

Section of Urology.

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PRESIDENT'S ADDRESS :¹

Modern Progress in Urinary Surgery.

By Sir PETER FREYER, K.C.B., M.D., M.Ch.

As this is the inaugural meeting of the Urological Section of the Royal Society of Medicine I wish to congratulate you on the formation of the Section. As you are aware, when we approached the Council with the proposal to establish a urological branch within the Society our pretensions were of a very modest character, for the proposal was to found a Sub-section of Urology in the Surgical Section. It came as a pleasing surprise to us—mainly, I believe, through the suggestion of the President-elect of the Surgical Section, Mr. Walter Spencer—to have greatness thrust upon us, in the formation of a distinct Section of the Society. Perhaps I may be permitted to say that this recognition marks a distinct and healthy advance in the attitude of the surgical world in England, and particularly in London, which till recently looked askance at the idea of urology being a distinct speciality, though this speciality has long been recognized in, I may say, every other country.

I have next to thank you for the honour you have conferred on me, in electing me your first President—an honour which I appreciate the more, as it was as unexpected as it was unsolicited.

The subject of my address this evening is: "Modern Progress in Urinary Surgery." Perhaps you may consider the word *modern* a misnomer, for I propose carrying you back to a period of some four and

¹ At the Inaugural Meeting of the Section, held May 27, 1920.

a half decades ago, when I had emerged from my student days, briefly describing to you the position of urinary surgery at that time, comparing it with the position it occupies to-day, and rapidly sketching the stages through which the evolution has been accomplished.

And let me premise, in mitigation of the backward state of urinary surgery in those days, that the cystoscope, the urethroscope, the electric forehead lamp, and the X-rays were then unknown, and that soft and semi-solid bougies and catheters had not attained their present comparative perfection.

RETENTION OF URINE.

There is, perhaps, in the whole range of urinary maladies, no other condition attended with such pain, physically and mentally, as acute retention of urine, from whatever cause. When in the seventies of last century relief from this condition was impossible from medicines, hot baths and the catheter, three rival methods of giving relief held the field—puncture of the bladder suprapubically by trocar and cannula, puncture of the bladder through the rectum by a similar instrument, and Cock's operation of tapping the bladder at the apex of the prostate, which was effected by plunging a long and slender scalpel through the perineum into the bladder, with a guiding finger in the rectum. All these methods were frequently followed by grave consequences, which time does not permit me now to enter on. They were all abandoned on the introduction of Dieulafoy's aspirator, which is still in vogue, and affords a safe and practical method of giving temporary relief, by tapping the bladder suprapubically, till the cause of the retention can be adequately dealt with.

STRICTURE OF THE URETHRA.

At the period referred to there was great surgical activity in connexion with the radical cure of stricture of the urethra. The employment of caustic to destroy the morbid obstruction had been abandoned, though it would not have been quite safe to display ignorance of this method to an old-fashioned examiner! Apart from dilatation of the stricture by instrumentation, two rival methods of dealing with it held the field—internal and external urethrotomy. There was a third method introduced about that period by Mr. Barnard Holt, of the Westminster Hospital, namely, "divulsion," or bursting of the stricture, by forcibly separating the two blades of a split sound

introduced through the canal by means of a wedge rapidly advanced between them. This method was short lived owing to the facts: (1) that extensive laceration of the healthy mucous membrane was liable to occur; (2) the shock to the system very frequently caused rigors and suppression of urine; and (3) the rapid recurrence of the stricture. Syme, of Edinburgh, had advocated external urethrotomy in all cases of organic stricture unamenable to dilatation by bougies, on the assumption that recurrence was less likely to occur than after internal urethrotomy. The results did not, however, correspond with his expectation; and, in this connexion, I may say that I have never known a case of external urethrotomy in which the stricture had not a tendency to recur unless kept under control by the periodic introduction of sounds. Internal urethrotomy—the two methods of performing which we owe to two eminent French surgeons, Maisonneuve and Civiale—was stoutly advocated by Sir Henry Thompson, and is the operation of preference at the present time. The operation is now much less liable to be followed by recurrence, as the stricture, instead of being cut to admit a No. 12 sound only of the English scale, is thoroughly cut up to the full capacity of the urethra—viz., to admit a sound size 16—an improvement we owe to the researches of Otis, of America, who, with the aid of his urethrometer demonstrated that the urethra was much more capacious than was previously imagined. Internal urethrotomy is now firmly established as one of the soundest and safest in surgery, and, with due care, is seldom followed by recurrence of the stricture. When external urethrotomy is necessary, as in case of impassable stricture, or one complicated by perineal fistulæ, the method of Wheelhouse, or modifications thereof, is that generally employed.

