubtedly compress the caliber of the urethra and cause a
partial occlusion of that passage but it is very unlikely to cause complete retention unless there is also present a certain amount of inflammation. 

This I remember was always emphasised by Mr. Cheyne and I have had many opportunities of verifying it e.g. in Case II which I have described above.

I shall now pass from what I consider the simplest method of treatment of Prostatae Hyperplasia to the other Extreme namely treatment by the operation of Prostatectomy. This operation has been performed in a great many different ways but for the sake of convenience they may be grouped into three chief classes viz. The Supra-Pubic, The Perineal and a Combination of these two. Before discussing the relative merit of these three methods and their suitability in different cases I should like to describe a few illustrative cases.

Case IV. The patient, F.W. aged 65, was admitted into Durham County Hospital in December 1898. Suffering from Complete Retention of Urine. He stated that for
the last six years he had had great difficulty in micturition and had been compelled to use a Catheter on himself for three years. During this time he had on several occasions had attacks of complete retention when he found he could not relieve himself with his soft rubber Catheter but his Doctor the said had succeeded in inserting an "iron" one. These attacks of retention had become much more frequent in the last six months and living as he did in an outlying village he was sometimes kept in pain- agony for hours before he could procure relief. It was consequently advised to come into Hospital to have an operative performed. On rectal examination the prostate was felt to be somewhat enlarged in the lateral lobes the 3rd lobe could not be made out at all easily. A large Silver Prostatic Catheter was passed with little difficulty and the urine drawn off was quite normal in character. Dr. Brown, the Senior Surgeon to the Hospital, considering the slight amount of hypertrophy of the lateral lobes and the absence of any inflammation in them, thought the case
most probably one of retention due to middle lobe enlargement. He decided to perform a supra-pubic prostatectomy, partly on account of its being the most satisfactory operation in cases of urethral stricture, and partly on account of its diagnostic value.

Accordingly on the 12th of the operation was performed. It is not necessary to describe the various steps of the operation. It will be sufficient if I describe the steps after the bladder had been opened. It was discovered that the third lobe was considerably enlarged and projecting up over the urethral opening. The lateral lobes were prominent to a less degree. A long sharp pointed bistoury was introduced into the bladder and into the opening of the urethra. With this an incision was made backwards and downwards through the floor of the bladder for about an inch. The finger was then introduced into this opening and the gland was readily scraped away piece-meal. In this I assisted Mr. Rottem by having my first and second fingers in the rectum and my thumb on the perineum, gently pressing the gland up towards the bladder. A rubber bag was not used.
as Dr. Robinson considered it was more likely to cause injury to the Rectum.

After as much of the gland as possible had been removed, the bladder was drained through the suprapubic opening by a plain tube containing a narrow slit of gauge. There was only very slight haemorrhage during the operation: the amount that did occur was the result of the purulent exudation into the floor of the bladder.

The patient went on very well for the first two days, but on the third morning his temperature was 100.8° and the urine was very foul and acrid. A catheter was introduced per urethram and kept in situ. For several days the patient was extremely ill. His temperature on one or two occasions reached 104.8°, he had several rigors and showed signs of septic poisoning. The irrigation of the bladder was repeated every morning for a week, at the end of which time the temperature began to steadily come down, and as the condition of the urine was quite
Satisfactory, the catheter was left in and drained carried on by means of the Suprapubic tube only. From this time the patient gradually improved. The tube was removed from the bladder on the eleventh day and the suprapubic wound gradually closed. The patient was discharged from Hospital at the end of the 5½ weeks very much relieved as regards the surgical symptoms with which he was admitted, but the bladder had not regained its contractile power and there also was a considerable quantity of residual urine left after voluntary micturition. In order to remove this a soft rubber catheter was used twice a day by the patient.

He attended at the Hospital in September 1896 (fourteen months after the operation) and reported that he no longer required to use the catheter and that he was quite relieved from the trouble from which he had suffered for so many years.

