sure the mode of origin of the larger papillomata of the ducts. This change in the latter consists in a fairly regular outgrowth from the inner surfaces of the duct of projections covered by epithelium, which, on section, leaves little doubt that they are growths similar to the larger one just described, but at a much earlier stage of development. These projections consist of a central fibrous strand, covered by a double or treble layer of low columnar or cuboid cells. Some of these projections are simple spurs

Plate IV.—Vertical section through the body of one of the lobes of the raspberry-like duct papilloma showing the fibrous stroma split up into bands enclosing loculi filled with epithelial cells of varying size and shape. The whole section has a considerable resemblance to a section of scirrhous. The surfaces of the lobe are seen to be covered with columnar epithelium, *a a*. (High power.)

(Plate V *a*); some are commencing to branch (Fig. V *b*). The possibility of their being simply folds or wrinkles in the wall of the ducts, produced by shrinking of the fibrous tissue around had to be considered; but this seems to be negatived by the fact that the central folds of fibrous tissue in them do not appear to be folded, but to spring out from the duct wall, and to belong to the papillary growth itself. Also the commencement of branching in the growths is against this view. Again, many of the ducts close by do not present this appearance, but are quite smooth and free from wrinkles, although the fibrous tissue around them appears quite as dense and shrunken as in the case of the ducts which do show these papillomata. Their whole appearance, too, is that of definite outgrowths; and as we have a large macroscopic papilloma close by, growing obviously from the wall of a duct, and presenting the same general structure, it is, I think, safe to conclude that the smaller eminences are but forerunners of the larger.

Other deviations from the normal in the breast I am unable to detect either with the naked eye or the microscope. The superabundance of fibrous tissue met with can be accounted for by the advanced state of senile atrophy of the gland. In a few spots there were groups of leucocytes among the strands of fibrous tissue, but this is probably nothing out of the ordinary. There are certainly groups of epithelial cells imbedded here and there in the fibrous tissue surrounding the greater ducts; but, from their regular arrangement and general appearance, I think they must be regarded as remains of the atrophied acini rather than as of the nature of neoplasms. They are usually arranged in round, well-defined spaces, containing in their lumen, in many cases, a coagulated albuminous material.

The exact position which these duct papillomata are to occupy in the classification of tumours of the breast remains yet, I take it, to be determined. That the condition with which they are associated has been rightly called "duct cancer" provisionally, the history of many cases proves; and, among others, those recorded by Mr. Pollard and Mr. Bowlby deserve special notice. But the exact relation of the neoplasms to the other better known growths remains to be elucidated. In some respects they partake of the characters of scirrhous, as, for instance, in their tendency to infect the axillary glands, in their liability to recurrence after removal, and in some of their microscopic characters. The object of this paper, however, is rather to set forth the histological characters of these changes which this

case gave me an exceptionally good opportunity of studying than to attempt to explain their causation. When all the histological

Plate V.—Transverse section of a small duct close to that containing the raspberry-like papilloma. Shows the whole inner surface covered with papillary growths, some single (*a a*), some commencing to branch (*b b*); (*c c*), groups of fat cells; (*d d*) fibrous wall of duct. (Low power. Hartnack obj. 4 oc. 3 x 90.)

details are fully known we shall be in a better position to give these growths their proper place and nomenclature, and investigate their actual causation.

SOME PRACTICAL POINTS IN THE TREATMENT OF RETENTION OF URINE.¹

By G. BUCKSTON BROWNE, M.R.C.S.

In selecting retention of urine as the subject of the paper which your secretary, Dr. Henty, has honoured me by asking me to read before you to-night I proposed to myself no systematic essay, for I have already written that in the pages of Mr. Christopher Heath's *Dictionary of Practical Surgery*, but rather to touch upon certain points upon which there may well be differences of opinion, to refer to recent advances made by surgery in this department, and, while detailing some of the personal experiences of sixteen years, to elicit the opinions and practice of others.

I propose to discuss retention of urine caused by stricture of the urethra, and by prostatic enlargement, with special reference to instrumentation, hæmorrhage, fever, drainage of the bladder, and excision of the prostate.

