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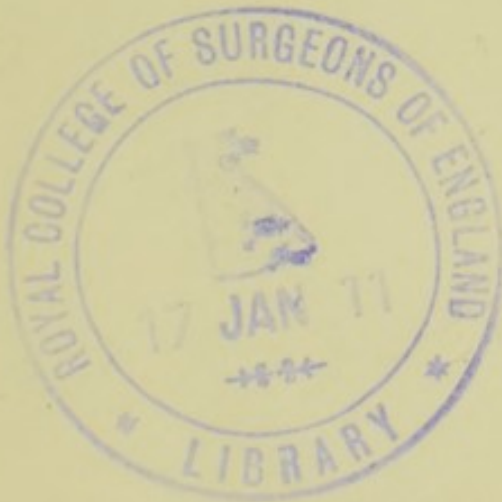
NOTES ON THE OPERATIVE TREATMENT
OF PAPILOMA OF THE BLADDER

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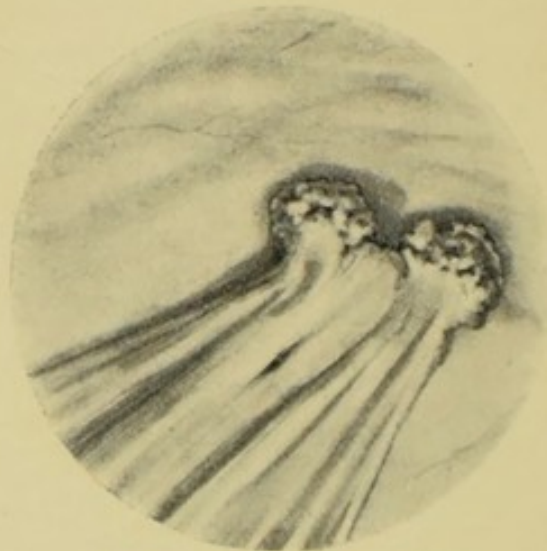
NOTES ON THE OPERATIVE TREATMENT OF PAPILOMA OF THE BLADDER.

THE recurrence of papilloma of the bladder after operation is a commonplace of surgical conversation and a constant, if reluctant, admission of all writings on the subject. Our present knowledge would lead us to suppose that there may be several factors involved in the causation of this recurrence. I shall here deal only with those which are specially related to the technique of the operations undertaken for the removal of these papillomata. Two probable and important causes of recurrence are: (1) the incomplete removal of the papilloma at the time of the operation; and (2) the implantation of fresh papillomata during the operation. In the course of cystoscopic examinations upon patients previously operated upon for papilloma of the bladder by other surgeons at a recent date—that is to say, within a few weeks or months of the operation—I have in more than one case noted a small bud of papilloma or two small buds present in the bladder. On more detailed examination I found that the papillomata were set at the edge of the scar which resulted from the removal of the original growth. The following notes are illustrative of this statement:—

CASE 1.—The patient was a man, aged 35 years, who came under my observation at St. Peter's Hospital in August, 1908, suffering from hæmaturia. Two months previously he had undergone an operation for papilloma of the bladder at the hands of another surgeon. On cystoscopy the bladder was healthy, with the exception of an area in the neighbourhood of the left ureteric orifice. (Fig. 1.) A quarter of an inch outside the left ureteric orifice there were two small buds of papillomatous growth close together, and rather less than a split-pea in size. From the base of these, folds of unusually smooth and firm-looking mucous membrane passed inwards

towards the middle line. In this scar tissue the left ureteric orifice appeared as a slit running parallel to the folds. I obtained the following information in regard to the operation. At the end of May, 1908, a fairly large pedunculated papilloma was found to the outer side of the left ureteric orifice and a smaller one lying near the apex of the bladder. The large growth was grasped in forceps and twisted off. Another small growth was similarly treated. Oozing from the base of each was stopped by touching with the electric cautery. In December, 1900, eight years previous to this operation, he had undergone a similar operation for a pedun-

FIG. 1.



Cystoscopic view of recurrent papillomata on scar of previous operation. The ureteric orifice is seen in the scar.

culated papilloma situated outside the left ureteric orifice. In this case, therefore, there was recurrence in the same spot after two similar operations. In such cases the operation, whatever form it took, was not sufficiently radical to remove the whole growth.

Yet another form of recurrence may be met with after the removal of a papilloma. At some part of the bladder adjacent to, or remote from, the site of the original growth one or more papillomata are found, while the operation area is free from growth. I have no doubt, from the size of the papillomata and their discovery so soon after the operation,

that in some of these cases the tumours were present when the original papilloma was removed, but were overlooked.