Case V. This case resembled the last in that the Suprapubic operation was performed for its relief but differed as regards the later stages of the operation, its after-treatment and the result.
On this account then and in order to make a comparison between the two cases I think it interesting to refer to a few points connected with it.

The patient was a man, W. E., aged 76, who was admitted into the Durham Co. Hospital from the Workhouse Hospital in September 1876. He complained of the usual train of Postnatal Symptoms which it is not necessary for me to describe in detail. He had used a Catheter Constantly for the last two years but during this time had had several attacks of Complete Retention which has been relieved in the Newcastle and Sunderland Infirmaries on each of occasion. On none of these occasions the retention has been relieved by Suprapubic Aspiration but on all the other occasions by the passage of a rigid Catheter. On rectal examination the Postate was felt to be very much enlarged and about the size of an orange. Under these circumstances the patient had been admitted decided to perform a Suprapubic Postatectomy. This was done a week after his admission. After having opened the bladder and made an incision into its floor so in the last case it was found that the substance...
of the gland was shellcted out only with very slight difficulty when as much had been scraped away as possible there was left a raw surface of very considerable size at the base of the bladder. The only drainage used was a tube in the infra-pubic wound and reaching to the floor of the bladder. There had been very little haemorrhage and the patient had borne the operation very well. The after history of the case is quickly told. The first day the patient was fairly comfortable and also on the second morning but by the second evening the temperature had gone up to 101.8° with pulse 90. On the third morning the urine was very foul, temperature 100.5°, and pulse 90. The bladder was well washed out with a large quantity of warm Boracic lotion. Temperature and pulse came down after this to 99° and 84 respectively. Not for long however as in the evening the temperature was 103.2° and pulse 90. The fourth and fifth days were practically a repetition of the third, the pulse and temperature being down somewhat in the morning but rising towards evening. The bladder was now washed out twice a day instead
of once. No further attempt was made however at better drainage. The temperature on the 5th. Evening was 105.5 and the pulse 104. And the patient died early on the sixth morning. Death was evidently due to septic abortion. I will not make any comment on this case until I come to compare the different operations of Post-aborting one with another.

I have not had an opportunity of studying a case in which the penicill operation alone was done but the following is one in which a combination of the Penicill with the Suprapubic was performed.

Case VI A miner aged 56 was admitted into the Durham Hospital in January 97 under the care of Dr. Blumer. He complained of pain and frequency of micturition and in addition, constant dribbling away of urine. He had never had complete retention, but had noticed that the stream during the last three months has been getting gradually weaker until now it had almost disappeared, and the want was passed in rapid drops. However a 20.6 silver catheter was passed with
Considerable difficulty and the urine that was drawn off showed that there was a large amount of Cystitis present. Dr. Plummer decided to perform Suprapubic Perforation. This was performed but it was found that it was very difficult to shell out the prostate thoroughly, so it was thought advisable to supplement the operation by a Perineal one. Probably the perineal opening was made not so much by way of rendering the removal of the prostate tissue because it would allow of much better drainage afterwards. Especially considering the amount of Cystitis present and the total state of the urine. After the pelvic part of the gland had been removed it was found quite easy to pass a large sized prostatic Catheter, so the Suprapubic wound was closed up except its lower end and through this a long tube with many perforations was passed through the bladder and out at the perineal opening. The urine rapidly began to improve and the Cystitis diminished. After the fourth day the drainage tube was gradually drawn out through the perineum, whilst on the eighth day it was removed altogether. At this time the patient was slowly improving.
and he made an excellent recovery his temperature never having been above 99° 8.