When a man under fifty years of age finds he cannot pass any urine it is almost certainly due to urethral stricture. If this is the case there will usually be a history of difficulty in passing water and of a small stream, and often a history of previous instrumentation, all of which enable the surgeon to arrive at an accurate diagnosis. If the case is not one of advanced disease a small English gum catheter, or a small olivary catheter, will often pass with ease and relieve the patient. These instruments are

¹ Read before a meeting of the North London District of the Metropolitan Counties Branch, held at Tottenham.

now made very small, equal in size to No. $\frac{1}{2}$ of the English scale, and are of the greatest use. As a rule, however, if they will "go," their introduction requires no great skill, while, if they will not "go," the most practised hand will fail to pass them. I have never seen whalebone, silkworm gut, or fine bougie guides, or twisted bougies useful in cases of really difficult stricture, and many of these instruments are dangerous. Not long ago, after performing internal urethrotomy upon a very tight stricture, I removed this fine bougie (11 $\frac{1}{2}$ inches long) from the bladder, where it had lain for months, causing great suffering. It had broken off from its screw attachment, and its absence seems to have been entirely overlooked, although the patient asserted that he had never been comfortable since the treatment.

If soft gum instruments prove useless, metal instruments must be used, and I would advise that the patient should be upon his back, and that the surgeon, standing upon the patient's left, should keep his left forefinger in the rectum, so as to know at once if the point of the instrument leaves the floor of the urethra. In very tight strictures fine silver catheters are useless and dangerous, for the fine stems are too weak to bear the pressure required, and when bent the surgeon is unable properly to direct the point of the instrument. In such cases I strongly urge the use of conical steel sounds. I have these instruments made two sizes larger in the shaft than at the point; the smallest is 0-2, that is, 2 in the shaft and less than 1 at the point, then 1-3, 2-4, and so on. They are of naked burnished steel, which presents a finer surface than any plated metal can do. These instruments act upon the principle of the wedge. There are other instruments in the shops however, and largely used, known as "Lister's sounds." They are metal instruments, running to a point, with the actual point enlarged like the end of a probe; in fact, they are olivary bougies in metal. The principle of the olivary bougie is its very flexible neck, and I have never been able to understand the advantage gained by a rigid metal one, and, as in these instruments, the point must always be larger than the neck, however small the point, it follows that they cannot be made small enough for very narrow strictures.

In difficult cases of stricture, which require metallic instrumental relief, it is always well to place the patient under an anæsthetic. With the finger in the rectum, the smallest instrument can always be guided through the stricture, withdrawn, and immediately replaced by the next in size, until a No. 5 or 6 has passed. A small silver catheter can then be passed and the water drawn, and if desired a small gum catheter can be introduced and tied in. I strongly deprecate the practice of tying in small silver catheters; it is dangerous, and most trying to the patient in every way. I have never known a stricture that could not be run up by passing a series of conical steel sounds, the patient being anæsthetised, to at least No. 6. And in most cases the stricture may always be dilated in this way to 12 or 13, but usually with only temporary benefit. In all old hard strictures internal urethrotomy must always be resorted to sooner or later. In connection with internal urethrotomy there are three very practical points to be borne in mind: 1. If, in urethral stricture, instrumentation is always followed by rigor; free division of the fibres of the stricture, from inside the urethra (internal urethrotomy), will cause these rigors to cease. 2. In atony of the bladder resulting from stricture, internal urethrotomy will often be followed by complete recovery from the vesical atony. 3. If, when there is perineal abscess, the case is taken early, the stricture operated upon by internal urethrotomy, and the abscess opened from the perineum, no trouble will result from urine coming through the perineal wound, the abscess at first having no direct communication with the urethra.

When the subject of retention is over 50 years of age, with no previous history of urethral troubles, the cause of the retention is very probably prostatic enlargement. As a rule, no difficulty will be experienced in passing the catheter, but sometimes the difficulty will be very great. In prostatic retention metal instruments ought, if possible, to be avoided. If the usual soft instruments—the *coudée*, the olivary, and the vulcanised india-rubber catheters—fail to pass, I strongly recommend the *bicoudée* catheter. In a prostatic retention case uninjured by previous catheterisation difficulty, if encountered, is always at the very entrance of the bladder, and is due to the instruments catching in the prostatic sinus or impinging upon a very prominent prostatic middle lobe. Sometimes the middle lobe so completely overhangs the vesical end of the urethra, that to enter the bladder the catheter has to travel from behind forwards (the patient being erect). In order

to do this the catheter end [must hug the roof or anterior wall of the urethra all throughout the passage. I have found no catheters so useful as the *bicoudée*, kept over curved, in boxes such as I have specially designed. I have often succeeded in relieving a bladder by means of these instruments when all other instruments have failed. Next to these instruments I rank a good, soft, well-made silk-web *coudée*. This should be remembered, because, while the *bicoudée* catheters are not easily obtained, these are to be had at every instrument-maker's.

