to invoke the aid of the church. If we believe that Christianity is the foundation of character, and that character in the individual establishes the character of the community, and that a community of Christian ideals will best protect and conserve its child life, it is, then, of supreme importance that the community should afford opportunity to its children of religious instruction and training. I can see no other way of doing this in a communal way than somehow through the medium of the public schools. A community imbued with an altruistic, a Christian, spirit, can be depended upon to care for its children, and needs not to be coerced by law to do certain things needful for their welfare, or deterred by the menace of punishment to refrain from doing things harmful to them. The spirit of the community will dictate the actions of the community, and if a community believes the words of the Master relative to the child, that "of such is the kingdom of heaven," it will guard and protect the child so that it may grow towards physical and moral perfection, an exemplar of the Christ-child.

CONCLUSION.

The child, with its innocence, its faith, its mysticism, nay, its very ignorance, should appeal, if anything can, to the very best instincts of the community, as well as to its selfish interests, for the child of today makes the community of tomorrow. Whatever the physical, mental and moral education of the child is *now* will be reflected in the character and standards of his day when he transmutes his present training into action. "It would be a dreadful calamity," said ex-President Roosevelt, "to continue to waste and destroy the resources of the nation, as until a few years ago we were wasting and destroying them, as we still, in certain respects, continue to waste and destroy them. But it would be even a worse calamity, because irremediable, if we wasted and destroyed the manhood and womanhood of the nation. And the only way permanently to conserve the manhood and womanhood is to conserve the childhood."

Original Articles.

TRANSVESICAL PROSTATECTOMY: A DISCUSSION OF SOME UNSETTLED POINTS IN THE PREPARATION FOR AND TECHNIC OF THE OPERATION.*

BY PAUL M. PILCHER, M.D., BROOKLYN, N. Y.

THE occasional surgeon, or the surgeon unacquainted with the science of urology other than as it crosses his path in the operating room, does not need to discuss the disputed questions

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concerning obstruction at the neck of the bladder due to prostatic hypertrophy or distortion. To this sort of man a complete examination of the patient is not necessary. All that he needs to know is that there is an obstruction at the neck of the bladder, that it is probably due to an enlarged prostate, and that it can be removed surgically.

If he is lucky his patient will survive his operation, with the chances of more or less permanent disability. This is sufficient for some men. To others of us who have passed through the developmental stage of prostatic surgery, who can look back upon an uncontrolled hemorrhage, the unexplained death of some patients whose good general appearance lured us into a state of false security, we feel that we need a great deal more information in order that we may know beforehand what to expect in a given case and to choose, if may be, the safest course to pursue under the circumstances.

To my mind, a thorough examination is most essential. I believe that we should determine, if possible, before operation whether the obstructing prostate is due to cancer, or to simple adenoma; whether there is a stone present in the bladder; whether the symptoms are due to the presence of this stone or not; whether there is a new growth present in the bladder. I have seen all of these conditions in cases in which I had expected to find only a simple hypertrophy of the prostate, the mistake being due, I believe, to my own carelessness in not making a thorough and exhaustive, but not exhausting, examination of the patient.

Aside from the ordinary vesical examination at our clinic, we employ first the x-ray to determine the presence or absence of stone in the bladder. Sometimes we are able to determine the outline of the prostate.

Next, we pass a simple examining cystoscope, such as that devised by Wappler especially for this work, constructed with a beak curved like an ordinary sound. We find we are sometimes able to introduce this cystoscope into the bladder when catheters fail. A thorough cystoscopic exploration is made, if possible.

Both the cystoscope and the x-ray are of advantage in that a stone may be hidden in a diverticulum and not be seen by the cystoscope. In these cases the cystoscope also determines the presence or absence of a new growth.

CANCER OR ADENOMA.

Rectal Examination is important in helping us to determine between cancer and adenoma. We suspect cancer in all patients under 60 years of age, who have had any considerable degree of obstruction. We have had cases of adenoma in men between the ages of 55 and 60, but very few in number. We suspect cancer when the symptoms are rapid in their onset. By that I mean have been complained of only for a year in older patients. It has been our experience

that the patients with the longest histories of frequency of urination, etc., are the least apt to have cancer of the prostate.

Primary tuberculosis of the prostate has been met with in one patient of 55 years of age. It simulated cancer in its general characteristics.

There are other differential points which it is not necessary to go into at present, but from the standpoint of treatment as adopted at our clinic, it is quite important for us to know beforehand, if possible, whether the case is one of malignancy or simply adenoma.