I should now like to compare, from the experience I have had of them, these three methods of prostaticectomy as regards the choice of an operation and the results obtained thereby. The great advantage connected with the suprapubic operation is that by it the enlarged prostate can be best seen, examined and operated upon. It certainly gives one a much better chance of dealing with the third lobe and also the vesical portion of the lateral lobes, and on these accounts it is the operation which is most generally applicable. The Perineal method on the other hand has one great and very important advantage - that it gives better drainage. It also gives rather better access to outgrowths of the prostate affecting its vesical portion. Such cases however are not very common and we generally have to deal with hyper trophy of the third lobe and vesical portion of the lateral lobes, and any operation upon these can be done more easily and with
more precision and completeness from the interior of the bladder. A great drawback to the perineal method is that it gives the operator very little room and he is to a great extent working in the dark; and in patients with a very deep pelvis it would be extremely difficult to get into the bladder and do anything with confidence to the obstructing median or lateral lobes.

On account of the perineal operation, giving such good drainage it is extremely useful in cases where there is a considerable amount of cystitis with profuse urine. In such cases, however, I think it will be found that its greatest sphere of usefulness is when it is performed in addition to or as an auxiliary to the suprapubic operation. Case 4 is referred to above is one in which I considered perineal drainage was most strongly indicated. Had this been done the cystitis would have been relieved and the risk of septice absorption reduced to a very great extent and probably the fatal issue averted.

In cases where the diagnosis is fairly certain that the obstruction is intra vesical and not surrounding the
written in front of the bladder and when there is no very marked cystitis and accompanying urine, the Suprapubic operation by itself is clearly indicated in the choice of the operation is made less free by the uncertainty of the diagnosis and it is this uncertainty that makes it an indication to do a Suprapubic operation in all cases as a preliminary step, since it affords a good digital and visual examination and consequently more accurate diagnosis.

It was the late W. O. McGill who first strongly advocated the Suprapubic operation. He claimed that the Suprapubic incision allowed of complete and most efficient drainage. I venture to think however that it will not as to in those cases which require drainage most vigorously where the urine is in a foul and decomposed state. The Suprapubic method will drain the bladder to a very great extent but it will not satisfactorily drain the urine away from that very lying cavity which is left after a postullectomy. It is this cavity which requires the very best drainage to avoid Septic Conditions being brought about. It might be drained to a certain extent by a Catheter.
fascicled per urethra. the wall was as it is thoroughly as by a perineal opening.

A method of operation has been suggested by Cameron for cases where there was con- siderable cystitis. He recommended opening the bladder by a suprapubic incision and treating the cystitis by irrigation, and after a few weeks when the inflammation subsided performing prostatectomy when the patient was in a better condition both locally and generally. This method might certainly be advantageous in very extreme cases, where for instance the general health of the patient was extremely low, or where with a very poor state of the urine, the amount of prostate removed would be very large and to an extremely raw surface left, increasing the risk of septic absorption. In these cases the operation might be done in two stages as recommended by Cameron, but it does not appear to me to possess any advantage over the combined suprapubic and perineal operation performed at one sitting.

It is sometimes doubted whether it is possible to attack and remove satisfactorily the lateral lobes through a suprapubic opening. But granting
that this is possible, the prostate of
there any be done by leaving a raw
surface in the most dependent part of
the bladder. Mischief would certainly
result from the collection of stagnant
urine in this position which would be
very likely to occur with supra pubic
drainage by itself, and the risk of lesion
from exposure of a large absorbent surface
would depend on the amount of Prostatic
overgrowth which had been removed.
It has been recommended by Tuffier to
suturing together the edges of the raw
surface so left - but this must be a very
difficult and unsatisfactory proceeding.

There are other conditions also which
render the Suprapubic operation very
difficult, namely when the bladder is
very small and contracted and consequent-
ly cannot be raised up above the pubes.
In patients, too, with serious mischief
else where such as malignant disease in
the abdomen, or where the patient is in
a very advanced state of weakness, the
Pernicous operation might be more satisfying
as relief could be more rapidly given and
with less risk to the patient. Even al-
though the gland were not entirely removed.