Sometimes in prostatic retention the greatest possible difficulty will be experienced in putting in a catheter, and if there has been much instrumentation, and the urethra is lacerated and bleeding, the surgeon's powers may be taxed to the utmost to bring the case to a successful issue. Under such circumstances, it must be remembered that, as there is no closure of the canal as in stricture, the passing of an instrument is only a question of skill, patience, and determination; and that without any exception an instrument ought to be passed. Often a large catheter of No. 14 English will pass with ease when all others have failed. Its point is too large to catch in the urethral folds and pockets, and it is too blunt to lacerate and become entangled in the middle lobe. This is the reason that a lithotrite is always an easy instrument to pass; it is large and blunt-ended, and in consequence of this I have had "lithotrite" sounds and catheters made which I have long employed with satisfaction.

When there has been great difficulty in introducing a catheter, and it is almost certain that the retention will recur, and especially if the surgeon resides far from the patient, it is right to tie in a catheter. This tied-in catheter should always be a soft one, and, if the bladder has only been relieved by a metal instrument, it can frequently be replaced by a gum catheter, if the latter is passed immediately after the removal of the former, and if the soft catheter is moulded on an iron wire to the exact curve of the instrument which it replaces.

We have all had trouble in tying in a soft catheter so that it is retained, for patients will often manage to get rid of an inlying catheter in an extraordinary way, in spite of the most elaborate arrangements of tapes, bandages, and plaster. I was once almost beaten by such a case, and refer to it, as this is a very practical matter, and one which has evidently exercised the minds of surgeons, as witness Holt's winged catheters and the many apparatuses sold for retaining catheters. The patient I refer to wriggled about and turned over in bed in such a way that no catheter stayed in more than a few hours, and he was so reckless in his movements that to have tied in a silver catheter would certainly have sealed his fate. But, after he had given his attendants, Dr. Abud and myself, several nights and days of trouble, I thought of keeping in a lead stilette, and with the happiest results. It was sufficiently solid to prevent the catheter bending upon itself and slipping out, while it was soft enough to yield to the patient's postures without the risk of penetration of the urethral walls or bladder, which assuredly would have been the case had a iron stilette or silver catheter been employed.

Another practical point in the treatment of prostatic retention is that in old catheter cases the patient may have worried a certain part of his urethra into a condition of stricture by rough manipulation, or by using rough and improper instruments. This condition may account for the disease called prostatic stricture, which is often spoken of, but which does not exist, the stricture being always not more than six inches from the external meatus, and therefore in front of the prostate. This condition we may call "catheter stricture," and it often consists of true stricture—that is, a non-dilatability of a certain part of the urethral wall, together with a certain want of polish or lubrication of the mucous membrane lining the implicated urethral wall, due doubtless to inflammatory changes. Such conditions are most trying sometimes, and may offer almost unsurmountable difficulty in the introduction of a catheter. As a rule, a very soft ended olivary catheter will pass better than any other. Great advantage will often be afforded by the use of the conical steel dilators, while in some cases it is well to tie a soft catheter in for a week so as to thoroughly rest the part; and occasionally I have been obliged to resort to internal urethrotomy with great success. I operated upon a case of this kind three years ago with Dr. Burgess, of Streatham, and the patient has passed his catheter every four hours, night and day ever since, with perfect ease.

The next practical point is how to avoid urinary fever in cases of catheterisation. Here we look to the physician for help. I am obliged to be brief to-night, so I will not say more of this fever

than that it comes on immediately or within six days after the introduction of an instrument, and that it may end fatally. As a practical observer, the theory of the etiology of this fever which I have formulated in my own mind, and which has sufficiently practical results, is that it is a nervous fever, due entirely to urethral shock, communicated through the large nervous connection which we know exists between the urethra and kidneys, to the excretory apparatus of the kidneys, and producing all degrees of suppression of urine from the most transient to the most complete. I am satisfied that it is not due to the absorption of urine through the urethral wound, for the passage of a fine bougie through the stricture is often followed by high fever, when a free division of the fibres of the stricture by the knife is followed by little or no elevation of temperature; and I am not convinced that it is septicæmic in its origin, because it may come on directly an instrument is passed; while, on the other hand, patients live for many years and are well and hearty, whose bladders are constantly full of foetid urine. Such a theory as is here propounded results in practical attention to the reduction of urethral shock by (1) great care and gentleness in instrumentation, and (2) the administration of certain drugs.