Urethrectomy, introduced, I believe, by Guyon of Paris, is employed in cases of partial obliteration of the urethra and sometimes for impassable stricture. It is of doubtful value save in cases in which there is complete absence of pus.

VESICAL GROWTHS.

Tumours of the bladder were undiagnosable in those days, and, consequently not attacked surgically. They were treated medically under the general denomination "hæmaturia." In 1880 and in subsequent years Sir Henry Thompson removed a number of bladder growths through a median perineal incision, and with considerable success. The operations were in the first instance of an exploratory character,

for, with the diagnostic means at his disposal, he could not be certain till reaching the bladder that the hæmorrhage proceeded from that viscus. He was to a large extent groping in the dark, having to depend on the tactile sense of the finger introduced through the wound to ascertain the presence and nature of the growth; and, no doubt, in many cases the tumour was imperfectly removed. It was not till the introduction of the Nitze-Leiter cystoscope—that inestimable aid to the diagnosis and treatment of urinary diseases in general—and its development towards perfection in subsequent years, that it was possible visually to locate the growth and recognize its size, shape, attachment, and general characteristics before deciding on operation. Suprapubic cystotomy had, as we shall see later on, been revived, and the procedure improved about this period for the removal of large vesical calculi; and this soon became the recognized route for the removal of vesical growths, the conformation of which could not only be felt by the finger, but actually seen during surgical manipulation by the aid of the forehead lamp then introduced. The names of Albarran in France and Fenwick in this country must be prominently mentioned in connexion with this operation, and, more recently, that of my colleague, Thomson Walker, for still more radical removal of the growth. The operation is a thoroughly successful and curative one when the growth is benign, single and pedunculated; less so when the benign growth is sessile or multiple, owing to the uncertainty as to the recurrence in the benign, or even malignant form. In the case of malignant growths the operation can only be regarded as ameliorative.

VESICAL CALCULUS.

When I first went to India in 1876, stone in the bladder was invariably treated in that country by lateral lithotomy, with the exception of very large calculi, which had to be relegated to the suprapubic method. The same practice prevailed the world over, except in the hands of a limited number of surgeons who practised lithotrity. We read in the medical history of the early and middle periods of last century of the crowds of students and practitioners that the performance of lithotomy—then regarded as the most brilliant in surgery—by some famous surgeon attracted. I had during my student days in Dublin witnessed only three such operations, and certainly the interest and curiosity alluded to had not then altogether died out. You can imagine, therefore, the thrill of enthusiasm that filled me when, on April 4, 1877,

I performed my first lithotomy, which was destined to be the commencement of a series which has now reached 2,119 operations for stone by all methods, and of each one of which I have a careful record. I believe that this is the largest number of stone operations performed by one surgeon in any country or age.

Lithotomy, which consisted in crushing the stone at numerous "sittings" and allowing the débris to escape by the urethra, was invented in 1824 by Civiale of Paris. It was largely advocated and practised by Guyon in France and Sir Henry Thompson in London, and, to a less degree, by others at the early period to which I am alluding. The operation was not popular and scarcely practised in India, for the simple reason that the native of that country would not submit to the numerous "sittings" involved, extending over weeks or months, his temperament demanding for a cure something more immediate and dramatic. The great drawback to the operation was, of course, the fact that the fragments of the stone were left behind in the bladder, which frequently caused cystitis, though, strange to say, the cystitis was attributed to the presence of the lithotrite in the bladder, so that the "sittings" were consequently restricted to a few minutes only. Clover, of London, had in 1865 invented a rubber and glass bottle for the extraction of the débris, but, after employing it for a time, Sir Henry Thompson abandoned it as inefficient, and preferred removing fragments of stone by means of the long and slender lithotrites devised for the purpose by Ferguson.