The relative safety of the two operations

seems a point on which there is a real divergence of opinion. Taking an average however, from published results it appears that the Perineal method is rather safer, 10% as against 13%. This method affords at any rate temporary relief in all suitable cases, and a cure in a few. Thus the operation although it has some serious disadvantages as given above, has also a certain field of usefulness on account of its being attended with less danger, better drainage and fairly good results.

Its indications are especially in cases where the bladder is atonic, contracted and rigid and where there is renal trouble, sepsis or advanced cystitis.

In considering the relative safety of the Suprapubic and Perineal operations it would have been very interesting to compare with these two the safety of the Combined operation. I have not been able to find any statistics comparing them. The Combined is an operation which has been recommended very strongly by Belfield, who says it is the one most generally applicable and giving the best results but the highest mortality. I should not however, describe it as having the highest mortality. I consider that the reason the mortality...
from the Suprapubic operation is so high is because in so many cases Sufficient Drainage has not been allowed and that had such insufficient drainage been supplemented by a permanent opening then the Mortality would not have been so high. This is exemplified in Case V which I have described above and which ended fatally. In this case it will be remembered the urine became turbid a day or two after the operation and the patient manifested Symptoms of Septic poisoning. I feel sure that if the Combined operation had been done at once or if a permanent opening had been made at a later date and so assisted the Drainage the Case might Easily have had a more Satisfactory termination.

Another method of drainage that has been recommended is by means of a Catheter per urethram but this is not so satisfactory as the Perineal opening since it does not drain the bladder from its lowest part which is so essential in the prevention of Septic Absorption.

The operations of Prostatectomy are what
might be called the direct methods of operating on the enlarged prostate, in that by them the surgeon makes an attack on the gland itself. There are, however, other operations of more recent date which might be called the indirect methods, since by them nothing is done to the prostate itself but by them the surgeon hopes to produce a secondary effect in its substance whereby it diminishes in size and so causes an amelioration in the prostate symptoms.

The first of these methods is Castration or as it is more fashionably called Orchidectomy. This was first suggested for the possible relief of obstruction due to enlarged prostate by Professor White of Philadelphia. Another method which has been recommended as a substitute for Castration is Vasectomy or ligation of the Vasa deferentia.

**Castration for Enlarged Prostate.**

Prof. White was led to perform this operation for enlarged prostate by making a comparison between the testicle and the prostate on the one hand, and the ovary and the uterus on the other. In the "Annals of Surgery" 1893, White says...
"If the analogy between uterine fibromata and prostatic overgrowth was a real one, castration might have the same effect on the latter that oophorectomy had when the former and cause a shrinkage or atrophy which would result in the practical disappearance of the obstruction."

Since this operation has been introduced it has been variously criticized, no doubt thus being due to the fact that by many it has been recommended as being the most suitable way of treating every case of prostatic enlargement, and in this way the operation has been greatly abused.

Before describing any individual case I should like to summarise a few points in Professor White's original article on the subject. He says that in a very large proportion of cases (87%) atrophy of the enlarged prostate followed the operation, and that in 46% a return to to cure conditions not very far removed from normal may be expected. Cystitis is lessened and all the troublesome symptoms are relieved. He says that the fatal cases out of a total of 111 gave a death rate of 10 per cent but
Several of these cases were not suitable for any operation on account of the unfavourable condition of the kidneys. Without including these cases, and taking into consideration only those which were operated on under favourable surgical conditions, he had a mortality of 7.1 per cent. which he contends would be further reduced as advanced knowledge permitted of a better selection of cases.

Prof. while maintaining that compared with other operative procedures Castetatin offers a better prospect of permanent return to nearly normal conditions than does any other method of treatment.

The relatively rapid degree of improvement in successful cases should be considered as well as the mortality in comparing the operation with the various forms of Peritonealising. So too should the absence of any risk of a permanent fistula resulting from the operation and also the ease and quickness with which the operation can be performed, and the possibility of avoiding altogether the use of Anaesthetics which in these cases are dangerous in themselves.

