THE SURGICAL TREATMENT OF PROSTATIC DISEASE

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In surgical diseases of the prostate gland no one surgical procedure will adequately meet all the requirements because of variations in individual cases or because of coexisting pathologic processes. Since the introduction of the first operation for the obstructing prostate, refinements in operative technics and new procedures have been frequently advocated. By the application of an adequate preoperative routine the morbidity and mortality have progressively decreased to a point where there should be no hesitancy in recommending surgical intervention for the relief of prostatism. This has been especially true since the introduction of renal function tests, studies of blood chemistry correctly interpreted, and finally transurethral resection for removal of obstructing tissue.

PREOPERATIVE PREPARATION

Several factors have to be considered in the management of patients suffering from prostatism.

1. Introduction of infection into the bladder may occur quite easily. This is especially true as acute or chronic distention stretches the mucosa of the bladder and favors congestion producing predisposing factors essential to the production of cystitis. If vesical neck obstruction has existed over a long period of time, ureterectasis and pyelectasis may predispose to renal infection.

2. If infection of the bladder is present when the patient is first seen by the physician, precautions must be taken and trauma avoided or an acute exacerbation may follow poorly executed instrumentation. Although the importance of preoperative preparation for transurethral resection has been minimized recently, with this I cannot agree. Certainly an elderly patient with a blood urea of 30-40 mg./100 cc. is a better operative risk than if the level of the blood urea were 80-90 mg./100 cc. If transurethral resection were entirely devoid of complications, perhaps such preparation would not have to be recommended. Unfortunately, postoperative hemorrhage, pneumonia, epididymitis, and pulmonary embolism have been observed, and accordingly the patient should be in the best possible condition prior to operation regardless of the time required to attain this status.

The possibility of introducing infection into the bladder by a prolonged period of drainage with an indwelling urethral catheter should

be anticipated. Our preoperative management may be summarized under four headings.[1]

1. *Cases which require no inlying catheter and no catheterization except to determine the amount of residual urine.* These patients have typical obstructive urinary symptoms without complete retention and without a large amount of residual urine. No preliminary drainage is required if the blood urea is within normal limits and the renal function tests are satisfactory. In the absence of other complicating factors we have no hesitancy in carrying out operation one or two days after admission.

2. *Patients with acute urinary retention of recent onset and without evidence of preexisting infection of the bladder.* These patients are catheterized every eight hours, or more frequently if necessary. Again when the blood urea is not elevated and the renal function tests are within normal limits, operation is carried out a few days after admission.

3. *Patients who have enlarged, distended bladders, or acute retention with a high blood urea and diminished renal function.* We prefer to perform a suprapubic puncture in these patients, and we also believe a period of preoperative drainage is essential (Figs. 1 and 2). (The inlying catheter is rarely employed and, if so, is used only in patients who have badly infected bladders or have worn an inlying catheter for some time).

The foregoing procedures not only have reduced the preoperative morbidity and mortality but have definitely reduced the operative mortality, and have resulted in a more satisfactory postoperative convalescence.

Cystoscopy is not a routine procedure prior to transurethral resection. Urethral instrumentation with its attendant trauma and potential risk of introducing infection usually can be avoided. In cases in which a question arises as to the type of surgical procedure to be advocated, cystoscopy is justified. Although by omitting such diagnostic procedures, the presence of a vesical diverticulum or a small calculus not discernible on the initial roentgenogram may be overlooked, this is of little consequence. A stone visualized at operation is readily removed by litholapaxy. Many diverticulae do not produce symptoms after removal of the obstructing prostate. If, however, a diverticulum continues to produce symptoms after relief of the vesical neck obstruction, it may be removed later by the suprapubic route.

FLUID INTAKE

In the uncomplicated case the fluid intake should be maintained at approximately 3000 cc. In patients with an elevation of the blood

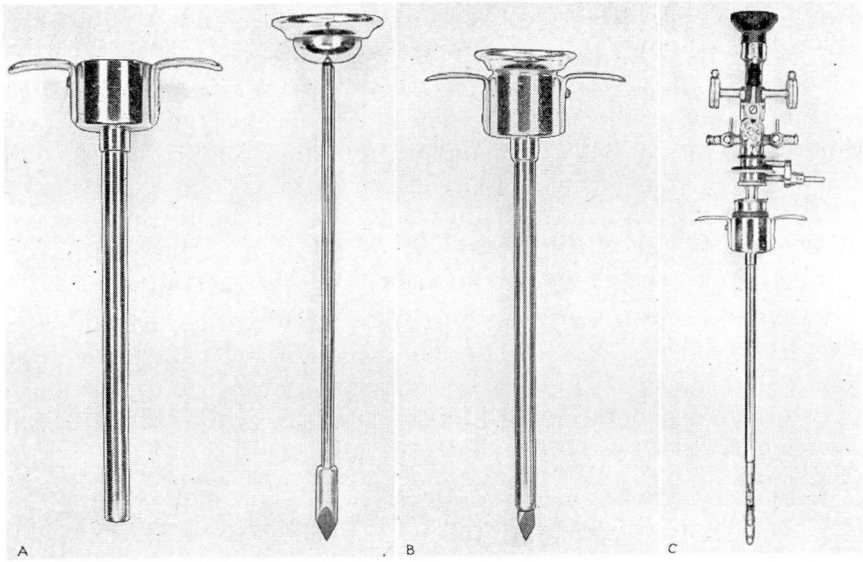

Figure 1

A. Cannula and trocar.
B. Instrument assembled.
C. The McCarthy Cystoscope is inserted into the cannula for visualization of the bladder