There are other cases where a solitary papilloma has been carefully localised and its isolation definitely determined by a pre-operative cystoscopy, and where, in about a year later, the bladder has been found strewn with numerous small papillomata.

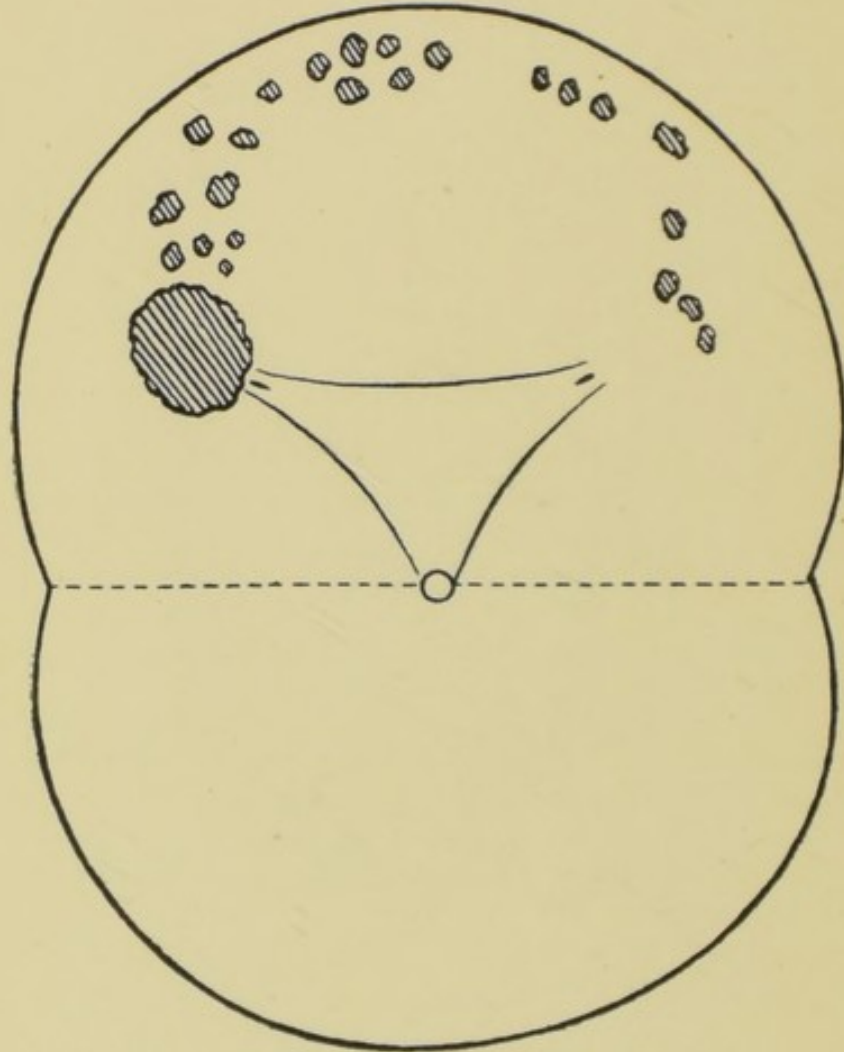
CASE 2.—In August, 1905, I removed a pedunculated papilloma from the neighbourhood of the right ureter in a man aged 31 years, who had suffered for 12 months from intermittent hæmaturia. The operation was performed by placing a clamp on the pedicle of the tumour and clipping away the papilloma with curved scissors. The clamp was removed and the electric cautery applied to the base to stop oozing. Three months later a few drops of blood were noticed at the end of micturition. In February, 1906, attacks of hæmaturia commenced and recurred at intervals until I saw him in August, 1906. The hæmaturia lasted four or five days and the blood was well mixed with the urine. There was increased frequency of micturition to 12 or 14 times and scalding during the act. Cystoscopy in June, 1906, showed a fair-sized papilloma on the outer lip of the right ureter at the spot from which the first tumour had been removed. From this spot there was a track of tiny papillomatous buds, which passed in the form of an arc to the apex of the bladder and continued symmetrically across the other side of the bladder almost to the left ureter. The number of these small papillomata was between 20 and 30. (Fig. 2.) In such a case it seems most probable that the small papillomata are seedlings implanted on the bladder wall at the time of the operation, and the trail that they frequently form from the site of the original growth to the scar of the cystotomy wound is evidence in support of this view.

In operating upon cases of recurrent papilloma I have frequently found the largest growth situated on the site of the scar of the cystotomy wound or immediately adjacent to it. There may or may not be a recurrence at the site of the original growth. I have little doubt that such a papilloma was implanted during the removal of the original growth. The two cystoscopic charts, which follow, are selected from a number of such cases. They are reproduced from patients

on whom I afterwards operated. The following is a brief synopsis of these cases :—

CASE 3.—The patient, a married woman, aged 56 years, was under the care of Dr. T. Hoskings, who asked me to see

FIG. 2.