In 1878, Bigelow, of Harvard, U.S.A., proposed that the stone, no matter how large, and no matter how prolonged the operation might be, should be crushed and evacuated at one sitting, and for this purpose introduced the lithotrites, cannula and aspirator with which, or modifications of them, you are all familiar. The operation, which he termed "litholapaxy" (evacuation of stone) was adversely criticized at first, though subsequently practised by Sir Henry Thompson; and as he was then the leading authority in England in this branch of surgery, his attitude no doubt retarded for some years the general introduction of Bigelow's method. Having ordered the instruments from England I performed my first litholapaxy on July 3, 1882. I published several series of cases of the operation in detail in the *Indian Medical Gazette* in 1882-84; and in the *Lancet* of February 28 and April 7 and 14, 1885, a series of 111 cases of the operation. In this paper I combated the views of Sir Henry Thompson and gave the author of the operation full credit for the successful results obtained. Commenting on this

paper at the time the *New York Medical Record* remarks: ¹ "Even in India, one surgeon, Freyer, has performed it (litholapaxy) oftener than, may we not say, all the surgeons in the Western, Middle and Southern States," thus indicating the slow progress made by Bigelow's operation in the land of his birth, also that England is not the only place in which a prophet (or surgeon) hath no honour in his own country! I hope you will not consider me presumptuous in saying that the publication of this paper and the success attending these 111 litholapaxies gave an impetus to the operation, particularly in India, where dozens of "batteries" of the instruments were soon ordered, and where tens of thousands of cases of stone have since been successfully dealt with, this operation almost completely replacing lithotomy.

In 1886 Colonel Keegan, of the Indian Medical Service, extended Bigelow's operation to children even of the most tender age, with most successful results, as I can testify from large personal experience. In view of this and other achievements in surgery, particularly his plastic operation for the restoration of the nose, of which great advantage was taken in the war, Keegan must be regarded as a great surgeon and benefactor of humanity; and I am sure you will lament with me the fact that he died recently, unhonoured by any recognition of his work by the Government he served so well.

Litholapaxy is now the operation of choice in the vast majority of these cases, and I may mention that mainly through its adoption in St. Peter's Hospital, the mortality from operations for vesical calculus in that institution has been reduced from 15.3 per cent. in the decade 1874-83 to 3.35 in the last decade and a half.

In 1877, Dr. Garson, then Curator of the Museum of the Royal College of Surgeons, demonstrated in the cadaver that distension of the rectum caused elevation of the bladder, pushing the peritoneum beyond the prevesical space. Petersen, of Kiel, taking advantage of this demonstration, introduced his rectal bag in 1880. Guyon, of Paris, in 1883, and then Sir Henry Thompson in London, advocated and practised the suprapubic operation with the aid of this bag in cases of large and hard calculi. The bag has long since been abandoned, but suprapubic cystotomy, in a more simple and practical form, remains as the best route for the extraction of large calculi, the removal of tumours of the bladder and enucleation of the prostate.

To sum up, then, litholapaxy in experienced hands is the operation of choice in patients of all ages and in both sexes when the stone is of

moderate dimensions. Suprapubic lithotomy should be reserved for large and hard calculi that cannot be dealt with in this way, and probably in all cases in the hands of surgeons of limited experience; also, of course, for cases in which enucleation of the prostate is decided on—the stone and prostate being removed at the same time. Lateral lithotomy has practically died out in this country, though median perineal lithotomy is still retained for impacted calculus of the prostatic urethra growing into the bladder, which cannot be displaced backwards into that viscus, with a view to being dealt with by litholapaxy. When litholapaxy instruments are not available, or the surgeon is inexperienced, lateral lithotomy is still practised in India.

RENAL SURGERY.

