General Post-Graduate News.

LECTURES AND DEMONSTRATIONS.

Lectures : "Renal Disease," Tuesdays, at 4 p.m. sharp. *Medical Society of London.* December 6, Mr. J. Swift Joly, "Renal Calculus." December 13, Mr. H. I. Attwater, "Hydronephrosis and Pyonephrosis." Free to Members of the Fellowship. Fee to non-Members, 5s. per lecture.

Demonstrations of Medical Ophthalmology at the *Royal Westminster Ophthalmic Hospital*, Broad Street, High Holborn, W.C.2. Wednesday, December 7, at 5 p.m., Mr. G. G. Penman, "Demonstration of Fundi of Medical Interest." Thursday, December 8, at 8.30 p.m., Mr. C. L. Gimblett, "Some Points in Medical Ophthalmology" (illustrated by epidiascope).

The fee for each demonstration is 10s. 6d., payable in advance to the Fellowship of Medicine.

Anæsthetics : Practical tuition for a fortnight or a month can be arranged. Limited to two post-graduates at a time.

Obstetrics : "Uterine Infections in Obstetrics and Gynæcology." A course of practical instruction is given each week at *St. Mary Abbots Hospital*. Limited to four post-graduates at a time. Fee £1 5s.

Clinical Assistantships : Two clinical assistants per calendar month (men only) will be appointed at the *Lambeth Hospital*. Daily attendance 10—1 and 2—5. Fee £5 5s. per head.

Application for further particulars must be made to the Fellowship of Medicine, through whom arrangements are made.

A Guide Book, giving details of how to reach the various London Hospitals by tube, tram, or bus, can be obtained from the Fellowship of Medicine. Price 6d. (Members and Associates, 3d.).

THE DIFFERENT TYPES OF PROSTATIC DISEASE.

With Special Reference to Diagnosis and Treatment and an Analysis of 227 Cases of Enlargement submitted to Surgical Treatment.

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PROSTATIC disease of one kind or another forms the largest class of cases which seek the urologist's advice. They fall into distinct groups with regard to the nature of the pathological change which is present. The chief importance in being able to recognize to which group any particular case belongs lies in the fact that the treatment for the most part differs in each.

The Pathological Types.—We must first of all recognize the three distinct types of pathology which occur in the prostate, namely, simple enlargement, malignant disease and inflammation with its sequel, fibrosis. It is the last group which provides the greatest number of cases and we must realize that the prostate is only one of the parts

involved in the fibrotic change. These latter cases show varying proportions of inflammation and fibrosis in the prostate, seminal vesicles, ejaculatory ducts, verumontanum, internal urinary meatus and the vesical trigone. At the one extreme, signs of latent inflammation may be so slight as to escape notice altogether, while the outstanding features of the case are obstructive symptoms which arise from the fibrosis. At the other extreme, signs of chronic inflammation in these same parts dominate the clinical picture.

Between these are combinations of the two types in different degrees. Microscopical investigations of the tissues in these parts make the chain of events quite clear. Changes at the internal urinary meatus, in the verumontanum, at the orifices of the ejaculatory ducts and those of the prostate which open into the prostatic sinuses are commonplace urethroscopic observations in cases in which the symptoms indicate disease about the neck of the bladder.

A study of abundant post-mortem material has been made by two observers [1], who have been able to demonstrate the successive pathological events which lead ultimately to the fibrous and obstructive conditions at the bladder neck. They studied, microscopically, necropsy tissue from this situation of cases which presented elevations of the posterior vesical lip.

Their material came from 100 specimens selected from several hundreds of necropsies and displayed different types of bladder neck distortions and elevations in various stages of posterior urethral and bladder neck inflammation. They made serial sections through all the structures in the vicinity of the vesical outlet, including the posterior urethra, prostate and seminal vesicles. They found a constant relationship between fibrosis and submucous glandular changes about the vesical neck on the one hand, and chronic inflammatory changes in the prostate, seminal vesicles and ejaculatory ducts on the other.

In the advanced cases, not only are the endoscopic appearances characteristic, but cystitis, vesical calculus, large quantities of residual urine and diverticula have to be reckoned with, to say nothing of the obstructive and inflammatory changes which supervene in the upper urinary tract. Young [2] reported calculi in 20 per cent. of 209 cases and diverticula in 30 per cent.

When we come to compare the cases of inflammatory origin with those which are described as simple hypertrophy, there are several contrasting features to be noted. On doing a cystotomy in the former, the bladder is generally thin walled, there is no intra-vesical projection of the prostate, and on introducing the tip of the finger into the internal urinary meatus it is only admitted with difficulty. The increase in size of the gland, which is the outstanding feature in the latter condition, is noticeably absent in the former.

The evidence is still conflicting as to whether the change in simple enlargement is hypertrophic or adenomatous. Malignancy occurs either as a transformation of a simple change, or it has the features of having begun independently of this, generally in the tissue forming the floor of the posterior urethra.