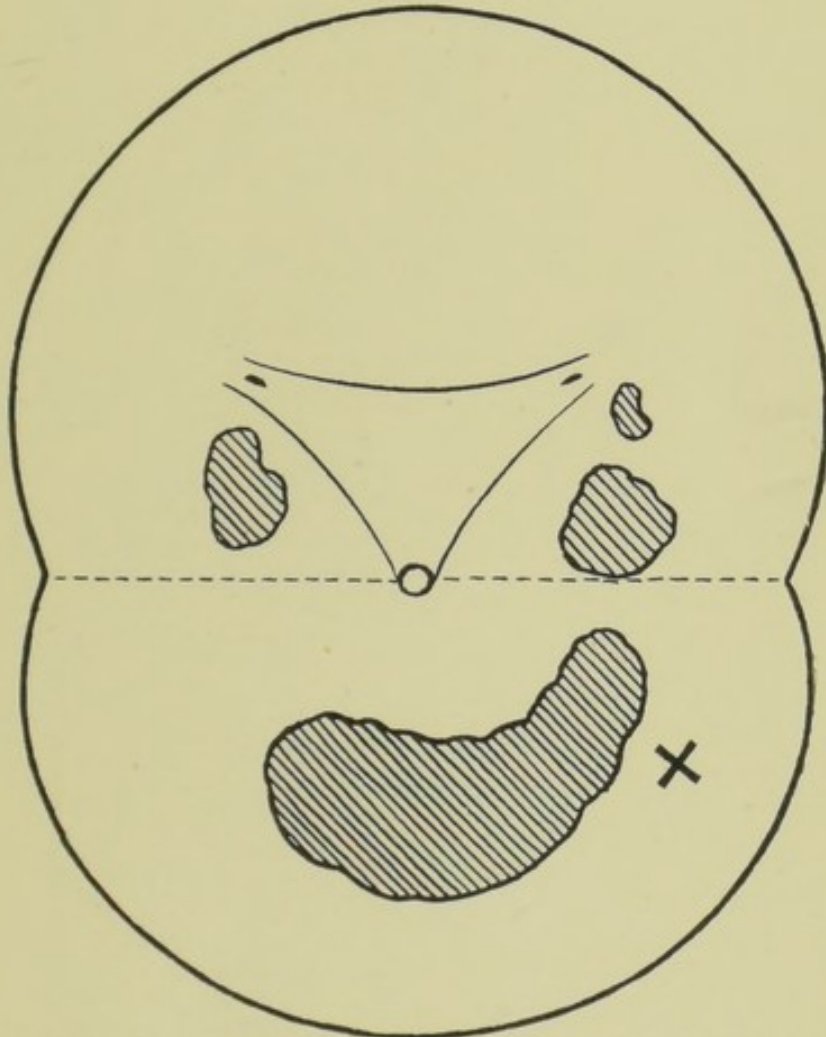


Cystoscopic chart of recurrent papillomata forming an arc extending to apex of bladder.

her for severe hæmaturia in October, 1909. Six years previously a small papilloma had been removed by another surgeon after six months of intermittent hæmaturia. She was free from symptoms for 18 months, and then the bleeding recommenced, and had continued at intervals since. The intervals between the attacks varied from one to six weeks.

I saw her during a period of hæmaturia, which had been continuous for 14 days. The urine was dark brown and contained clots. The patient was a stout, healthy looking woman. Cystoscopy showed four distinct papillomatous growths, three of which were of medium size and sessile,

FIG. 3.