There is, perhaps, no organ in the body, the diseases of which are more successfully dealt with surgically at the present time than the kidney. But renal surgery was unknown in my early professional days, and apparently undreamt of, for no allusion is made to anything of the kind in the text-books of that period. Surgical diseases of that organ were seldom even accurately diagnosed. They, like tumours of the bladder, were, as a general rule, medically treated, under the denomination, “*hæmaturia*,” the local symptoms being relieved by opiates given internally or by hypodermic injection and by fomentations, or rather poultices. When there was a suspicion of the existence of calculus, recourse was had to ineffectual attempts at its dissipation by means of solvent remedies.

Nephro-lithotomy—first performed by Sir Henry Morris in 1880—may be regarded as the dawn of renal surgery, and to that great surgeon, in large part, we owe the satisfactory position in which surgery of the kidney stands at the present day. Radiography was not invented for many years after and has only recently been brought to comparative perfection; so that for many years he and we, who have followed largely in his footsteps, laboured under great disadvantages. The X-rays have now been brought to such perfection that the size, shape, number, position and general characteristics of the calculus or calculi in the kidney are clearly defined, so that we can embark on the performance of an operation, knowing practically what to find and where to find it. It is very rarely indeed, that the surgeon would now be justified in exploring for renal calculus unless supported by radiographic evidence of its existence. Nephro-lithotomy is now one of the most successful opera-

tions in surgery, as illustrated by the fact that in St. Peter's Hospital in the last five years we have had fifty-eight instances of the operation without a death.

Uretero-lithotomy followed as a consequent, though later, development, and it is difficult to say who was the first to perform this operation. As far as I can ascertain this honour belongs to the late Mr. Betham Robinson, of St. Thomas's Hospital. Be that as it may, with the aid of the X-rays the position and size of a stone lying in any part of the course of the ureter can be clearly defined, and removed extraperitoneally, though when lying in a prolapsed ureter it is necessarily approached through a suprapubic cystotomy.

I find it difficult to ascertain who was the first to perform nephrectomy, but the operation soon followed on Morris's essay with nephrolithotomy, as an established practice for the removal of benign renal growths and malignant growths confined within the renal capsule; injuries of the kidney, gunshot and otherwise; total disorganization of the kidney resulting from calculus; hydronephrosis; pyonephrosis; floating kidney unamenable to less radical treatment; intractable renal fistula; and tuberculous disease confined to one kidney. The operation is now almost invariably performed through the loin, extraperitoneally, as experience has shown this route to be far the safest; but occasionally cases occur in which it is necessary to have recourse to the abdominal or transperitoneal method. I find that in St. Peter's Hospital in the last five years we have performed nephrectomy seventy-one times with six deaths, or 8.5 per cent., which must be regarded as a very satisfactory result, considering that the operation involves the removal of one of twin vital organs of the system.

Ureterectomy followed as a natural development of the operation, the ureter when invaded by tubercle or other disease being partially or completely removed extraperitoneally, either with the kidney or at a subsequent operation.

Nephrorrhaphy, or nephropexy, as it is now generally termed, was devised by Hahn of Berlin in 1881. That surgeon's principle was sound but his technique defective, as he merely stitched the fatty capsule of the kidney to the wound in the loin, which was then packed and allowed to granulate. Many more radical methods of fixing the organ have since been introduced. The main underlying principle in all of them consists in removing a large portion of the fatty capsule on the external aspect of the kidney, then stripping the organ of a considerable portion of its true capsule, and anchoring it to the abdominal wall by sutures introduced

into the stripped portions of the capsule, through the cortex, or through both, with a view to plastic adhesion taking place. Some years ago there was a tendency amongst surgeons to employ operative interference in all cases of movable kidney. Then a reaction set in against the operation, owing to the large proportion of cases in which either no improvement took place or a relapse into the previous state occurred. These unfavourable results were probably due to defective methods of operating or employing the operation in unsuitable cases, such as where mobility of the kidney is due to enteroptosis. The operation, is, on the whole, attended by less satisfactory results, but by less danger, than any other in renal surgery.

ENLARGEMENT OF THE PROSTATE.