The Clinical Types.—We will first consider those cases in which the symptoms are due to present or past inflammatory changes. In the former the symptoms for the most part take the form of frequency of micturition which is diurnal rather than nocturnal, dysuria, which is generally terminal, and, more exceptionally, occasional hæmaturia which has the same character. In the post-inflammatory cases the

fibrous change present has the tendency to create obstruction. This gives rise to residual urine, difficulty with micturition and frequency which is nocturnal rather than diurnal. These are broadly the two clinical types. Between the two there are intermediate varieties which vary in their symptoms according to the proportions in which inflammation and fibrosis are present.

Cases in which chronic retention is a marked feature occur as a result of the fibrous change and may go on to complete retention.

The combination of nocturnal frequency, residual urine and difficulty of micturition suggests so strongly simple prostatic enlargement that the differential diagnosis must be gone into most carefully. The necessity for this discrimination is that the treatment in the two conditions is usually quite different. This will be discussed under treatment.

The clinical features of a case of simple enlargement are sometimes dominated by the fact that infection either of the prostate or of the bladder has supervened, or there is epididymitis, aching in the groins, or hæmatospermia. These signs are sometimes quite independent of disturbances of micturition and may be the first to attract attention. Such a clinical picture calls attention to the fact that inflammation sometimes complicates simple enlargement.

Malignancy manifests itself much more often with frequency, dysuria and pain in the lower part of the back, than with difficulty of micturition. Although most cases do go on ultimately to difficulty and complete retention, it is remarkable in some how advanced the disease is before these symptoms occur. I have seen one case where the patient died of his carcinoma without the development of any obstructive urinary symptoms. Persistent pain in the lower part of the back and passing down the backs of the thighs is a fairly constant and progressive sign. I have had one case of carcinoma of the prostate in which pain in the back was the outstanding complaint, although nothing suspicious of malignancy was to be made out on rectal examination. The type in which malignancy is suspected or diagnosed only either during or after prostatectomy is, of course, well known.

The Investigation of a Case.—In investigating these cases, one would lay particular emphasis on the history, the inspection of the external genitals and the careful palpation of both the external and internal genitals. First of all with regard to the history, as gonorrhœa is perhaps the most important precursor of inflammatory trouble of the prostate, an inquiry concerning this complaint should never be neglected. An admission of the disease, no matter how long ago in the past, will generally explain prostatic disease which is inflammatory in origin. A denial by the patient of ever having had gonorrhœa should stimulate the inquiry as to whether there had ever been a simple urethritis. For there is no doubt that the latter type of infection, no matter how insignificant and transitory the acute symptoms may have been, can cause an incurable prostatitis. There may even have been a non-specific urethritis without any urethral discharge. But one can hardly expect any helpful information bearing on a previous urethral infection which gave rise to no discharge. As a matter of fact, at the time of their occurrence, quite a number of such cases seek medical advice because of the onset of an aching pain in the penis, perineum or lower part of the back or in the buttocks. The onset and persistence of these symptoms, soon after an irregular intercourse, will often cause the patient to feel that the two facts must be connected. However, I feel sure that for every one of such a case who goes to his doctor for

enlightenment there will be several who do not take such a course. In these facts most probably lies the explanation of many cases of prostatic disease whose origin seems unaccounted for and many of which are attributed to a blood-stream infection which, on the other hand, apparently does occur. Only those who have had an extended experience in venereal disease will be able to appreciate the relative frequency and the different clinical types of cases of non-gonococcal genital infection, and the important bearing such cases have on prostatic troubles in after life.

I don't know any more important part of the examination than to make the patient pass his urine into two separate glasses. To miss doing this in a case in which other signs are not very definite may still leave a considerable doubt as to whether the prostate is involved, even when the urine contains pus and other products of inflammation in macroscopic quantities. Whereas, to carry out this investigation and to find pus and debris in the first glass and a clear urine in the second, is to make the diagnosis quite certain and often saves the patient from an otherwise unnecessary cystoscopy. In doubtful cases a prostatic massage before passing the water is a help. In advanced cases where the posterior urethral infection has been succeeded by a marked chronic cystitis, the pus may be heavier in the second glass. This finding should not deter the investigator from bearing in mind that the prostate was the original cause and still remains the site of infection.

In the absence of a history of urethritis, inspection of the external genitals often gives the clue to a past genital infection, sometimes in a very striking manner. This may take the form of tenderness or enlargement or adhesion to the testicle, of the epididymis, or a palpable change in the vas deferens. I believe chronic hydrocele to be also a manifestation of a past genital infection because, in the large number of hydroceles I have tapped through a number of years, I can recall none which did not manifest gross palpable changes of the corresponding epididymis. A balanitis which is so chronic that it has resulted in a phimosis of inflammatory origin is sometimes noted. It would seem that a chronic urethritis is inevitable in such circumstances. In some cases, quite unknown to the patient, there is a slight mucoid urethral discharge.