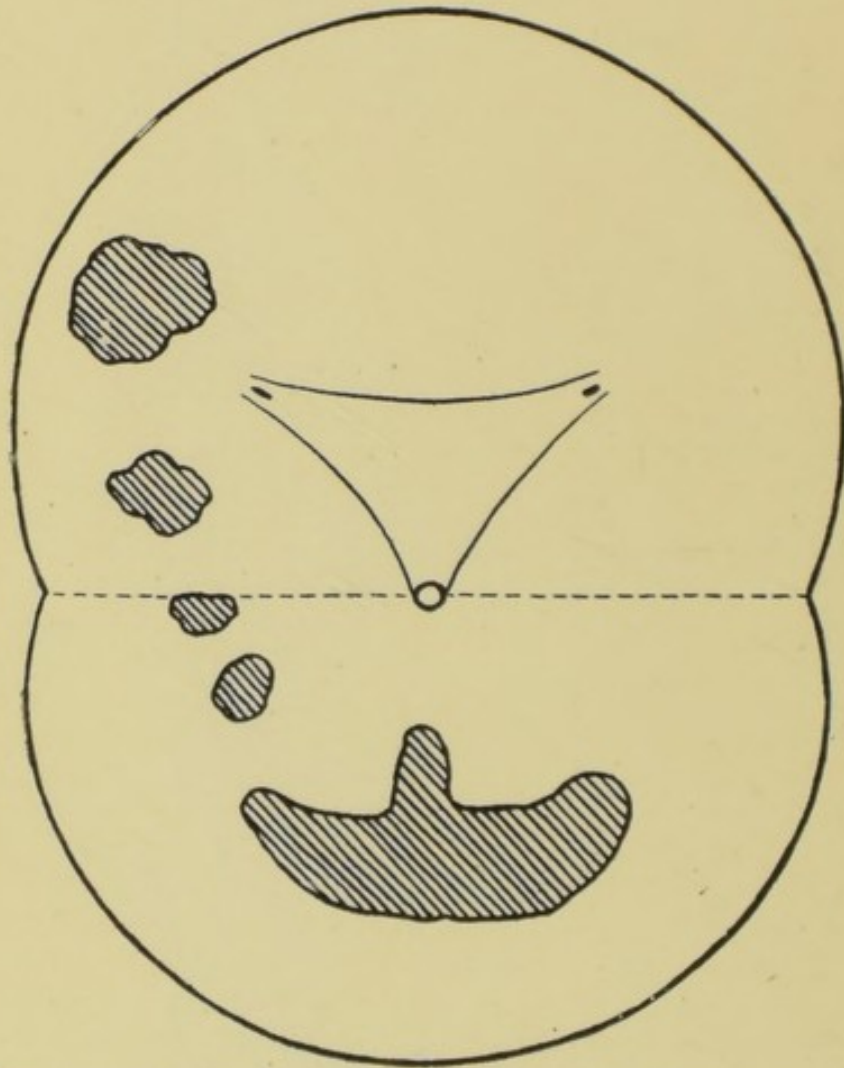


Cystoscopic chart of recurrent papillomata. The largest mass lay on the old cystotomy scar. At x a small bud of papilloma was hidden from view and discovered at operation.

varying from the size of a large pea to that of a hazel-nut, while the fourth was a large mass about two and a half inches in breadth and lying across the middle line on the anterior wall about half-way between the urethral meatus and the apex. (Fig. 3.) The surface of the growths was

sponge-like without any long tentacles. There was no sign of infiltration of the mucous membrane of the bladder. The mucous membrane around the right ureteric orifice was scarred and the papilloma had probably been removed from this spot. I excised the papillomata in the manner that I shall presently describe.

FIG. 4.



Cystoscopic chart of recurrent papillomata. There is local recurrence outside the right ureteric orifice and a trail to the cystotomy wound, on the scar of which the largest mass is situated.

CASE 4.—The second chart (Fig. 4) represents the bladder in the following case. The patient, a man

aged 34 years, had a severe attack of hæmaturia with some pain in the right lumbar region. In August, 1907, he was admitted to a general hospital and confined to bed for three weeks. The blood gradually disappeared from the urine, and he was dismissed as "cured." When he recommenced work the blood reappeared in his urine. I saw him at St. Peter's Hospital in January, 1908, and on cystoscopy found a papilloma close to the outer side of the right ureteric orifice. The rest of the bladder was healthy. The patient was admitted to the hospital and an operation was performed by one of my colleagues. The growth was grasped in forceps and twisted off "fairly cleanly." The patient was well for 15 months, when the bleeding commenced again. I cystoscoped him in October, 1909, and found five distinct masses of papilloma. One rather low, and apparently sessile, mass lay immediately outside and behind the right ureter in the position of the original growth. These smaller clumps formed an almost continuous track, which passed forwards and upwards to the right of the trigone. On the anterior wall, about two inches above the internal meatus, lay a large mass of papilloma with a long axis of over two inches lying transversely across the middle line. (Fig. 4.) I removed these growths in November, 1909.

It is worth while from the operative point of view to note these points, and so to plan the operation as to avoid such sources of recurrence. For some years past I have operated with this view, and the following is an account of the technique that has developed.

1. *Preliminary cystoscopy.*—Apart from the question of diagnosis of a bladder growth and of the recognition of its nature, a pre-operative cystoscopy should be made to determine the exact number and position of the papillomata. It is not sufficient to trust to touch and sight to display the number and position of the growths *after* the bladder has been opened. The bladder is a deep-seated collapsible organ, which falls into innumerable folds when it is opened. Among these folds papillomata are readily concealed. The surgeon who trusts to cystotomy to display the tumours is likely to overlook small buds or even papillomata of some size which are hidden between these folds. This is more likely to happen where cystitis is present as a complication.