During the last few years the operation has been widely tried and has much.
discussed. The whole taken as a whole and to show that an important addition has been made to the resources of surgery in dealing with the obstruction caused by the hypertrophied prostate. It is however very difficult to arrive at a clear understanding of the possibilities and limitations of the operation. It is to be feared that in time Castration on old men for enlarged prostate will become very seriously mishandled and that the operation will be performed for conditions other than true Prostatic Hyper trophy. It is not always easy to make a positive diagnosis between simple hypertrophy of the prostate and some of the conditions which resemble it so closely. In doubtful cases it would be better to make the diagnosis sure by opening the bladder by the suprapubic incision before resorting to Castration, rather than to remove the stones and afterwards to discover that the patient was suffering from an Encysted Stone or malignant disease of the bladder or prostate. Castration is considered such an easy and comparatively safe operation that there may be great danger of surgeons being tempted to practice it on willing subjects.
Suffering from obsolete bladder affections complicating hypertrophy of the prostate gland, and so the real danger is not so much from the use but from the abuse of the operation. I think it is on account of Castration being performed in so many unsuitable cases that has led some Surgeons to have such a high death rate from it. Thus Cabot\(^1\) states that in cases that have come under his notice the mortality following Castration was 19 per cent. This appears to be much too high a figure and is no doubt accounted for by an improper selection of cases. Cabot endeavored to find out the usefulness of the operation by considering its rate of mortality and the restoration of function obtained by it. He considers that in the matter of mortality the operation of Prostatectomy has a slight advantage over Castration. Prostatectomy further has the advantage that it allows of a thorough examination of the bladder and may lead to the discovery of conditions connected with the bladder and prostate which were not before suspected. Sometimes by this method stones are also removed from the bladder without adding to the risks of the operation.
and on the other hand, cases have been recorded in which Castration has been performed without any improvement taking place but subsequently, Stone had been discovered and necessitated a further operation for their removal.

Pre-irradiation has however its disadvantages; for instance it confines the patient for a longer time and it is sometimes followed by the establishment of a permanent fistula. The occurrence of this, however, is not at all common and it is quite counterbalanced by some afterward effects which are sometimes the result of Castration. One of these is that it is apt to be followed by a permanent loss of vital energy. It is difficult to say to what extent this is apt to occur but it undoubtedly does happen that the operation is followed by nervous effects which seem to suggest that the testes exert some tonic influence over the system. It has been noted also and sometimes raised as an objection to the operation that it is apt to be followed by serious mental disturbances. These sometimes take the form of wild mania but I have never seen it occur in patients with
tended prenatally and had cystitis in whom no operation had been done.
I do not think that these cases as a rule have any direct connection with
the operation but that they are due to
absorption of septic poison or uraemia
arising from the condition of the Genito-
Urinary System.

The psychological effect of Double
Castration is still therefore a most questi-
onable number of patients have
shown some mild form of mental
weakness, whilst others have become
genuinely insane. In many of these the
Shocks of the operation and the absorption
of septic poison will sufficiently explain
the mental change but there are many
cases which cannot be explained in
either of these ways. I think, however,
that after analysing a great many
reported cases it is safe to say that
the operation of double Castration does
specially tend to produce a condition of
mental weakness in a small proportion
of cases but that only in a very few
cases is this more than temporary.
It generally completely passes off in
a very few days.
Cabet in his "Resume." says that Castration is very efficacious in cases of lags, those prostatic where the obstruction is due to pressure of the lateral lobes upon the urethra. He is no doubt led to this conclusion by the fact that these lobes are removed with much more difficulty than the third lobe by the operation of Prostatectomy. He says, however, that although Prostatectomy has its field in the treatment of obstructive prostrations which act in a valvular way to close the urethra, there is no form of Prostatic obstruction which a careful Operator may not correct by the Operation (Prostatectomy). On this account he argues that Prostatectomy is applicable in more cases than Castration and is to be specially recommended when an inflamed condition of the bladder is present making drainage desirable.