Rectal examination in many cases of prostatic disease will establish the diagnosis, but in others it will not. The prostate may give rise to symptoms without any appreciable change being manifest on rectal examination. The uniformly prominent elastic character of the simple enlargement, the stony, hard, irregular fixation of the malignant gland, are well known, but in the inflammatory types a firmness and slight prominence of one lobe, which is not noted in the other, or a thickening towards one or other outer border, are not always appreciated in their full significance. A gland, the seat of a fibrous change which has given rise to obstruction, as often as not on rectal examination gives no indication of its association with the patient's symptoms.

In a large number of the late inflammatory cases, the diagnosis is quite easily established without a cystoscopy. In those cases in which the bladder is not yet extensively involved in the inflammation, the vesical changes are confined to the trigone and internal urinary meatus. There may be only hyperæmia of the former and a few inflammatory polypi round the latter. Where inflammation has given rise largely to fibrosis, the posterior margin of the internal meatus is raised well above the level of the trigone. Obstruction to the outflow of urine from the bladder results from this and gives rise to the following signs of hypertrophy of the bladder muscle. The inter-ureteric

and ureteric ridges stand out sharply, trabeculation occurs on the posterior bladder wall, while a tendency to the formation of a pouch behind the trigone is frequently noted. In such a case there is almost invariably some amount of residual urine.

In the posterior urethra itself, without exception, the urethroscope shows striking changes. There are to be seen inflammatory polypi, or granulation tissue in the prostatic sinuses, or on the verumontanum. Occasionally inflammatory debris may be noted coming from some of the prostatic ducts. The orifices of these and of the ejaculatory ducts are not infrequently dilated. Where fibrosis is well advanced, the post montanal ridge is prominent, the whole posterior urethra and the verum may be distorted and the internal urinary meatus is constricted as a result of the raising of its floor.

On diminishing and then increasing the inflow of fluid through the instrument, a lack of elasticity is noted with regard to the urethral walls and the internal meatus itself. In the fibrosis cases, changes in the posterior urethra and at the internal meatus can often be detected by passing a metal bougie. Sometimes the instrument can be felt to be gripped in the posterior urethra and may be actually obstructed either here or at the internal meatus. While in other cases the point of the instrument gives a jump over the raised lip of the latter structure as it enters the bladder.

The urine in a large proportion of these cases yields pus cells and coliform bacilli in varying proportions. My personal experience leads me to believe that this is the locality in which a coliform infection of the urinary tract, which has become chronic, commonly first establishes itself, the kidneys being involved later by an ascent of the infection.

I feel that little need be said about the diagnosis of cases of simple prostatic enlargement. The uniform, elastic prominence of the gland to be noted on rectal examination usually suffices. Personally, I have long made the habit of employing cystoscopy in doubtful cases only. By this means an enlargement which is more intravesical than rectal will at once be noted. Frankly I can find nothing to justify the routine cystoscopy of elderly prostatic patients. The examination might quite easily precipitate the patient into a state of acute retention of urine, or pyelonephritis, especially if there is any difficulty in manipulating the instrument through an elongated and distorted posterior urethra.

The great bulk of malignant cases are likewise diagnosed simply on rectal examination. I make an exception of course of those which are only discovered by microscopy of glands removed under the impression that the enlargement was simple, or in which malignancy was first suspected, on encountering difficulty with the removal.

The Choice of Treatment: Fibrous Obstruction.—Having carefully examined our case and come to the conclusion that the symptoms are prostatic in origin, although hypertrophic and malignant enlargement have both been excluded, the choice of treatment must be made with the greatest care. Speaking in a general way, one would say that the more acute the symptoms the more conservative the treatment should be.

For many years the removal of obstructing prostatic tissue by the transurethral method has been known and practised. At first two quite distinct procedures were followed, namely, electrocoagulation and the punching out of tissue with a sharp cutting instrument. Each of these methods, when carried out separately, has on the whole been unsatisfactory, but by combining the two procedures excellent results have

been obtained. Under direct vision through the endoscope the piece of tissue to be removed is first of all coagulated by applying to it an electrode conducting a cauterizing current, and then the necrosed mass is punched out. Later a third method evolved, namely, the removal of obstructing tissue with a cutting electrode from a high frequency current. This is accomplished without coagulation, and for this reason it has supplanted the other method. In this way the tendency to subsequent sloughing is avoided. About two years ago these forms of treatment were acclaimed so enthusiastically that it was even said that they would replace prostatectomy entirely. Such ill-judged enthusiasm resulted in all sorts of unsuitable cases being submitted to one or other form of this treatment; an inkling of this is now becoming apparent from the more recent literature on this subject in which emphasis is at last commencing to be laid on contra-indications.