After the removal of one papilloma bleeding frequently obscures the view, so that unless there is some previous knowledge as to the exact number and position of the growths the surgeon is working at a disadvantage.

Where the papillomata are multiple I make a chart of their number and position, and with this before me at the operation there is little likelihood that small detached papillomata will be overlooked. Two of these charts have been reproduced to illustrate the cases just described. With the bladder fully distended with fluid and a good light the growths are readily counted and localised with the cystoscope.

Two difficulties in regard to this pre-operative cystoscopy may be mentioned. Occasionally on the anterior or lateral walls a large papilloma may conceal one or two smaller buds from view when they lie immediately behind (Fig. 3, X), but in this position they are little likely to escape observation at the operation, and it should be the first care of the surgeon on opening the bladder to verify the numbers and position of the tumours already charted, and to note any that may be hidden from the cystoscopic view. Again, the mere size of a single papilloma may so fill the bladder that the beak of the cystoscope sinks directly into its folds. Complete darkness may be the result, or the folds of the growth restrict the movements of the cystoscope beak and only permit a small part of the growth to be seen. Such a case as the following is, however, rare.

CASE 5.—In September, 1909, I saw a man, aged 58 years, in consultation with Mr. J. F. Jennings. He gave a history of 12 months' hæmaturia, which first appeared after bicycling. There had been three attacks of hæmaturia of sudden onset and short duration. Cystoscopy was performed under eucaïne. The bladder wash returned clear at once, and a distension of 10 ounces was borne without discomfort. On introducing the cystoscope the bladder appeared to be very dark, and there was a little difficulty in manipulating the cystoscope. On rotating the instrument the edge of a papilloma, close to the window of the cystoscope, suddenly became brilliantly illuminated, and I realised that I had pushed the beak into the middle of a large papilloma. Subsequent efforts to obtain a better view were fruitless, and operation was recommended. On Sept. 7th I removed a large single papilloma the size of a Tangerine orange. The rest of the bladder was healthy.

2. *The proper exposure of the growth.*—A vertical median suprapubic wound of 3 inches will suffice for most operations upon vesical papillomata. In stout patients the length of the wound through the skin and fat may be extended, but the separation of the recti need not exceed this limit. An extension of the abdominal wound upwards towards the umbilicus does not give a better exposure of the bladder, but merely uncovers more peritoneum. If further room is required in a powerful man, whose boisterous respiration and the rigidity of whose recti are not controlled by deep anæsthesia, it is best obtained by incising each rectus muscle about 2 inches above the pubes, or if the manipulation is likely to be required on one side more than the other the corresponding rectus may be cut transversely for one-third or so of its width. I usually place a catgut suture through the upper cut end of the muscle at once to help in the repair of the muscle at the completion of the operation. I have not had to resort to a transverse suprapubic incision for the removal of simple papillomata.

When the bladder is opened suprapubically the walls collapse upon the base, so that the whole organ drops down into the pelvis. If the intra-peritoneal tension is low, as it may be in aged and feeble subjects, a large air-filled space is left. Usually, however, the intra-peritoneal pressure forces the peritoneum with coils of small intestine into this space, and the bladder disappears from view. If the edges of the bladder wound are held up by forceps or sutures the posterior wall is forced towards the pubes and the lateral walls towards the middle line by the same pressure, so that a view of the base of the organ cannot be obtained. These difficulties are overcome in the following manner. Having opened the bladder a suture is placed through the whole thickness of each lip of the bladder wound. The patient is now placed in the full Trendelenburg position. This is an indispensable factor in the proper exposure of the interior of the bladder. The bulging of the upper or posterior wall of the bladder now disappears or is easily controlled. There is still a tendency for the lateral walls of the bladder to collapse and hide the base and the abdominal and vesical wounds must be retracted. In order to overcome these obstacles to a full view I have designed a retractor which was recently described in *THE LANCET* (March 5th, 1910).

By grasping the handle of this retractor with the thumb held vertically and tucked into the recurved portion, traction

is exerted on the abdominal wound, and at the same time the bladder wall is pushed outwards. The shank of the instrument should be flat on the skin of the abdomen. I usually place a broad retractor on the side opposite to that on which the papilloma is set and a narrow blade retractor on the same side. By these means and by the aid of a head-lamp the interior of the bladder is fully displayed.

It is sometimes necessary to place a roll of gauze in the post-trigonal space to control still further a bulging posterior wall. I have found that careful preparation of the bowel beforehand and the quiet anæsthesia of chloroform during the operation are factors which are of some importance. The first care of the surgeon will be to enumerate the growths and compare them with his chart.