There still seems to be a great diversity of opinion in regard to the merits and demerits of Castration. While considers that Cabet very much over-estimated the mortality. He says that the operation being
Easily and quickly performed it is permitted of its adoption in many cases of diseases both local and general which would have been regarded as a positive contra-indication to any other operation.

Great care is required, in trying to come to a conclusion regarding the relative mortality of the two operations, to include only cases in which death was the direct outcome of the operation, and to eliminate all cases in which death resulted from causes other than the operation. It only proves what a difference of opinion there is, and is likely to be, about the two operations when we see that Cabot calculates the mortality from Castration to be 19.4 per cent. whilst Professor White says it ranges from 6.5 to 9.5 per cent.

At the meeting of the British Medical Association at Carlisle in July 1876 the subject of Surgical Treatment of Prostatic Hypertrophy was reviewed by Mr. David McEwan of Dundee. He made reference to the 311 cases of Castration on which Prof. White had based his table, and considered that those tables ought to
be accepted with great caution as whatever the actual results may have been the details of many of the cases are too vague and scanty to allow of a proper estimate being formed of the amount of success that attended the operation. The previous histories are only very sketchily given especially as to the use of the catheter. Many of the cases are included so soon after the operation that we can come to no conclusion about the permanency of the results.

Afterwards Mr. McEwan went on to describe a series of cases he had collected since the publication of Prof. White's Tables. There numbered 52 in 42 of which success attended the operation, it showed no improvement and 6 died. The death rate thus very closely corresponded with the death rate mentioned by Prof. White. None of the deaths were the direct result of the operation but appeared to be due to advanced morbid conditions or to the occurrence of subsequent complications.

It is interesting to consider the means whereby CASTRATION gives relief from so many Pelvic Symptoms.
The lessening of the congestion accounts for the relief of the pain produced by the irritability and shrewd of the bladder muscle. The relief of the Cystitis is probably brought about through the mucous membrane becoming restored to a healthier condition by the improved circulation, the partial also on account of the bladder getting more physiological rest due to the obstruction being removed. If the Cystitis is at all far advanced we cannot hope to get much improvement in it in the early stages of the treatment. When the walls of the bladder are thick and sclerotic, the operation can only be expected to cause a limited improvement at the best, and when infection has extended up the urinary tract and pyelo-nephritis has developed there is not much chance of getting any benefit at all. In a case reported by McBurney in which symptoms of pyelo-nephritis were present, considerable diminution of the prostate following the operation and the pyelo-nephritis remained the same and the patient condition was not much relieved. The results were of several of the cases may fairly be
considered as due to this complication having been present when the operation was performed.

It is sometimes remarkable too, how the bladder recovers its functional power after the operation of castration. It is a very marked feature of some of the reported cases, and seems to be due principally to the removal of the obstruction. Results show that the bladder contractility is often not so hopelessly gone in chronic cases, as has generally been supposed. That it should return after attacks of acute retention or after the use of a catheter for a few weeks or months, is what might reasonably be expected; but that after many years of catheterization voluntary micturition has been again restored, is very remarkable. Pooring reports the case of a man 65 years old who had not passed a drop of urine except by artificial means for eleven years and who, two months after the operation, was able to micturate with normal frequency. Living reports a case of a man 77 years of age who, 36 days after the operation, passed urine by the bladder the first time for 18 years; and Charlton that of a patient...
77 years of age who was able to do without his catheter after having used it for eight years.

At the British Medical Association meeting at Carlisle, Mr. Christie said that he did not approve of the removal of the arteries for Prostatic hypertrophy and would recommend within Prostatectomy in cases where operative interference was called for. He thought it would be better for a man to go alone with a perineal drainage tube in his bladder than to have his testicles removed. Mr. Jordan Lloyd too said that his experience of Carvation has not borne out the published results of those writers who favoured this operation.