My personal experience is that there is a large group of cases in which the treatment makes the patient's symptoms worse, or actually endangers the patient's life. I believe the treatment is useless in cases in which there is no residual urine in the bladder, and it is certainly most dangerous in any case in which inflammation is at all active round the vesical neck. The care needed in selecting the right cases for transurethral resection is amply apparent when one considers that the condition which is recognized as median bar formation is sometimes present, without giving rise to residual urine. Such cases in my experience do not benefit from operative interference.

How then are we to treat cases which show these features. Dilatations with large metal bougies passed at first once a fortnight and later at longer intervals according to progress, offer the best prospects of benefit of any treatment I have tried. In some, definite obstruction to the instrument is encountered in the posterior urethra or at the internal urinary meatus. One can usually promise rapid improvement from dilatation when this condition is met. If the urine passed into the second glass is turbid from the presence of pus, then the treatment should be supplemented by vesical lavage once or twice a week. There is no need for a catheter to be passed to accomplish this. The patient can quite easily be taught to wash his own bladder out at home by the method of "Janet." If there is still residual urine and if signs of inflammation have almost completely disappeared after prolonged treatment, the question of transurethral resection may be considered. I have been very gratified to note how treatment by dilatation in some cases reduces residual urine. I have in mind one particular case. At his first visit there were 8 oz. of residual urine, at the second 7 oz. and at the third $3\frac{1}{2}$ oz., at which amount it subsequently remained. This improvement was obtained as a result of two dilatations at fortnightly intervals. However, if it is ultimately decided in such a case as this to carry out transurethral resection, the patient's general and local conditions have been so much improved that the likelihood of complications is considerably lessened.

To return to transurethral resection. The outstanding indication for this in a case of fibrous obstruction is residual urine; its absence is a complete contra-indication for this treatment. If there is much residual urine, say more than four ounces, or if there is active inflammation round the neck of the bladder, then it becomes highly dangerous to proceed with the resection, without having first instituted continuous bladder drainage. I, personally, feel that where it is active inflammation which necessitates this delay, the drainage should be established by suprapubic cystotomy. In other cases an indwelling

catheter will meet the case. Failure to recognize the indications for these precautions are certain to give the operator an anxious time during the convalescence and may even lead to a fatal issue.

The way in which both the cystitis and the prostatitis will improve, and the general health benefit from a suprapubic cystostomy, are gratifying compensations for having to carry out this procedure. The length of time that the drainage should be continued must be decided by the progress made. Where a fibrous obstruction is present without signs of active inflammation, preliminary bladder drainage can be carried out quite successfully by an indwelling catheter. A very considerable degree of residual urine can result from a purely fibrous obstruction. I have seen as much as fifty ounces. To employ transurethral resection on such a case without preliminary drainage is to court disaster.

I am sure the technique formerly employed of removing the obstruction entirely by electrocoagulation is unsound. Extensive fulguration at the vesical orifice leads to ultimate stenosis from the contracted scar tissue. Moreover sloughing of the treated area proceeds for long after with an inevitable increase in sepsis.

After trying various cautery punch instruments my experience with the McCarthy prostatic electrotome—through which a looped-wire cutting-electrode is employed with a high-frequency current—leads me to feel that this instrument surpasses all others for transurethral resection. So efficient have I found this apparatus that I am convinced that it has inaugurated a new area in prostatic surgery.

Simple Enlargement.—Now we come to consider those cases which fall into the category of simple enlargement. There is no doubt whatever that some of them are treated with complete success by the transurethral procedure, but before discussing the means of removing the obstruction let us consider some general principles in treating these cases.

First of all, regardless of which method is ultimately employed, the indications, when they exist, for carrying out preliminary bladder drainage must always be followed.

The extraordinary improvement in health which occurs following cystotomy in bad cases of prostatic obstruction makes it clear at once what a boon this is to the patient. So much so, that I always feel that if careful judgment is exercised as to when the second stage is to be carried out, then, as a rule, less anxiety is experienced with regard to the second than with the first stage. As to when the second stage should be performed, this is a consideration which must receive the most earnest attention in every case. I never on any account do the second operation under a fortnight, and then only if the convalescence has been perfectly smooth. As a rule, I like to wait three weeks, the patient staying in bed for fourteen days and sitting about in a chair for the third week. However, I think it is the greatest possible mistake to set a fixed time for the second stage. Experience shows that it is such an individual matter for each patient that he must be considered entirely on the facts of his own case. It is one of the special advantages to be gained by increasing experience in prostatic work, to know just when it is safer not to proceed. I, personally, have lost cases which I am sure could have been saved by waiting a little longer. On the whole, in the younger prostate cases, the margin of safety is certainly larger and the risks are not so great.