FIG. 5.



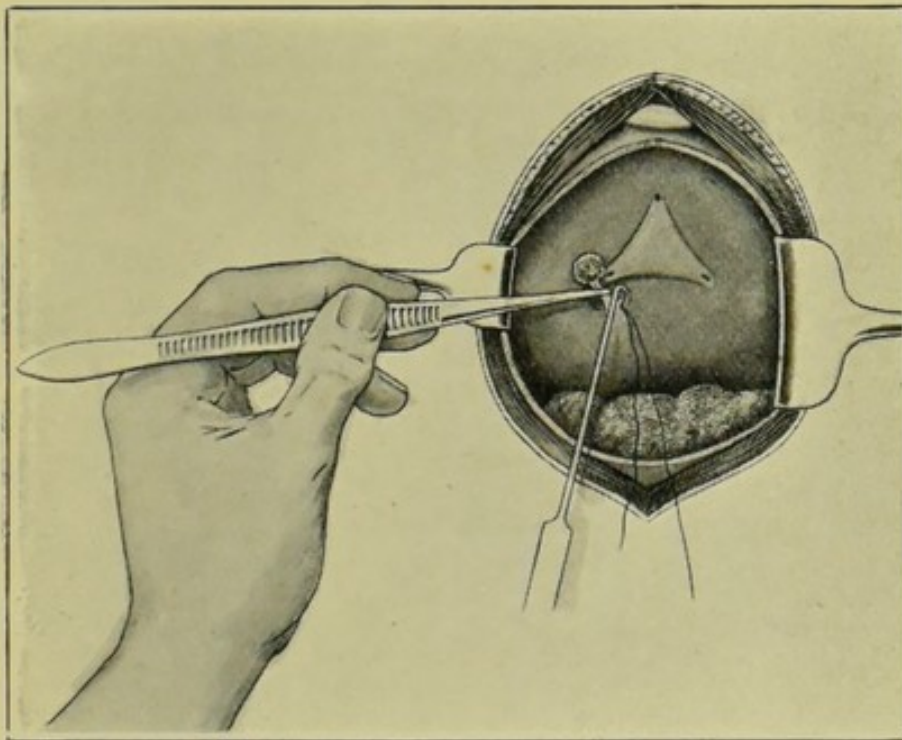
A bladder retractor.

3. *The removal of the papillomata.*—Papillomata vary greatly in their relation to the vesical mucous membrane. There are papillomata, invariably single, which are attached to the mucous membrane by a long stalk, and there are others set on a short, thick stem, but still distinctly pedunculated. The most frequent type is set upon the mucous membrane like a well-shaped sponge of rather coarse texture, and attached by a base so short that it cannot be called a pedicle, yet too narrow for the arrangement to be termed sessile. There are others which are sessile and which carpet the mucous membrane for considerable areas like a luxuriant low shrub. All varieties, with the exception of the long pedicled type, may co-exist in the same bladder. A very large growth is frequently solitary, and may have a short and comparatively narrow base of attachment, which may,

however, extend along the mucous membrane for an inch or more.

In removing the pedicled variety I usually pick the growth up in long fine forceps, and pass a double strand of very fine catgut through the base of the pedicle, or, better, through the adjacent mucous membrane, which is raised by putting the pedicle on the stretch. (Fig. 6.) A fine, rounded, curved needle is used for this purpose, and held in a long, fine

FIG. 6.



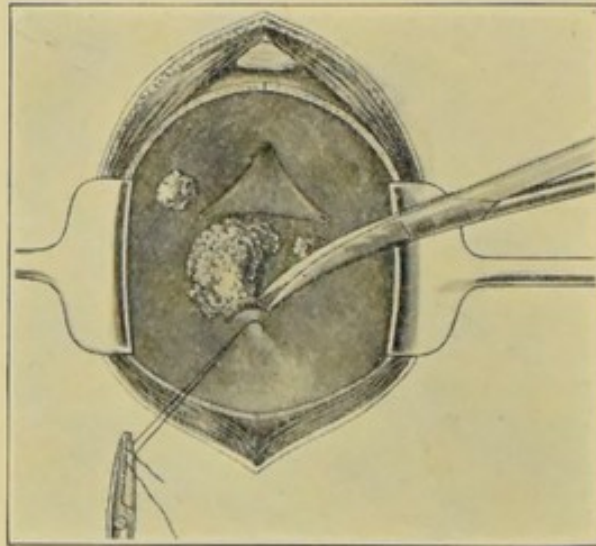
Removal of a solitary pedunculated papilloma; a thread of catgut is being passed through the base.

needle holder. For transfixing the base at difficult angles I use a small, fine, curved needle, set at right angles to a long fine handle, which is left untempered for two inches close to the needle, so that it may be bent at will to any angle. The thread of catgut is severed and the needle withdrawn. The two threads are now tied, so that one half of the pedicle is grasped in each, and the pedicle cut through above this. Usually there is no bleeding, but if oozing does

occur another stitch may be introduced. The catgut stitches are cut short.