I believe it is universally accepted that all cases of prostatic obstruction should receive more or less preliminary care. The question of what form this treatment should take has not as yet become standardized, but in the majority of cases it has resolved itself into a question of drainage of the bladder; either using a catheter to empty the bladder at regular intervals for a given period of time, the use of an indwelling catheter, or the establishment of suprapubic drainage by means of a cystostomy.

CHOICE OF METHOD FOR RENAL DECOMPRESSION.

As a temporary expedient intermittent catheterism is simple and efficient. Its dangers include the possibility of septic infection, which in certain individuals is a minimum risk, but in the majority of cases the continued use of a catheter

is sure to result in a train of septic consequences of the most serious character. Again, there is the danger of profound constitutional reaction, which has been occasionally observed following the simple use of a catheter, so profound in some cases as to terminate in death in a few hours. Occasionally in some cases each attempt at catheterism is followed by a more or less septic condition. These observations refer more especially to the advanced cases of prostatic obstruction where cystitis is present and the obstruction has existed for a sufficient time to cause renal insufficiency and more or less invalidism. Intermittent catheterism used early for the beginning stages of chronic prostatism is almost devoid of danger.

The *catheter a demeure*, where it can be tolerated, is free from criticism, other than the unnecessary amount of irritation of the urethral mucosa which results from its presence in the urethra. It must always be remembered that danger accompanies any method which might bring about a sudden emptying of the bladder that has been distended for any length of time.

Suprapubic cystostomy is attended by the dangers common to all minor surgical operations; it can be done entirely under local anesthesia, with practically no surgical shock attending it. It completes the first step of the operation of transvesical prostatectomy and affords

FIG. 1.—Showing the surgical problem. Special attention should be directed to "A", the fold of peritoneum in its relation to the symphysis when the bladder is contracted. "B" the raising up of the peritoneal fold when the bladder is dilated. The relation of "A" and "B" to the symphysis is quite variable and in some is fixed almost at the symphysis.

temporary relief to urinary prostatic obstruction, while the best general and local conditions are being secured for the later radical removal of the obstruction itself. It is free from any reflex effects which attend the introduction or residence of a catheter in the urethra. It has still further the advantage not only of easy and adequate urinary drainage, but also of placing at rest the urethral tract and of being the most powerful agent in overcoming any reflex influence which the irritation of that tract may previously have been producing. Furthermore, if a foreign body is present in the bladder it may be removed at this time, without the added disadvantage of surgical shock. The tissues through which the bladder is explored, are exposed to infection, without the depressing systemic effects which accompany a major operation.

In advanced cases, we believe that repeated catheterism is wrong. We do not object to the indwelling catheter under certain conditions, and at times feel that it is distinctly indicated, especially in those cases where there is an enormous distention of the bladder with edema of the legs, and as a routine when there is an enormous over-production of urine. In the presence of intravesical hemorrhage, advanced infection, or large calculi, we feel that suprapubic cystostomy is the method of choice as a preliminary to transvesical prostatectomy.

At our clinic we perform a suprapubic cystostomy as a preliminary operation in every case of prostatic hypertrophy due to simple adenoma, even though we have used an indwelling catheter previous to this.

The chief objection to the two-stage operation

has been the discomfort due to leakage of urine over the abdomen of the patient. This has been overcome at our clinic by adopting the following technic:—

Operative Technic of First Operation. Preferably with the bladder filled with fluid, a suprapubic cystostomy is done under local anesthesia, using one-half to one-quarter per cent. novocain solution to infiltrate the tissues. The points of the technic which we emphasize are: 1. Exposure of anterior surface of bladder as high up as possible. 2. Making opening in bladder at least three inches from urethral opening (Fig. 2). 3. Drainage of bladder by Pezzer catheter or Pilcher modification. 4. Purse string suture around opening in bladder to secure water-tight joint (Fig. 3), employing same principles as in drainage of gall bladder. 5. Immediate resuture of suprapubic wound, obliterating prevesical space, reconstruction of the facial planes, etc., and closing the wound without drainage except where button drainage tube emerges. (Figs. 4 and 5.)

Results. 1. Primary union of wound in practically every case.