The drug of first importance appears to me to be opium with its derivatives, morphine, codeine, and nupenthe. I have often found in practice that the passage of a catheter is followed by high fever, when in the same individual, and with the same instrument, no fever follows, if before instrumentation a small dose of morphine has been administered. If opium and its preparations are not well borne, then small doses of chloral hydrate may be employed.

Occasionally, in the treatment of prostatic retention, we have to deal with hæmorrhage into the bladder. This varies from a very slight amount to bleeding of the most serious kind. When not unduly severe, no clots are formed, and although the urine may be the colour of Condy's fluid for days together, no harm will ensue, if the patient is kept at rest and the urine carefully and periodically drawn. When, however, clots form, the greatest difficulty may be experienced in drawing the urine, and the patient and his attendant in a few days may find themselves perfectly exhausted. When an elderly man in pain has passed his catheter, it is very trying to find no urine coming, because the catheter is blocked with blood-clot, and the clot may be so tenacious that it cannot be dislodged until the catheter is withdrawn; and the instrument may have to be introduced again and again before success is achieved. This repeated night and day, every two or three hours, is wearing to the last degree, and all the while bleeding is going on. At first an arrangement which I have designed and show to-night, by means of which the patient can dislodge clots from his catheter, without withdrawing the instrument, by means of suction with his mouth, may be of service. But in very severe cases of this sort I have found the best treatment to consist in keeping the patient under the influence of morphine, and allowing the bladder to fill with blood, urine, and clot. I gently put in the catheter now and then, and draw away what fluid I can, but I stay the vesical spasms by more and more doses of morphine. In about forty-eight hours the bleeding points are sealed, the urine quickly breaks down the blood clot, which comes away like used tea leaves, and recovery follows. I once, in a very desperate case, was on the point of cutting into a bladder to empty it of clot and to do away with the need for catheterisation, by drainage, for the patient and I were entirely exhausted, when it was determined to practise this method, and it was carried out with perfect success.

Prostatic retention of urine relieved by constant catheterism may continue for years. I have known intimately men who have passed all their urine by catheter for fifteen, twenty and twenty-five years, and who have never apparently been any the worse for so doing. It is, indeed, a gratuitous assumption to say—as has been said—that when a man takes to the catheter he is doomed, and that it is only the beginning of the end. A man living to 86 or 90, having passed his urine by catheter for some ten or fifteen years, and dying in the end of bronchitis, cannot be said to fall a victim to the catheter, and we meet with such cases constantly. But there are cases, unfortunately too often met with, where the bladder has become very irritable, and the calls to pass the catheter so frequent that the patient's strength is severely taxed, and his life becomes a burden. This state of things is due to one or more of several causes: 1. An inflamed, contracted, and irritable bladder, the irritation being kept up by the impossibility of urine being passed except by catheter, and often aggravated by im-

proper treatment. 2. A large intravesical prostatic growth, acting as a foreign body, and causing the most intense vesical irritation. 3. The presence of a stone.

A few years ago our only surgical resource in such cases was to open the bladder from the perineum and to drain. Some merely opened the membranous urethra and dilated the prostate. Others performed a lateral or a median cystotomy. Sometimes by accident, and more rarely by design, portions of the prostate were thus removed, but I never knew this removal followed by good result, although occasionally good came from the drainage and rest afforded to the bladder. I say occasionally, for often the drainage did no good at all. Hæmorrhage was often severe; the operation was distinctly dangerous, and not infrequently when it was desirable to allow the wound to close, it refused to do so, and a perineal fistula was added to the patient's sufferings. Now that suprapubic cystotomy has been so thoroughly resuscitated, the bladder has been frequently opened in this way in these cases of advanced bladder disease, for drainage, exploration, and removal of prostatic tissue.

