THE TREATMENT OF BLADDER GROWTHS.*

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The treatment of a bladder growth may be one of the most satisfactory proceedings in the realm of surgery or one of the most unsatisfactory. Whether it is the one or the other is determined by two facts, the type of growth with which we have to deal and the stage at which it is discovered.

Prognosis.

Age and Nature of Growth. Although the pathology of bladder growths is a complicated subject it may be said that there exists a complete gradation from the perfectly innocent single pedunculated papilloma to the very malignant infiltrating carcinoma. In between these two extremes we have growths which are difficult to place either amongst the benign or amongst the malignant, not only clinically but even when we have obtained specimens so that the pathologist may examine them microscopically. Another fact that we must bear in mind is that in elderly patients showing a tendency to form new growths in their bladders, it is only too likely that the type of neoplasm will change in the course of years. Whereas at first they come up to us with a pedunculated papilloma, later they return with recurrences that approximate nearer and nearer to the infiltrating carcinoma.

Duration of Symptoms. The second factor on which the prognosis turns is the stage at which the growth is discovered. If all patients suffering from an unaccountable hæmaturia were to present themselves immediately for investigation, it would undoubtedly make an enormous difference to our results. In these circumstances growths, whether innocent or malignant, would be discovered at an operable stage and satisfactory measures could be adopted for their complete extirpation. Unfortunately, however, this rarely happens, either because the patient regards the passing of occasional blood-stained urine as an unimportant event, or else because the medical adviser himself fails to recognise its significance. Because the patient is an elderly man with a somewhat diminished stream, the doctor in charge may assume that the hæmaturia is due to a congested prostate so that all that he advises is that the patient should remain in bed for a few days until the bleeding has stopped. It may be that hæmaturia only occurs at rare intervals and is comparatively small in amount with the result that many valuable months or even years may be lost before an expert is consulted. Cystoscopy may then reveal a condition that is beyond the scope of surgery. It cannot, therefore, be overemphasized that a case of hæmaturia must be investigated without delay. The diagnosis is mainly settled by the cystoscopic appearance of the growth. The most benign form of neoplasm is the pedunculated papilloma which resembles so strongly a sea anemone. Particularly favourable are the cases where only a single growth is discovered. Next in the scale of benignity are small but multiple papillomata, followed as we progress towards the less favourable cases by sessile growths and the papillomatous growths which through delay in diagnosis have become so voluminous and widespread as to cover a large portion of the bladder. An important point as we reach the malignant end of the scale, is whether the bladder wall in the neighbourhood of the growth is normal

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or not. If it is found to be oedematous and thickened, sub-mucous infiltration must be suspected. Should a flat plaque be discovered surrounded by marked oedema of the bladder, malignancy is almost certain. Other bad signs are ulceration and encrustation with phosphates.

Seat of Growth. The next point that affects prognosis is the situation of the growth. The majority of papillomata are situated in the neighbourhood of the ureteric orifices. From the point of view of electro-coagulation this is an advantage since they are readily discovered and easily reached by the diathermy electrode. The least favourable for coagulation methods are those placed on the anterior vesical wall. Not only are such growths difficult to reach, but they are also easily missed. The bladder wall behind the pubis cannot be seen through the ordinary cystoscope, and even when they are not situated entirely in this blind portion of the bladder, it may well be that through lack of thoroughness in searching they may be missed. More than once I have been caught out by growths in such a situation and have pronounced a bladder normal when in actual fact it was the site of a neoplasm.

Treatment.

Turning now to the question of treatment it may be said that for all forms of benign vesical growths electro-coagulation is the treatment of choice. Every operator has his individual preference in the matter of instruments but whatever cystoscope is selected it should allow of irrigation. If a non-irrigating cystoscope is used it entails countless delays owing to the necessity of washing out the bladder frequently in order to restore visibility. A cystoscope with an irrigating channel allows of the field of vision being kept clear even when bleeding is considerable and the amount of debris from the growth is so great as to render the distending medium opaque. The largest electrode that the operating channel will admit should be used, and if the papilloma is pedunculated and the pedicle can be brought into view, it, rather than the summit of the growth, should be attacked. One of the great difficulties that is encountered in dealing with large growths is that the end of the electrode is repeatedly encrusted with charred debris. This acts as an insulator and necessitates the use of a stronger current. If this is to be avoided the operator is therefore under the necessity of frequently cleaning the end of the electrode. Recently, Mr. Schranz, of the Genito-Urinary Manufacturing Company, has devised a form of brush electrode which not only reduces this difficulty of "caking" but also allows of a larger surface of metal being brought in contact with the growth. This new electrode takes the form of a brush of fine wires which can be protruded from the end of the insulated sheath. By their resiliency, the wires spread out in the form of a fan, and cleaning is brought about by withdrawing the brush again into its sheath.

Radical Cure. There are two methods of undertaking the destruction of widely spread papillomata, repeated sessions under local anæsthesia, and a prolonged fulguration under complete anæsthesia. Which should be undertaken will be determined by such factors as the tolerance of the patient to instrumentation, the accessibility of the growths, their number and their size. When the amount of work to be undertaken proves to be considerable, my own practice is to advise an anæsthetic for the first session, and then, if I am satisfied with what has been done, to rely on local anæsthesia at later sessions for touching up any areas that require further treatment.