2. Absolutely dry wound without any leakage of urine.

3. Complete control of urine for tests.

4. Patient out of bed in 24 hours.

5. Half of the operation complete without anesthesia or surgical shock.

Question of when to operate. Our rule is that as soon as the bladder can be safely emptied the suprapubic cystostomy should be done. In all cases of emergency, where there is active hemor-

FIG. 2.—Showing the position of incision into the bladder preferably at a point three inches from the urethral opening. The peritoneal fold has been reflected high up.

FIG. 3.—The Pezzer or Pilcher catheter secured in anterior wall of bladder held in place by purse string suture, secured similarly to tube in drainage of gall-bladder.

rhage into the bladder, suprapubic cystostomy should be done.

How long shall we wait before removing the prostate? In some cases we can determine within two or three days that any time will be suitable for removal of the prostate. In other cases

we feel equally sure that the prostate could never be safely removed. In general, after a suprapubic cystostomy has been performed and the patient is out of bed, if his general bodily functions are working well, his mind is bright, his eyes are clear, his urine is nearly normal, of good specific gravity, containing only a trace of albumin; when the phthalein test shows an efficiency of from 30 to 50%; when the patient is sleeping well and eating well, we feel perfectly safe in removing the prostate. We prefer, as a rule, to wait eight or ten days after the first operation in order that we may have a more perfectly healed suprapubic wound through which to work, for under these circumstances we have a shorter convalescence and the urinary fistula closes more quickly.

Another thing which I believe is quite important is that one should never try the second operation unless he can have a patient under *observation* more or less continuously for the 48 hours following the operation. In other words, we should not perform the operation out of town at so great a distance that we could not reach the patient within an hour.

In the more advanced cases where there is a severe depression, in what we have termed the second stage, the problem is not quite so easy. We may have to wait weeks or months before we feel that the patient is in proper condition for his second operation.

In studying the *question of renal functions*,

FIG. 4.—A bladder drained by Pezzer or Pilcher catheter showing wound entirely closed about catheter and the relation of catheter button to prostate. This method drains the bladder completely without any leakage.

we have found that there are *two distinct factors* which are helpful in determining the probabilities of recovery. People seem to forget the fact that the kidney is not the only organ upon which life depends, and, if we find that the renal function is sufficient, the patient may die from vascular disturbance, cardiac failure, apoplexy, surgical shock or any one of the different disturbances.

In trying to determine, however, the functional sufficiency or impairment of the kidney, we recognize three distinct factors which may be roughly designated pre-renal, renal and post-renal periods. These factors have been discussed in other papers. The phthalein test gives us the index of renal sufficiency at a given time, and a series of phthalein tests taken under varying conditions,—pre-operative, post-operative and during the convalescent stage, gives us an index of the stability of renal sufficiency, so that in each of our cases we must determine, if possible, both of these indices, that of efficiency and that of the stability of the renal sufficiency. We have learned that, when the renal efficiency is very low, that is, below 5 or 7% in two hours, it is very unsafe to attempt a prostatectomy.

The speaker showed a series of lantern slides demonstrating the various features of the two-stage transvesical operation, showing first the technic of the first operation, charts of individual cases used in determining the time for the

second operation, the technic of the transvesical prostatectomy pointing out the methods employed at the Pilcher clinic for enucleating the prostate, emphasizing the importance of removing all debris from the bladder and searching for small prostatic stones which might have been left in the bladder, then describing the suprapubic drainage following the second operation in which a large calibre drainage tube is used for 24 hours. This tube is removed after 24 hours and a button catheter inserted in its place. This button catheter controls the output of urine from the bladder within two or three hours and again the patient remains dry.

In discussing the control of hemorrhage the speaker recommended the use of the Hagner bag and presented a modification of his own, which consists of a bag through which a catheter is led out, which drains the bladder from below.

The most important step which has been worked out after the second operation consists in removing the drainage tube after 24 hours and inserting the button catheter in the bladder, and draining through the button catheter for three days, and then putting a cork in the button catheter and having the patient empty his bladder voluntarily every hour for a period of three or four days, then removing the button catheter, and it will be found that the patient continues the urination. This has been a very great step in advance at the clinic.

FIG. 5.—Various stages in closing of wound after suprapubic cystotomy.
 I. Placing the first sutures, the lowest suture closing off the prevesical space and including wall of bladder, the second and third sutures drawing together the rectus fascia and the upper three sutures drawing together the fascia below the peritoneal fold.
 II. Further tying of sutures and closing the wound tightly around catheter.
 III. Suturing the skin with silk. Closing wound around catheter without drainage. These wounds heal almost invariably without infection.