When preliminary cystotomy is carried out, the reaction of the patient to this

operation must be closely observed, and if it is severe must be taken as a warning that something more serious will occur if the second stage is hurried.

Suprapubic cystotomy in an elderly prostatic patient must always be regarded as a serious major operation. To consider it anything less is to show a lack of appreciation of the effect of the disease upon the patient's health. So much do I regard this to be the case, that my own personal practice is never to open the bladder of a prostatic case without some period of uninterrupted preliminary bladder drainage with an indwelling catheter. Sometimes the required improvement is noted in three days. In others quite a long period is necessary, and some are so bad when they come under observation that they not only make no response to the indwelling catheter, but that they steadily go downhill. The last is the exceptional type of case, but it occurs, and should be recognized. It is worse than useless to carry out cystotomy on such a patient in the hope that opening the bladder will improve his chances. It will only hasten his end.

My experience has been that, to open the bladder in the presence of an acute kidney or chest infection, the tide is almost certain to turn against the patient. Indwelling catheter drainage must be continued until the infective complication is settled. I had one case with pyelonephritis for six weeks, who was treated thus throughout this time, with the result that the condition finally settled, with the ultimate outcome of a successful prostatectomy. Then, again, with that type of patient who has considerable chronic retention, but whose general appearance does not indicate the precipice on which he stands, incautious interference on the part of the surgeon will soon change the patient's aspect to that of one who is desperately ill. The indwelling catheter with 10 ounces drained off regularly every two hours, night and day, until the bladder is quite empty, and then allowing the catheter drainage to proceed until the general condition is satisfactory, is as safe a way of proceeding as any I know.

Quite rightly the question should be asked, is it not possible to do all the preliminary bladder drainage with an indwelling catheter? In some cases it does suffice, but where a longer period of drainage is required the position is more satisfactory if cystostomy is established. One of the dangers of continued indwelling catheter drainage is the onset of acute epididymo-orchitis. In this event, continuous catheter drainage must be abandoned and replaced by regular catheterization. This alteration in the routine generally reacts unfavourably, thus making the prognosis more serious, but a safeguard against epididymitis. Against this necessity is to divide both vasa deferentia under a local anæsthetic as a preliminary. Moreover, there are certain advantages from the cystotomy in addition to the mere provision of an escape for the urine. For the kidneys are relieved of back pressure, the prostate shrinks very considerably in size, the prevesical space becomes shut off by fibrous tissue, and the patient appears to receive a beneficial auto-vaccination with the organisms present in his tissues, as a result of the incision. These benefits are very apparent in most cases when it comes to the prostatectomy. First, it is found that as a result of the shrinkage of the prostate, the bleeding is slight, and in my experience has never required any measures to stop it. Secondly, in enlarging the fistula sufficiently to insert the finger into the bladder, the knife cuts from the fistula to the pubis through scar tissue on both sides, and thus the prevesical space remains shut off from the field of operation, and septic complications generally show a striking absence in the second in comparison with what occurs when one stage only is carried out. It is, in fact, usual to observe a completely smooth convalescence in many cases that caused

anxiety following the cystostomy. This is quite a common experience, and justifies the opinion that I hold that the first is often the more severe of the two operations.

In carrying out the cystostomy there are three points which I feel should receive special attention. One is to employ a technique which will reduce to a minimum the danger of infection of the prevesical space. The second is to make the cystostomy opening high in the bladder, so that there is plenty of room subsequently for enlarging the fistula downwards towards the pubis. The third is to drain the bladder by means of a self-retaining tube round which the bladder opening is snugly sutured. The last is a precaution, not only against infection of the prevesical space, but it keeps the parietal wound clean and enables the patient to start getting up with comfort at the end of the second week. It is, on the whole, perfectly true that the final closure of the fistula is somewhat slower following the two-stage than the one-stage, but in certain cases such a consideration would hardly justify the added risk of one-stage prostatectomy. An additional procedure which I carry out in the great majority, at the time the cystostomy is established, is section of the vas deferens. This is a precaution against acute epididymo-orchitis during the convalescence following enucleation of the gland. In a paper I wrote on this subject in 1922¹ I was able to show that more than 80 per cent. of the cases under review developed palpable changes in the epididymes during the convalescence from prostatectomy. When these changes were not acute they frequently occurred without causing subjective symptoms to the patient, and escaped the surgeon's notice altogether. This type of case is a potential candidate for acute epididymo-orchitis even many months after prostatectomy.

Concerning the methods of removing the prostatic obstruction in cases of simple enlargement, I personally employ three alternatives according to the circumstances of each case: Transcystoscopic resection, suprapubic prostatectomy and perineal prostatectomy. The remarks I have made concerning the necessity for preliminary bladder drainage apply equally to all three.