Some surgeons, amongst whom is Mr. Whitehead, of Manchester, maintain that the suprapubic wound does not drain the bladder, and that in attempting this drainage the drain is uphill, and therefore ineffective. *Tot homines quot sententiæ!* For I have satisfied myself that the drainage is excellent, and that the operation is free from many of the risks and disagreeables of the perineal one. In the class of cases under consideration the prostate is large, and the floor of the bladder is on a level with the top of the pubic symphysis, so that an inlying tube passes almost horizontally in, and not downwards. I have a prostatic case now which has drained well for twelve months, and by wearing the apparatus designed by me, and described in the JOURNAL of August 4th, 1888, is able to walk three or four miles daily. I lately drained a case of cancer of the prostate with perfect success for six months, and I have an experience altogether of six cases. The wound is well under the patient's control; he can see it and attend to it himself, and it is easily healed up, if it is desirable to allow it to close. I by no means say the proceeding is devoid of risk; it is necessary often in advanced age, in worn and weary men, and naturally some succumb, but they pass away from a life which has ceased to be worth living.

With regard to stone in these cases, the limits of this paper will not allow me to go into particulars, but there are many cases where stone is absolutely undiscoverable by instruments passed *per vias naturales*, whilst suprapubic operation allows of the discovery of stones in difficult cases, and of their complete removal with good results.

It has long been a question with surgeons whether in cases where a man, owing to prostatic obstruction, is entirely dependent upon the use of the catheter, anything can be done by incision or excision to remove this obstruction, and render the use of the catheter unnecessary. Mercier, of Paris, to whom we all owe so much in this department of surgery, worked hard at the fascinating problem; but a careful examination of his work, as reported by himself, does not leave a satisfactory impression upon the mind. His work, however, induced the late Mr. Teevan, in his Lettsoman Lectures, to refer hopefully to the subject, and this led to a controversy between that gentleman and myself, in which Dr. Gouley, of New York, joined; but both these surgeons were unable to prove that any good had resulted from attacking the so-called "bar at the neck of the bladder" by cutting instruments introduced through the natural passages. Gouley himself recommended median cystotomy and the excision of the middle lobe through that incision. Since then, Mr. Swinford Edwards has published a paper on the subject; but these operations seem to have failed to commend themselves to the profession, and we heard little or nothing of the subject until the revival of suprapubic cystotomy gave a fresh impetus to investigation.

In 1886 Dr. Belfield, of Chicago, excised the prostatic middle lobe after opening the bladder suprapubically; and, quite independently, Mr. McGill, of Leeds, in 1887, while performing suprapubic lithotomy, did the same thing, and commenced a brilliant and most important new departure in surgery. He was followed by his colleagues, Messrs. Atkinson, Jessop, and Mayo Robson, and by myself. Mr. McGill believes that prostatic retention is caused by a valve-like action of the intravesical prostate, the urethral orifice being closed more or less completely by the contraction of the bladder on its contents. He takes a very gloomy view of the prospects of a patient obliged to commence regular catheterism, and he admits far too readily that it is sometimes impossible to

A Table of 13 Cases of Suprapubic Incision into the Bladder, in all of which the Prostate Gland was enlarged and the Patients dependent upon the Use of the Catheter.