Special difficulties may be encountered when the growth is so extensive that the cystoscope becomes buried in it immediately it is introduced into the bladder. Sometimes indeed the obstacles to perurethral fulguration are so great that the operator decides to employ open diathermy through a suprapubic incision. It is, however, surprising how much can be done with patience and repeated sessions cystoscopically even when the difficulties at first sight appear almost insuperable.

When open *diathermy* is carried out a lengthy suprapubic incision is made, a suitable retractor inserted and the patient placed with good illumination in the Trendelenburg position. An ordinary button electrode may be selected or a special electrode in the form of a clamp. This is so constructed that the two blades act as electrodes and when the current is turned on the tissue lying between them is destroyed. If it is considered advisable to excise the portion of the mucous membrane on which the growth is implanted after its destruction, it is possible by means of a switch to convert the clamp into a single electrode and then by employing a needle and a cutting current to excise a surrounding cuff of mucous membrane so that the clamp with the destroyed growth within its grasp may be removed *en masse* from the bladder.

Special care must be exercised throughout the whole operation against the breaking off of portions of growth and their implantation on the wound. When the growths are confined to the upper portion of the bladder, so that a partial cystectomy can easily be carried out, excision may offer a better chance of avoiding recurrence than diathermy. Sometimes where there is a collection of easily excisable growths in the dome of the bladder and a single growth elsewhere, say on the trigone, excision and diathermy may be combined.

When the vesical growth is of the *malignant variety* only two methods of treatment are available, *excision and irradiation*. Excision is the method of choice but, as has already been stated, such a form of treatment is often impossible owing to the fact that diagnosis has been delayed till late in the disease. It is true that certain surgeons are prepared in these advanced cases to undertake so serious an operation as total cystectomy, but the majority of us still hesitate to inflict so drastic a procedure on our patients. If enough bladder wall can be left to allow of implantation of one or both ureters, a partial cystectomy, although a long operation, can be supported by any patient who is not worn out by his disease or in whom the carcinoma has not infiltrated surrounding structures. If, however, total cystectomy with implantation of the ureters in the bowel or on the surface of the body is the only possibility, there are few patients and few surgeons who will face so serious an ordeal.

When excision is considered impossible or inadvisable the best hope lies in the implantation of *radon seeds*. Each of these contains 1—2 millicuries of radon and is made of either gold or platinum. The implantation is carried out through an operating cystoscope by means of a special technique devised by Ogier Ward and W. R. Ward, at the Radium Institute. The seeds are mounted on the end of a special form of ureteric catheter from which they can easily be dislodged once they have been carried into the depths of the growth. The technique can be acquired by anyone accustomed to the manipulation of a cystoscope, but if the growth happens to be situated on the anterior wall of the bladder, the mechanical difficulties are so great, that perurethral implantation becomes impossible. For such

patients no treatment is available except opening the bladder or irradiation from an external plaque placed over the pubis.

Whilst it is true that radon seeds are more often employed when the growth is of a malignant character, they may also be used in the treatment of papillomata. The fact that the special implanter can be used for diathermy as well as for inserting radon seeds, allows of a combination of these two methods, *i.e.*, fulguration, followed by implantation of seeds into its base. By this means the chances of recurrence are diminished.

The gravest objection to the use of radium in the bladder is the risk of radium burns. This was a very valid objection in the days when glass seeds were employed but with metal seeds, the Beta rays are filtered off and only the Gamma rays transmitted so that the risk of burning is considerably diminished. It is only when a large number of seeds have to be inserted, that discretion must be exercised. E. L. Keyes, of New York, states that two patients who were treated with two series of 20 seeds at about three months' intervals suffered so severely from burns that it became impossible to distinguish radium from tumour irritation. Although the risk of burning exists with radon seeds, it is far less than when radium needles are used. Indeed, with the latter, I have seen such terrible reactions that I have entirely given up needling the bladder, and confine my efforts in these advanced cases to palliative measures. Few sufferings are more distressing than those of a patient whose bladder is the site of breaking down growths encrusted with phosphates, and of a mucous membrane that has been burnt by an overdose of radium.

Palliative Treatment. Of the palliative measures that may be employed in inoperable cases, it is beyond the scope of this paper to speak in detail, but the following remarks may be permitted.

Suprapubic drainage may give relief in a few cases in which the bladder is distended owing to obstruction from a growth in the neighbourhood of the neck. Where there is no obstruction, cystostomy brings no relief of the patient's frequent and painful micturition. Continuous hæmorrhage is sometimes arrested by deep X-ray therapy or by radium applied as a suprapubic plaque, or better, in the bladder within the head of a special catheter. If pain be a marked feature and drugs do not relieve it, deep X-ray therapy, and in my opinion X-ray therapy after filling the bladder with fluorescine may be tried. Should this fail and the patient be willing to submit to operation, division of the pre-sacral nerves will often bring relief. So far, I have not been driven to adopt such a serious palliative measure as chordotomy.

Importance of Early Diagnosis.

From what has been said it will be obvious that the only hope for a patient with a bladder growth lies in early diagnosis. In the absence of this the surgeon is called upon to fight a losing battle. Unable to extirpate the neoplasm at the first sitting, he finds that with each recurrence he is more badly placed. Finally, his efforts are confined to adopting what palliative measures are possible for the relief of a patient who is now beyond the reach of surgery and rapidly going down hill as the result of a combination of sepsis, hæmorrhage, cachexia and uræmia.