The treatment of enlargement of the prostate in those days was merely palliative, the catheter being employed to empty the bladder. The rubber catheter was then unknown, and the gum-elastic catheter was of a primitive character in comparison with the highly polished instruments of various shapes now available. The metal catheter with a large curve and long handle was the weapon in favour, and the use to which it was sometimes put may be gathered from the following extract from a favourite surgical text-book of that period: "When complete retention occurs, it may be necessary to force a catheter through the substance of the prostate"—a practice which I regret has not as yet been entirely abandoned, as specimens of prostate removed by me and in my collection indicate. When, eventually, the catheter failed the bladder was drained permanently either suprapubically or perineally.

In 1885 Bottini, of Pavia, introduced the galvano-cautery for the purpose of removing the prostatic obstruction. The method was practised by many surgeons in this country, in America and on the Continent, particularly in Berlin, and extolled by some; but the practice did not survive the test of experience. I myself have removed the prostate in several instances in which Bottini's operation had failed to effect even an amelioration of the symptoms.

About the same period Mercier, in France, and Gouley, in America, introduced the prostatome for cutting a canal through the obstructing prostate by the perineal route, and I myself witnessed Mr. Norton, of St. Mary's Hospital, perform this operation by means of an instrument devised by himself, resembling a wad-cutter. The operation fell into disfavour as useless.

In 1888 a serious attempt was made in America by Belfield and in this country by McGill to deal with prostatic obstruction, by the removal suprapubically, by scissors and forceps of all kinds, of the intravesical portion of the prostate, on the theory that the so-called "middle lobe" was the main cause of the obstruction to the flow of urine—a view very largely held by the profession at the time, but which was combated by Dittel of Vienna, who maintained that the enlarged lateral lobes were the main cause of the obstruction, and in 1890 removed a wedge-shaped portion of each lateral lobe through an extensive perineal wound, but he found few imitators. McGill's operation enjoyed a temporary though transient notoriety, for apart from the high mortality attending it, in a very large proportion of cases the bladder failed to regain the power of expelling the urine.

In 1892 Dr. William White of Philadelphia proposed double castration with a view to causing atrophy of the enlarged prostate in man, as experiments were said to have done in the normal prostate in the dog. This became the popular operation for a time, displacing McGill's operation. Personally I had no faith in this procedure, and I am glad I never practised it. As in a large proportion of cases the operation was followed by grave mental disturbance it was soon abandoned in favour of double vasectomy—which was supposed to cause the same effect as castration—introduced by the late Mr. Reginald Harrison; and this in turn became the fashionable treatment. Experience proved that neither of these procedures was of any practical value, beyond, perhaps, inducing a temporary amelioration of the symptoms.

Towards the end of last century perineal prostatectomy was practised by Albarran, in France, and Young, in America, and for many years was largely practised in both these countries, but I do not think it ever became very popular in England. I believe it has now been abandoned except by Young and a few imitators in America.

On December 1, 1900, I performed for the first time my operation of total enucleation of the prostate, and in July, 1901, published in the *British Medical Journal*, for the consideration of the profession at large, a lecture delivered by me at the Medical Graduates' College, giving a full description of the operation, with details of four successful cases. I have now completed 1,674 cases of the operation, details of 1,550 of which have been recorded in the numerous papers published in the medical journals. I believe I may say that this operation is now almost universally practised by surgeons.

I have now given you an historical sketch—an imperfect sketch, I recognize—of the stages by which surgical progress has been accomplished in connexion with the diseases of each individual region of the urinary system in the last forty-five years, and thus endeavoured to give you a vivid picture of the wonderful progress that has been achieved in urinary surgery in that period as a whole—to which, as we have seen, British surgeons have contributed no mean part. I venture to say that there is no other branch of surgery in which greater progress has been made, or one which has been attended by greater relief to human suffering. Some of us, indeed, may imagine that urinary surgery has almost reached its zenith. A great countryman of mine once said: “No man can place bounds to the strides of a nation,” and surely there can be no limits to the strides of surgery. I have had the good fortune of witnessing and taking a humble part in the great advance described to you. I hope that many of the members of the Section will live to look back on still greater achievements in urinary surgery. I believe that the formation of this Section, by creating a healthy and friendly rivalry in your efforts, and by co-ordinating your work, will have a vast and favourable influence in continuing the progress of recent years.