No.	Case.	Age.	Vesical Condition.	Condition of Prostate.	Operation.	Result.	Remarks.
1	W. O.	68	Sacculated phosphatic calculus. All urine passed by catheter.	No intravesical tumour. Rectal examination: prostate moderately large.	Calculus removed.	Recovery.	Seen with Dr. Cronin. The urine has been drawn by catheter for many years. He is an exceedingly active member of society.
2	P. B.	71	Large uric acid calculus in post-prostatic pouch. Residual urine is 5 ounces.	Intravesical tumour. Rectal examination: prostate moderately large.	Calculus removed.	Recovery.	Seen with Dr. Geo. Dancer Thane. Catheter is used about four times daily.
3	R. J.	87	Intense irritation. No stone. All urine by catheter.	Enormous intravesical tumour. Rectal examination: prostate moderately enlarged.	Intravesical tumour removed. The pieces weighed 4 ounces.	Recovery.	Seen with Dr. Andrew Miller. The operation saved his life. Now well, and wears a suprapubic urinal.
4	W.	69	Sacculated uric acid calculus. All urine by catheter.	No intravesical tumour. Rectal examination: prostate moderately large.	Calculi removed.	Recovery.	Seen with Dr. Hardy and Dr. Gimson. Is quite comfortable, passing all by catheter about every six hours.
5	T. B. R.	81	Small uric acid calculus in post-prostatic pouch. All urine by catheter.	Large intravesical tumour. Rectal examination: prostate very large.	Calculus removed. Intravesical tumour removed.	Death.	Seen with Dr. Kidd. I was tempted to remove the middle lobe because there was so much vesical irritation, but I regretted afterwards that I had done so.
6	W. A.	61	Several small stones. All urine by catheter.	No intravesical tumour. Rectal examination: prostate enormous.	Calculi removed.	Recovery.	Seen with Sir John Simon, K.C.B. He lived six months, the bladder being drained all the time by my suprapubic apparatus.
7	T. J. D. T.	71	Nine uric acid calculi in post-prostatic pouch. All urine by catheter.	Large intravesical tumour. Rectal examination: prostate large.	Calculi removed.	Recovery.	Seen with Dr. Ed. Geo. Whittle. This case was a tempting one for prostatic removal, but I refrained.
8	E. K.	74	Sacculated uric acid calculi. All urine by catheter.	Large intravesical tumour. Rectal examination: prostate very large.	Calculi removed.	Recovery.	Seen with Dr. W. J. Harris. I should certainly have lost this patient if I had performed prostatectomy.
9	J. M.	83	All urine by catheter. Great vesical irritability.	No middle lobe enlargement. Rectal examination: prostate large.	Bladder opened and drained.	Death.	Seen with Dr. Alex. John Alliot. Died of bronchitis and exhaustion in eight days.
10	J. O.	77	Oxalate of lime calculus in post-prostatic pouch. Residual urine 4 ounces.	Slight intravesical tumour. Rectal examination: prostate very large.	Calculus removed.	Death.	This patient was really dying when I first saw him.
11	B. V.	71	Uric acid calculi in post-prostatic pouch. All urine by catheter.	Large intravesical tumour. Rectal examination: prostate large.	Calculus removed.	Recovery.	Seen with Mr. H. Fraser Stokes. I had correctly diagnosed enlarged middle lobe, and intended to remove it. Fortunately, during the operation I decided to leave it alone. For some time his state was uncertain after the operation.
12	H. W. F.	70	Residual urine 3 ounces. Great vesical irritability.	No intravesical tumour. Rectal examination: prostate slightly enlarged.	Bladder opened and drained.	Recovery.	Seen with Sir Oscar Clayton and Dr. Hickman. The bladder was relieved by the rest and drainage.
13	J. M. P.	78	All urine by catheter.	Some intravesical tumour. Rectal examination: prostate very large.	Bladder opened and drained.	Death.	Seen with Dr. J. R. Walker. Died in three days of exhaustion.

Four were purely prostatic cases; 2 died from simple cystostomy and drainage. Nine were prostatic cases *plus* calculus; of these 2 died, one of these being subjected to prostatectomy as well as to lithotomy, and the other almost in a dying state before the operation. Two of the 13 cases were submitted to prostatectomy; 1 recovered and 1 died. Eight had intravesical growths. Average age of the 13 cases=74 years. Nine made good recoveries.

teach a patient to pass a catheter for himself. He is, therefore, mentally prepared to be very willing to operate upon any catheter patient who complains of the burden of catheterism, or who finds difficulty in introducing a catheter, and in consequence he and his colleagues have been able to publish particulars of twenty-four cases where they have hypogastrically excised portions of the prostate. I hope I shall not be considered censorious in my remarks upon Mr. McGill's work, but it is most important carefully to consider a new departure in surgery such as this, by which hope is held out to the aged and suffering of relief from the toil of constant catheterism. It is our duty to make up our minds as to the risk run, and what the chances are of obtaining relief. As a small contribution to the material necessary for the study of prostatectomy, I have drawn up a table of thirteen cases where I have suprapubically opened the bladder, in all of which the prostatic gland was enlarged, and the patients dependent upon the use of the catheter.

The first thing that strikes me on considering Mr. McGill's paper, read before the British Medical Association Meeting at Leeds last August, is that we are told nothing of any prostatic cases in which he has opened the bladder and found no prostatic intravesical growths. In my thirteen cases I found this intravesical growth absent five times, and one of these five (aged 83), a purely prostatic case, died. Secondly, in estimating the good done by such an operation, we must distinguish between acute and chronic cases. Several of the cases in Mr. McGill's list seem to me to have been more or less acute, and they would probably with ordinary care and treatment have recovered without undergoing a capital operation. By this I mean that a man with an enlarged prostate may be quite comfortable until from chill, or neglect of