Up to the present I have treated only the cases of slightest simple enlargement by the trans-urethral method, reserving it for cases with small intra-urethral or intra-vesical projections. As experience has increased in this comparatively new method of treatment, cases with considerable degrees of prostatic enlargement have been found to respond readily to this procedure. In the Mayo Clinic they have been able to treat 42 per cent. of their prostate cases in this way.

The advantage of one-stage prostatectomy is the shorter convalescence, for not only does the patient have to recover from one operation instead of two, but the suprapubic fistula certainly closes more quickly than after the two-stage. These considerations must always act as a temptation, both to the surgeon and the patient, to lean towards the shorter procedure. It tempts one every now and again to take a risk which sometimes is regretted, and it is no small difficulty at times to school one's self to seek caution rather than speed. For those who practise the open suprapubic methods the one-stage is essential.

There are, however, certain disadvantages in the one-stage, namely, the hæmorrhage is more copious, often requiring special measures to deal with it, and there is a greater tendency to chest and renal complications. One-stage suprapubic prostatectomy I

¹"Epididymitis and Suprapubic Prostatectomy." A study of fifty cases. *Lancet*, 1922, i, 321.

reserve for the younger cases and perhaps a few others who are particularly fit. And, even then, every case has a preliminary indwelling catheter for at least a few days. Blood-urea percentage, capacity to excrete in the urine both water and solids, are gone into most carefully, while thirst, local signs of renal infection, gastro-intestinal derangement, the appearance of the tongue and general condition of the patient are also fully considered. Only if all investigations regarding these points are satisfactory do I proceed in one-stage.

With regard to prognosis after prostatectomy, I would like to call special attention to the type of gland which is the seat not only of simple enlargement but of inflammatory change as well. These cases generally have a good deal of diurnal frequency, and on rectal examination the gland is a little firmer than the ordinary simple enlargement. They may not be helped a great deal as a result of the prostatectomy. My experience is that the frequency tends to persist, and I think, as a result of the inflammatory process, there is a tendency to form an excessive amount of scar tissue in the prostatic bed. This type of case must be controlled carefully for a little while after operation by the passage of a bougie from time to time, for this is the kind of case which shows a tendency to post-operative obstruction following the suprapubic operation. I have had two such cases which were both easily controlled by a few dilatations with bougies.

There are several elaborations and refinements of one-stage suprapubic prostatectomy which have been developed in certain hands—especially in those of Sir John Thomson-Walker—to be successful operative procedures. Prostatic patients, largely because of their age, react badly to the strain of prolonged operations. A satisfactory issue from any of the special forms of prostatectomy I have mentioned is only likely when the manipulations in the operative field are quick, purposeful and effective. Any measure of skill falling short of this essential standard of excellence will give results which will be disappointing in the proportion to which these attainments are lacking. The powers of resistance, so necessary to the patient in his convalescence, may be very considerably reduced by an operative procedure which is unduly prolonged. Or they may be absent in the first instance if bad judgment has been shown in choosing the case to be submitted to this form of operation. The question the surgeon has to decide is whether the benefits of the open method justify the risks of a higher mortality until the necessary degree of dexterity is attained. My personal conviction is that it will fall to the lot of only a few who practise the open methods to make them a success. They are better not attempted by those whose field of surgical work only occasionally includes prostatectomy. Those, however, whose opportunities are not thus restricted should be able to look forward to a gradual improvement in the mortality rate, as their experience increases, if they feel that the preliminary sacrifices justify the continued pursuit of this end. It is hardly necessary to add that all cases in which it has been considered necessary to do a preliminary cystostomy are unsuitable for these procedures. Which cases are actually chosen for this type of operation offers an opportunity for wise discrimination, which throws no small responsibility on to the surgeon.

Perineal prostatectomy is an operation which has never been practised widely in this country, but in America, H. H. Young and a number of his followers have made a great success of the procedure. It is certainly more difficult than a straightforward suprapubic operation and there are unpleasant complications which sometimes follow it. The most important of these is incontinence of urine. Because no surgeon in

Great Britain has had any more than a very limited experience in the operation it has been quite impossible to get first-hand knowledge as to whether this complication is due to faulty technique, or whether it will occur in certain cases regardless of all precautions. The conviction has taken root in our midst that it is the latter.

My personal experience of the operation up to the present leads me to believe that it is the former. I have gradually been perfecting a technique which so far makes me feel that there is a safeguard against incontinence. Amongst the earliest cases I did, I certainly had several cases in which there was partial lack of control, but there was no case in which this occurred where I could not put my finger on a fault in the technique which was the cause. It was the fact that even in some of my early cases the results seemed to be perfect, that my interest in the operation was quickened. My chief reason for considering this operation worthy of particular attention was that it offered the means of an open prostatectomy in spite of a previously established cystostomy. Thus one is able to inspect the whole field of operation, and, under direct vision, to control the bleeding and to obliterate the prostatic cavity by suture. A special advantage also is that the patient is able to cough with force and comfort during the convalescence.