In larger growths with a short narrow base attached along a line of mucous membrane I commence by placing a catgut stitch through the mucous membrane and muscle above the nearest end of the pedicle. This raises a ridge of mucous membrane, and with scissors this is cut across just short of the pedicle. (Fig. 7) Another catgut stitch is introduced by means of the special needle described above. This is tied and a further cut made with the scissors, taking care to clear the last suture and not to cut it away. Should a vessel

FIG. 7.



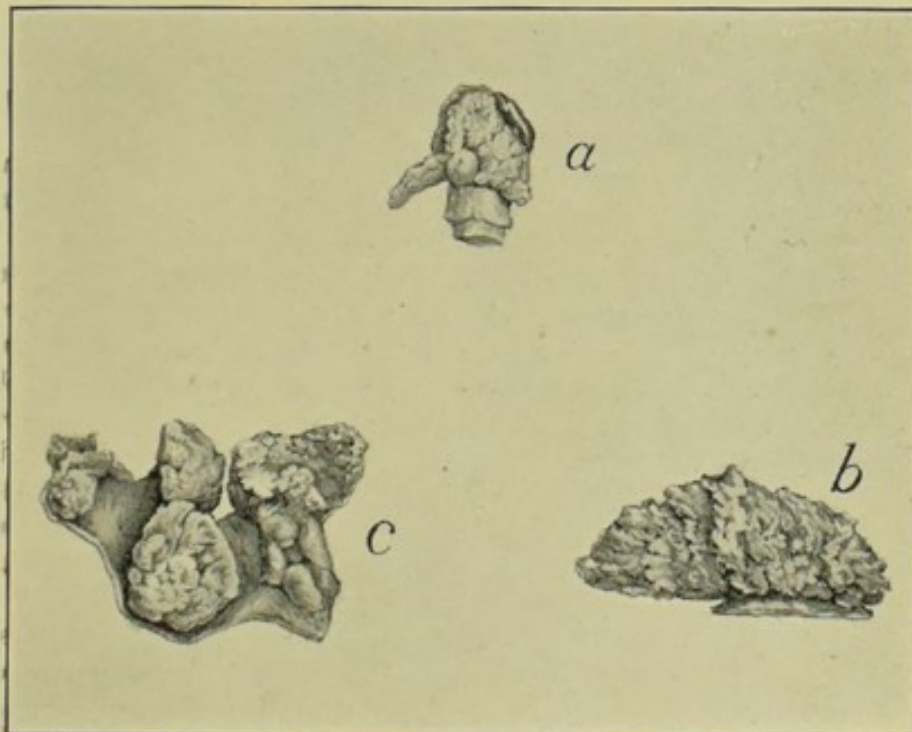
Removal of papilloma with extensive base. A fine catgut suture has been introduced above the papil'oma, and the ridge thus raised has been cut across.

spout it is picked up in long pressure forceps, which are left on until the papilloma is removed and then taken off, or a catgut ligature may be applied. Bleeding from these vessels is usually controlled by pressure forceps and the pressure of the sutures which close the wound. The cutting and stitching are continued until the papilloma is removed. Forcible traction upon the sutures should be avoided, for they will tear out, but gentle traction may be exerted and will bring the wound into closer view.

Where there is a thick, fibrous pedicle the mucous mem-

brane may be cut round its base, a stitch passed through mucous membrane and underlying muscle, and the fibrous pedicle cut across, taking a wedge of muscle with it. Having removed the papilloma the stitches are cut short and the wound is inspected. If bleeding is going on at any spot another suture should be introduced and tied and the pressure will control it. A small bud of papilloma should be picked up in fine forceps and snipped off with curved scissors, taking a piece of mucous membrane with it. The

FIG. 8.



Three types of papillomata after removal. (a) Cauliflower-like papilloma with fibrous pedicle. The mucous membrane has partly retracted from the fibrous core of the pedicle. (b) Sponge-like papilloma removed with mucous membrane at base. (c) Strip of mucous membrane covered with low shrub-like growth.

cut edges are then brought together with a fine catgut stitch. Where an area of mucous membrane is carpeted with low, shrub-like growth, the strip of the membrane bearing the growths should be excised with curved scissors, and the cut edges united with a series of fine catgut stitches (Fig. 8).