It is evident then that the operation for Enlarged prostate has its advocates and its non-supporters, and that Surgeon must appeal to his own clinical experience for an answer to the question as to what effect the operation has upon enlarged prostate and its attendant evils. Like many other less therapeutic measures it has been thought too much of since its introduction and has not maintained the high reputation it was given at that time. Surgeons
have now had a fair experience of the operation and so far as can be judged the general opinion is that although it is a valuable addition to our resources it is not by any means the certain remedy for pyelitic kidney stones it was at first supposed to be.

The following case is one which I had the opportunity of following and it shows that in some cases at any rate Cystatin is very efficacious.

**Case VII**  
J. B. aged 67 a farm labourer was admitted on Dec. 28th 1896 with symptoms of Acute Cystitis and a history of severe pain on micturition for the last 4 years and retention of urine for four days previously. By treatment with saline means this was relieved and he was told to keep the catheter every night to draw off the residual urine which amounted to 12 ounces. The Exposure due to his occupation quickly brought on a relapse and he was re-admitted on January 31st in much the same condition as before. He had not used the Catheter but his urine was decomposed on examination for albumin a trace mass could be felt along the rich
and a half from the anus and quite 3 inches in breadth and extending too high up to allow the finger to get beyond it. Day and night the micturition was frequent and painful.

Some improvement was obtained by the ordinary measure such as bladder injection and the internal use of Boric Acid and Salol, but seeing that relief so got was only likely to be temporary, the patient was advised and consented to have double castration performed. This was performed on February 9th and the operation was very well borne. For 5 days there was still painful micturition but the frequency was less and on the 10th day he was free from all pain. On March 21st he was discharged, when the following note was taken - Residual urine 6 or 7 ounces; gets up twice during the night to micturate but has no pain when doing so; the finger for rectum can easily reach beyond the gland and laterally it measures about 1½ inches.

When seen on April 21st the residual urine was one ounce; he still had still to go up twice at night to micturate.
but he had no pain and the time had no attack of retention since leaving the Hospital.

**Resection of the Vas Deferens**

As soon as White's operation had been tried and proved to be of great value in certain cases many surgeons suggested the lesser operation of resecting a small piece of the Vas Deferens on one or both sides. This operation by producing atrophy of the testicle was expected to produce a corresponding atrophy in the Enlarged Prostate.

On the whole, a consideration of the results of Vasectomy reveals to show that the operation produces all the effects on the Enlarged Prostate that Castration does, with less risk to the patient, and it appears to be steadily growing in favour.

It has also been suggested that Simple Ligature instead of Resection of the Vas will bring about the same result but it is generally found that Simple Ligature is very often followed by restoration of its Continuity. It is probable too that this method of treatment is more limited in its usefulness than any
of the other operations. It has not been found of so much service when
the prostate is hard and indurated as when it is very much swollen, soft-
and tender and elastic, as in these cases the condition is for the most part due
to congestion. Mr. Holman (11) in his
papers said he had collected 37 cases
in which the operation has been per-
formed. In 26 of these it had been
successful, in 3 there was some im-
provement, 4 were unsuccessful and
4 died from causes unconnected with
the operation. The cases were collected
from all sources, home and foreign and
the results procured are far from
agreeing with the results got by other
Surgical.

The operation of Vasectomy has been
very strongly recommended by Dr.
Reginald Harrison (12). He was in the
habit of taking out a piece of the
Ves deferens on one or both sides. In
12 cases in which he did single Vasectomy
7 were successful and 5 unsuccessful.
One of 9 cases in which he performed
double Vasectomy 5 were very successful,
2 derived no benefit, and 2 could not
be traced. He recommends that
the double operation should be performed in two stages with an interval of a month or so between the operations on either side. The risk of this is less and the relief is often very great after the duration of one only, so that the sacrifice of the second is not necessary.