Malignant Disease.—As a rule malignant disease of the prostate which can be diagnosed on rectal examination is only suitable for palliative treatment. Usually this should consist of a suprapubic cystostomy, which not only relieves vesical retention but often allays irritability.

Radium implanted into the gland through a full perineal exposure seems as though it might offer some prospects of benefit even if not of cure. Several cases which I and my colleague, Mr. Stanford Cade, dealt with together in this way, have given a very satisfactory local response, and we hope for even better results by improving the technique. Unfortunately the disease is frequently found to have extended into the bladder, or there are signs that metastases already involve some of the bones of the pelvic girdle, when surgical aid is first sought.

Prostatic Calculi.—If these are very numerous it is impossible to enucleate the gland in the usual way with the finger. I have always preferred to use the suprapubic approach and to clear out the gland and its contents with a sharp spoon. I have one case that was done in this way six years ago without recurrence. I do not like the perineal route for this purpose. I feel that one of the causes of incontinence of urine following perineal prostatectomy is in not leaving behind sufficient thickness of prostatic capsuli after the enucleation. With prostatic calculi there is so much inflammatory change, that a proper enucleation is impossible.

A Review of Personal Cases.—The chief value to an operator of a review of his own cases is that in considering his experiences of the past he may find guidance for the future. I have searched carefully through the data relating to my unsuccessful prostatectomies in the hope of being able to determine the causes of failure. On looking back in the sense of being wise after the event, with few exceptions either a specific pre-operative warning had existed, or the operative procedure employed, or the post-operative attention given, could be held responsible. On the other hand there were several cases in which no such conclusion could be reached and one would just have to accept them as inevitable surgical risks.

There was one patient, aged 77, who died suddenly on the eighteenth day

following perineal prostatectomy. He had extensive cardiovascular changes, a pulsus alternans, and a blood-pressure reading of 150/90. Five months had been allowed to elapse between the cystostomy and the prostatectomy with very considerable improvement. This was reflected to some extent in the fall in the percentage of the blood-urea, which was 92 before the cystostomy and 67 before the prostatectomy. Dr. Jenner Hoskin advised gas and oxygen anaesthesia, which was duly administered. The patient stood the operation well. The temperature and pulse were perfectly satisfactory until one week before death, when the latter quickened from the vicinity of 80 to between 110 and 120 and remained as such until death supervened. The cause of death was cardiac failure. Obviously it would have been better to leave him with his permanent cystostomy, but the patient was anxious to proceed to the second stage.

At the beginning of this series I lost several cases owing to a desire on my part to give the patients the benefit of both the two-stage and the open suprapubic operations. This necessitated a resection of the whole length of the suprapubic fistula. I very soon appreciated that this procedure robbed the patient of one of the great benefits of the preliminary cystostomy, namely, the shutting off of the prevesical space by fibrous tissue, and I soon abandoned this technique.

Several deaths I attribute to the undue tax put upon the patient's resistance in subjecting them to one of the open methods of prostatectomy. I cannot help feeling that cases must be chosen most carefully before being submitted to one of these procedures, which are far from being suitable to all cases of simple prostatic enlargement.

Attempting to enucleate prostates which are the seat of fibrosis, rather than adenomatous enlargement, is a procedure which is more likely to lead to ultimate failure than to success. One must always remember that inflammation is the underlying aetiological factor of the condition and that as a result not only is there no line of cleavage for the finger to find during the enucleation, but the periprostic tissues are loaded with organisms which are stirred into activity by the removal of the gland. Hence two types of complication are likely from prostatectomy in these cases. One is shock and the other is infection. In this series I lost three of these cases. The first one from shock after the suprapubic enucleation; in the other two I did the enucleation by the perineal route in an attempt to avoid the shock, which they both survived only to succumb later from infection. My views are not based entirely on the loss of three of my own patients, but also on opportunities I have had of knowing of similar cases which have reacted in the same way in the hands of others.

The facts of my first case are as follows:—

J. W., aged 67. Complained of frequency of micturition for twelve months. The urine contained no pus and was sterile. There were $1\frac{1}{2}$ ounces of residual urine in the bladder. On rectal examination the prostate was only slightly enlarged. The blood urea was 76 mg. per cent. and the urea concentration test varied from 3.6 to 4.6 per cent. A cystostomy was carried out, the convalescence was uneventful, and five weeks later the blood urea was down to 66 per cent. and suprapubic prostatectomy was performed. There was considerable difficulty in removing the gland, it was so adherent, but the absence of any excessive hæmorrhage was a conspicuous feature of the operation. No urine was excreted at all following the operation, and the patient died the next day.

The ill-advised passage of a bougie during the convalescence one week after the temperature had settled which had been running for three weeks for no obvious cause, precipitated one patient into septicæmia and death.