In removing the papillomata care should be taken that the edges of the cystotomy wound are not soiled. Before leaving each little wound the bleeding must be completely stopped. Sometimes an oozing from the mucous membrane is difficult to control, and occasionally a few touches with a fine electro-cautery point are necessary.

It will be noted that the above methods are dependent on good exposure, clean cutting, and accurate suture. In my view rapid healing is more likely to be promoted in this way than by any method of crushing, tearing, or twisting of the base of the growth. The catgut sutures have not caused any inconvenience in my hands. On examination of the bladder with the cystoscope after recovery from such an operation, no trace of the suture is to be found. Silk sutures are to be avoided, as they almost always accumulate phosphate deposit, and give rise to trouble afterwards.

A word must be said in regard to clamps. Some years ago I had a clamp made with flat blades, one grooved and the other ridged, about one-eighth of an inch thick, and set at an angle to strong handles. With this I proposed to clamp the base of the growths, and with an instrument like a large adenoid curette to scrape the papillomata from the surface of the clamp. I found there were several objections to this method. It was very difficult to get clamps of the size and angle to suit the varieties and different positions at which papillomata are found in the bladder, so that if the papillomata were to be accurately clamped a number of instruments would be required. Many papillomata are closely related to the ureteric openings, and there is a very real danger of including the ureteric orifice in the clamp, if the clamp is applied, as it should be, so as to include mucous membrane in the bite. I found further that there was a tendency of some part of a large base to slip out of a clamp altogether, and troublesome bleeding followed.

Where I have to deal with a large solitary papilloma I sometimes use a Guyon's clamp in order to steady the base of the tumour during the stitching. This clamp has a very convenient curve, and on the contact surface of one blade there are several teeth, which sink into corresponding holes on the contact surface of the other blade. This prevents any portion of the pedicle from slipping out of the clamp. The clamp should be carefully adjusted so as to grasp the base of the papilloma with some mucous membrane. When it is in position and locked catgut sutures should be placed on the

bladder side of the base, dipping below the convex border of the clamp and out at the other side. These are held aside; the papilloma is clipped away from the concave border of the clamp, which is then removed, and the sutures tied in series, introducing an additional one or more if necessary. This method may be used in the large isolated type of papilloma. It is described and recommended by Albarran.¹ It is not suited to the form in which there are numerous small, scattered papillomata, or where a considerable area of bladder wall is covered with clusters of papillomata.

In operating upon tumours in the bladder, I have frequently noticed a peculiar condition of the bladder wall, and which seems worthy of mention. After working in the bladder for half or three-quarters of an hour the mucous membrane becomes thick and rather œdematous in appearance, and the bladder muscle contracts and thickens, so that the exposure of the interior of the viscus becomes more difficult. These changes are probably due to the prolonged exposure to air, but they are followed by no ill-effects.

Having carefully freed the bladder from blood-clot, and removed gauze pads or swabs from the post-trigonal area, the question of closing or draining the bladder will arise. After a trial of suturing the cystotomy wound in these cases, and after one or two failures from serious hæmorrhage, I have abandoned the method. If the bladder is sutured and the urine, by any chance, such as the blocking of the catheter by a clot or the slipping of the tied-in catheter, accumulates and distends it, hæmorrhage is encouraged, and should hæmorrhage take place a retained catheter, however large, is not a sufficient means of drainage. I now drain the bladder in these cases from the first by means of a large rubber tube, three quarters of an inch in diameter. A stitch or two are usually required to close the bladder wound around this tube. In addition I place a small rubber tube, which dips into the prevesical space, at the lower angle of the wound. This ensures the removal of any urine which may escape into this space. The abdominal wound is carefully repaired by uniting the cut portions of recti and approximating the recti muscles by means of catgut sutures.

In the after-treatment I use a very simple method of removing the urine which is neither a syphon nor a suction

¹ Médecine Opératoire des Voies Urinaires, 1909.

method, but merely drains the overflow. One end of a yard of medium-sized soft rubber Paul's colotomy tubing is drawn over the prominent end of the rubber drainage-tube and tied round with a piece of silk to retain it. This is brought through the dressings and passing over the edge of the bed dips into a jar. To ensure that the surfaces do not adhere and block the flow of urine two drachms of olive oil are poured through the tube before adjusting it. The tube is changed at each daily dressing, when the bladder is irrigated with oxycyanide of mercury (1 in 10,000). On the fourth day the drainage-tubes are both removed and the urine may be allowed to soak into large pads of cellulose wadding, or an Irving apparatus may be applied. In my experience the wound heals more quickly without any apparatus.

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