calls to micturate, he has complete retention. After this, he may be dependent upon the catheter for even six or nine months, and then recover his powers completely. Also a man with enlarged prostate may only have occasional attacks of retention, which, if at once relieved by the catheter, leave him with a perfectly acting bladder for some time after. And in this place I would particularly remark that we must not too readily accept it as impossible to teach an individual patient to pass a catheter for himself, whatever he may say and urge to the contrary, there is always some instrument to be found which, with kind and firm drilling, he can be taught to use. The difficulties of the patient's urethra, and his clumsiness, may often at first appear insuperable obstacles, but they are practically always to be overcome. And in the last place, in reporting the present state of a man who, previous to prostatectomy, passed a catheter, it is not enough to say "he continues well," or that "he has not required a catheter, but he still suffers from vesical catarrh." We want to know if the patient can empty his bladder by his own efforts, and this can only be proved by the passage of a catheter immediately after the natural act of micturition. I find this fact definitely stated in only 2 of the 24 cases in Mr. McGill's list. Full particulars are given of 21 of the 24 cases, 3 being too recent to be complete; and of these 21, 5 died, 6 of these 21 were calculous cases, leaving 15 pure prostatic cases, and of these 4 died. Out of these 15 prostatic cases, there are 2 excellent recoveries, the need for the catheter having ceased to exist, and there are 4 of which one would like to know more, but which certainly seem to have been improved by the operation.

In the 13 cases in which I have opened the bladder prepared to excise a portion of the prostate if found advisable, prostatic intravesical or middle lobe growth was only present in 8, although the

prostate was hypertrophied in every case. I only ventured to excise a portion of the prostate in 2 out of these 8 cases; one of these two cases died, and one recovered. The age of the patient who died was 81, the age of the patient who lived was 87. The latter is living now, wonderfully well and comfortable, and his case is recorded in the *Transactions of the Clinical Society*. He has never consented to allow the suprapubic wound to close, but has worn my suprapubic apparatus for a year. In several of my cases I am satisfied that the patients would have succumbed if prostatectomy had been performed; and I cannot agree with Mr. Mayo Robson when he says that the addition of a prostatectomy to a suprapubic lithotomy does not, in his opinion, add materially to the risk. It must, however, be remembered that an enlarged middle lobe may not only cause retention of urine, but may act as a foreign body in the bladder when very large, and cause intense irritation and misery; when this is the case, its removal must be undertaken at all hazards.

Taking into consideration, therefore, our present knowledge, it appears that when a catheter patient has got into such a state that the frequent use of the instrument renders life burdensome, the bladder should be opened above the pubes. By this means the organ can be completely explored, any calculus extracted, the bladder drained and rested afterwards. If any intravesical prostatic tumour is found, much must depend upon its size. If very large, it is probably a source of great irritation, as well as a urinary obstruction, and it had better be removed. When, however, the growth is small, and especially when a stone has expectedly or unexpectedly been found, which may have been the cause of nearly all the vesical misery, I should advise anyone to hesitate before opening the prostatic capsule and enucleating the lobes. Also, when an elderly man, who leads a tolerably comfortable life by passing his catheter even as often as every three hours, but who is anxious to be relieved altogether of his offending prostate, applies to the surgeon, I should still advise him to hesitate. Prostatectomy is a dangerous operation, only necessary in men already in broken health, and uncertain, even in cases of recovery, of being followed by release from the need of using the catheter.

CARDIAC INSUFFICIENCY IN ITS RELATION TO ABORTION.¹

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In his *Clinical Lectures on Diseases of Women* (1883), Dr. Matthews Duncan says: "It is only recently that great care has begun to be paid to the bearings of disease of the heart upon pregnancy and parturition; I know of none paid to the bearings of disease of the heart upon abortion. It is a subject well worthy of attention and study." It is now nearly five years since the above quotation arrested my attention, and during this time I have endeavoured, both in my private and hospital practice, to trace out how far a connection exists between morbid conditions of the heart and the occurrence, or recurrence, of abortion. So far as my researches into the literature of the subject have gone, I cannot discover that any great advance has been made in our knowledge of the relation between heart conditions and abortion, or that any author has endeavoured to follow out the investigation suggested by Dr. Duncan's words.