With regard to pre-operative tests of renal function, I always examine the blood urea and regard a high reading as a warning, not necessarily merely of impaired renal functional activity, but often more broadly of some important constitutional disturbance, which demands just the same caution in operative treatment. Unfortunately one cannot accept a reading in the vicinity of the normal as meaning that the operative risk is negligible. It has little or no relation to the risks of infection. Experience has taught me to look on the urea concentration tests in the same way. I have, during the past four years, employed tests which show the functional capacity of the kidneys to excrete water, after drinking a measured large quantity, and the solids normally contained in the urine, as indicated by observations on the specific gravity. On the whole I prefer these to the urea concentration tests, which I have now given up.

Mortality statistics regarding operations are generally looked at askance, and are often little or no help to others. I have found a considerable personal interest, in going over my own cases, in noting how my results have improved as my experience has increased. Not the least impressive facts are the gratifying results in response to diligent and appropriate after-treatment. I find, in looking through my figures for the period under review, that 227 cases of simple hypertrophy, or malignant disease of the prostate, were submitted to surgical treatment. The average age of these cases was 66 years. In 6 other cases the general condition was so bad that they failed to reach the stage when even a cystostomy was advisable. They all died while treatment with an indwelling catheter was being carried out. Showing the influence which age has upon prognosis, it is of some interest to note that the average age of these 6 cases was over 80. There were 45 cases who had cystostomy only: 11 of these died, giving a mortality of 24 per cent. There were 75 cases of one-stage prostatectomy, with 5 deaths, giving a mortality rate of 6.6 per cent., while in the two-stage cases there were 96, with 12 deaths, giving a mortality of 12.5 per cent. Forty-two of these cases were done by the perineal route. Five cases of prostatic hypertrophy were treated by transurethral resection, 4 in two stages and 1 in one stage, without a death.

It makes it clear how deceptive and unreliable figures can be, when it is realized that the good results shown here for one-stage cases could quite legitimately be used to press the claims of one-stage against that of the two-stage. As a matter of fact, this would be a very wrong interpretation, because the one-stage cases were all chosen with the greatest care and, in doing so, many were rejected in the process as unsuitable for this method of procedure. This was carried to the extent of rejecting as unsuitable 57 per cent. of the cases under consideration.

With regard to the higher mortality from the two-stage method which inevitably embraces all the cases involving greater surgical risk, it is difficult to see how this can be brought into the vicinity of that resulting from the carefully selected one-stage cases. To succeed in this accomplishment, it would be necessary to condemn a greater proportion to permanent cystostomy.

Summary.—Where inflammatory changes are the origin of the prostatic symptoms, it is first necessary to decide to what extent these are due to active inflammation or brosis, as the treatment varies so much according to these circumstances.

The importance of discriminating between prostatic obstruction due to fibrous changes and that due to hypertrophy lies chiefly in the danger of attempting enucleation in the former.

The transurethral resection method is a great success in treating fibrous obstruction provided proper regard is paid to the necessity for preliminary drainage. On the other hand, the application of this form of treatment in the wrong manner or in the wrong type of case frequently makes the patient worse, and is often dangerous. In certain selected cases of prostatic hypertrophy the unqualified success attending this form of treatment in two stages convinces me that the procedure has a definite place as a remedy in this disease.

Concerning prostatectomy, the greatest care must be exercised in choosing cases for the one-stage procedure, and greater care still if one of the open methods is to be employed. When in doubt as to whether the one or two-stage should be employed, it is better to choose the latter.

Success with the open methods of prostatectomy is largely a personal matter concerning the individual surgeon. The same may be said of perineal prostatectomy which, however, has the special advantage that it can be employed with all two-stage cases.

In determining ultimate success, skill and care plays no less a part in the after-treatment than it does in the actual performance of the operation.

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MIGRAINE AND MYSTICISM.¹

BY LIEUT.-COL. R. H. ELLIOT, D.Sc., M.D., F.R.C.S.

YOU will notice that the leading characteristic of migraine, apart from the headache and the tendency to nausea and vomiting, is the apparent perception of various striking visual phenomena. If the subjects saw these strange things when their health was at its best, they would look at them, either with startled astonishment, or with very real alarm. Now one of the things that has struck me very much in questioning a large number of migraine patients is the absence of either of these feelings in the description of their symptoms. They remember them afterwards rather than note them at the time, and under the advanced educational conditions of to-day they rightly ascribe them to a pathological condition which they have learnt is not of very serious significance.

Very widely different would be the mental attitude of a man who saw these startling phenomena with nothing to guide him as to their source and true meaning, especially if his mind were in that receptive condition for everything mysterious which characterized the visionaries of the past. The brilliant flash of coloured light, the golden halo behind

¹ Being the third of a series of three lectures delivered at the Medical Society of London, under the auspices of the Fellowship of Medicine.