The mental symptoms that have been seen after Double Castration have also manifested themselves after Double Vasectomy especially when the latter operation has been performed on both sides at one time. Mr. Reginald Harrison however says that he has never seen nor heard of such results as those being observed when both Vas a were not divided at the same time.

The following Case which came under my notice at the Berkshire County Hospital last year illustrates very well the usefulness of the operation.

Case VIII. C.W. aged 77 came to the Hospital as an out-patient in Jan 21st 1898. He had been using a Catheter for the last seven years. He had severe pain before and after micturition, causing him to lie down afterwards, sometimes for as long as two hours.
He occasionally passed large quantities of almost pure blood which was checked by rest in bed and the internal use of trisopt. He had to pass a catheter about every half hour. There was considerable pain on pressure over the pubes. The tongue was furrowed, the appetite bad and the bowels constipated. The patient was gradually losing flesh and suffering from want of sleep. His sexual life had ceased 4 years ago. The urine was generally alkaline in reaction, nearly always contained blood and a large quantity of phosphates but no pus was ever discovered. The residual urine measured one to two ounces. On examination by the rectum the prostate was found to be enlarged and about the size of a tangerine orange. By washing the bladder out with large quantities of Bracie lotion the cystitis was much improved and the severe pain greatly relieved the only to return again when the treatment was discontinued. The patient was very loath to have any operation performed the surgeon was persuaded to consent to Vesicotomy. According on March 23, 1872, Mr. Potter
performed the operation on the Prince was only. The patient stood the operation very well and said that he soon after said began to feel better. At the end of 3 weeks the Prince lost weight remarkably and the affection was apparent in the enlarged prostate. He had not to pass his catheter so frequently and the pain before and after micturition was considerably relieved. It was, however, thought advisable to operate on the left side and this was done on April 20th, a month after the operation on the other side. He stood this operation and was up and moving about a little the next morning. From time to time on rectal examination it was quite apparent that the enlarged mass was gradually subsiding. The symptoms had showed great improvement, so much so that by the end of May he did not require the catheter at all, and the only thing he complained of was a little frequency of micturition. He came to the hospital in July and said he could go four or five hours at a stretch without passing water and that it
came in a good stream and quite easily. He had put on a stone in weight, had a splendid appetite and his bowels were regular and he said his life was a pleasure to him compared with what it had been 6 months before. The prostate was excised and found to be about half the size it was before the operations and the urine was abundant. The 1020, acid and free from albumen, blood and pus.

**Resume**

Having reviewed the various operations and then considering the results of them as published by many surgeons we find most the excellent results have been obtained from each of them. This in itself proves that we cannot say this of one operation in the one par excellence for the treatment of prostate hypertrophy. Each case must be studied by itself and it will be generally found that for each case a certain operation holds out a better prospect of ultimate cure than its rivals. Although the problem is no doubt, burned for a time from
Prostaticctomy to Castration there were a few many eminent surgeons who were not converted and who never will be.

In conclusion, I should like to repeat and emphasize two points which I have already mentioned, namely treatment by means of the Catherizer as a curative method and Perineal Prostatectomy as an auxiliary to the Suprapubic operation.

I have made it a rule to always give the Catherization treatment a thorough trial in all cases before suggesting any of the more serious operations, and from the few cases I have had under my own care I have been very gratified with the results.

As regards the Combined operation of Supra pubic and Perineal Prostatectomy, I do not mean to say the operation should be done in all cases but that the perineal opening should be made in a few. Many cases where the Supra pubic drains would be inadequate on account of the state of the floor of the bladder and the urethra, I hesitate to think that
by helping the Suprapubic drainage by a perineal incision many fatal cases might be averted which at present are due to Septic absorption consequent on insufficient bladder drainage.

References

(12) do. do.