The pathology of intra-uterine death has been ably treated by Dr. Priestley in his recent *Lumleian Lectures*,² but even here I have failed to find anything more than a passing reference to the influence exerted by cardiac conditions on the progress of pregnancy. In his work on *Heart Disease During Pregnancy*, Dr. Angus MacDonald has, it is true, pointed out that in a large proportion of cases of mitral stenosis pregnancy is terminated by the onset of spontaneous premature delivery, and Duroziez, in his paper on *Pure Stenosis of the Mitral*,³ remarks that this lesion is apt to be accompanied by a special tendency to the occurrence of abortion and premature delivery; but both these authors dwell more extensively on the onset of premature delivery in the later weeks of pregnancy, and confine their attentions principally to mitral

valvular disease. How great an influence valvular disease of the heart may have in determining the occurrence of abortion, and what the relative value of the individual forms of valvular disease may be to each other in this respect, I am not yet prepared to state, but, so far as my observations have at present led me, I am inclined to think that the presence of valvular disease does not, broadly speaking, interfere materially with the progress of pregnancy, provided that sufficient compensatory hypertrophy of the muscular walls be present.

In this communication my endeavour will be to show that putting aside the consideration of valvular affections, the absence or insufficiency of the usual hypertrophy of the heart which should accompany every pregnancy is a not uncommon cause of the occurrence and recurrence of premature emptying of the uterus in the earlier months of pregnancy. Before bringing forward the clinical cases and other arguments which seem to support the view propounded, I should like to dwell briefly on two points—first, the normal hypertrophy of the heart during gravidity; and, secondly, the influence of a failing left ventricle on the systemic circulation at its periphery.

Without discussing how far Larcher, Ducrest, Beraud, Blot, and other *savants* of the French schools may have exaggerated the amount or overrated the importance of the cardiac hypertrophy of pregnancy, without attempting to settle the question whether the left ventricle only has its muscular walls thickened, or whether other parts of the heart share in the increase, I would take it as an established fact that at the close of a pregnancy the left ventricle is found considerably hypertrophied, and that this hypertrophy is due to the increased work entailed on the heart by the growth of the uterus and its contents. As a deduction from the foregoing truth, I would formulate, that if this hypertrophy is absent or insufficient, the heart will, as pregnancy advances, show signs of failing power, or, conversely, that if the heart exhibits symptoms of failing during the progress of gravidity, we may reasonably presume that the compensatory hypertrophy is either wanting or insufficient in degree.

The second point is this: the condition of the systemic circulation at its periphery depends very largely on the mode of action of the left ventricle. If the latter is healthy, vigorous, and has good driving power, then, *ceteris paribus*, the circulation in the arterioles and capillaries is brisk, the walls of the small vessels are normal and intact, and leaking or extravasation does not take place; but if, on the contrary, the left ventricle is acting in a failing or imperfect fashion, then the blood stream at the far points is sluggish, the walls of the capillaries and arterioles tend to become unhealthy, and dropsy or small hemorrhages are very likely to take place.

Taking these two points as established, it will be well now to pass on and consider some cases which will illustrate abortion due to cardiac failure.

CASE I.—Mrs. N., aged 34, married fourteen years, is a woman of large, flabby build. She came to my out-patient department complaining of frequent miscarriages. Her history was as follows: She had given birth after marriage to two healthy full-term children, the two pregnancies following each other rather closely, then she had had seven miscarriages, the last only a fortnight ago. Her health has never been good since the last full-term pregnancy; during and after this she had suffered with palpitation, shortness of breath, and inability for much exertion. All her miscarriages had taken place between the end of the third and fourth months. According to her own account, she usually felt fairly well until well advanced into the third month of her pregnancies, then she began to suffer with great shortness of breath, palpitation, precordial pain, and swelling of the legs. This state of things became intensified gradually, and then abortion followed. Examination of the heart showed that the apex beat was hardly defined and very feeble; it was slightly outside the vertical nipple line; there was no valvular *bruit*, but the first sound was short and feeble. The area of cardiac dulness was, if anything, somewhat increased. A mixture of ammonia and digitalis was prescribed, and 10 grains of saccharated carbonate of iron ordered to be taken morning and evening. Under this treatment she improved materially, and again became pregnant. When three months gone she was still doing well; the swelling of the legs and other signs of cardiac failure had not appeared. Wishing, however, to give the heart every chance, I took her into the New Boynton Ward, and gave her the opportunity of complete rest, good feeding, and freedom from muscular strain. Under this régime she went on well, and reached safely the sixth month of

¹ Read in the Section of Obstetrics at the Annual Meeting of the British Medical Association, held in Leeds.

² *JOURNAL*, 1887.

³ *Archives Générales de Médecine*, Juillet, 1877, p. 47.