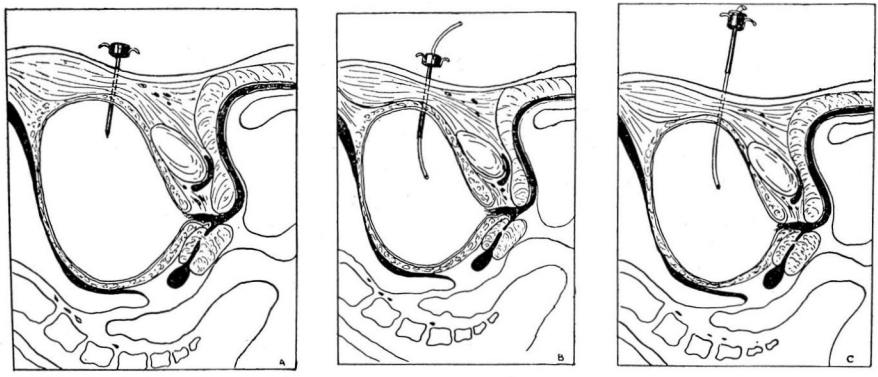

Figure 2

A. The trocar and cannula have been plunged into the bladder.
B. The trocar has been removed, and a No. 18 catheter inserted through the cannula into the bladder.
C. The cannula has been withdrawn, leaving the catheter in situ for suprapubic drainage.

urea, fluids are administered intravenously. The amount of physiological salt solution thus administered should not exceed 1500-1800 cc. in order to avoid the production of edema. If additional fluid is indicated for intravenous administration, a 5 per cent solution of dextrose may be utilized.

In treating elderly debilitated patients, coexisting diseases such as cardiac diseases, hypertension, diabetes, arteriosclerosis, etc. must be adequately treated during the preoperative period.

OPERATION

The operative procedure to be employed is frequently influenced by the training of the urologic surgeon and his familiarity with the various surgical procedures. He should be intimately acquainted not only with the technic of transurethral resection but also with that of perineal or suprapubic prostatectomy. Individualization of the patient is of paramount importance, and the indicated procedure is that followed by the most gratifying end results with the lowest morbidity and mortality. By any of the three procedures, the obstructing tissue can be adequately removed. The surgeon's skill in any one of the operative technics influences the end results in the individual case, but certain limitations as emphasized by Orr[2] must be placed upon the claims for any operation. Somewhere within these limitations will be found the optimum which will produce the most satisfactory results.

The prime objective of prostatic surgery is the relief of obstruction. With the introduction of transurethral resection for the relief of prostatism, criticism flourished. Sufficient time has now elapsed since its introduction to establish it firmly in our armamentarium of surgical procedures.

Having established the type of prostatic disease in the individual case, the question arises as to the surgical procedure which will effect a cure. The next considerations are the limitations of the procedures.

Should transurethral resection, as advocated by some surgeons, be the routine procedure? Should all glands regardless of size be removed by this technic? Is it the proper procedure when in Caulk's Clinic[3] 20 per cent of vesical neck obstructions have been found to be malignant? As familiarity with a procedure is increased our end results improve, the mortality and morbidity decrease, while the range of operability increases. It is my belief that over 90 per cent of patients suffering from prostatism can be offered prompt and permanent relief by transurethral resection. In certain instances I prefer either suprapubic or perineal prostatectomy.

In an enormous gland intravesical in type, I prefer removal by the suprapubic route. However, as experience increases, relatively larger hyperplastic masses may be removed transurethrally. Again, the posterior lobe of the prostate containing an early malignant neoplasm cannot be removed by either the suprapubic route or by transurethral resection.

Although gratifying results are being secured by orchidectomy for carcinoma of the prostate, I am still of the opinion that if the growth can be completely removed by perineal prostatectomy, it is the preferable procedure. The posterior lobe of the prostate and the false prostatic capsule are separated from the hyperplastic tissue in the prostate by a distinct line of cleavage. This permits enucleation of the hyperplastic mass leaving the posterior lobe behind. It is estimated that 75 per cent of carcinomas of the prostate arise in the posterior lobe. I believe, therefore, in instances in which a small hard nodule is palpable by rectal examination not only in the posterior lobe of the prostate but also in the lateral lobes, perineal removal of the gland is the preferable procedure.

Certainly cardiac disease renders some elderly patients unsuitable for surgical prostatectomy. In this group transurethral resection can be utilized to afford the patient complete relief of symptoms after adequate preoperative preparation. There is a definite increase in the number of patients over 70 years of age in whom complete relief of symptoms can be offered by transurethral resection with an extremely low operative mortality in whom surgical prostatectomy would be attended by considerable operative risk. As Kretschmer[4] has stated "the older and feebler they are the more justification there is for transurethral resection". As a result, I believe, of the low mortality rate secured by transurethral resection, the number of patients seeking relief at an early date is steadily increasing. Complications of chronic prostatism are not as frequently observed now as they were previously.

CARCINOMA OF THE PROSTATE

The incidence of carcinoma of the prostate is higher than is generally recognized. When it is observed that one of every 5 to 7 patients past the age of 50, as stated by Henline,[5] has carcinoma of the prostate, the serious aspect of this disease may be appreciated.

In the late Dr. John Caulk's Clinic 20 per cent of vesical neck obstructions have been found to be malignant. This percentage has been substantiated by postmortem findings: Rich[6] 14 per cent; Walthard[7] 30 per cent; Dossot[8] 18 per cent, and Moore[9] 16.7 per cent.

Geraghty[10] has also stated that carcinoma of the prostate begins in the posterior lobe in 75 per cent of the cases; Barringer,[11] Dossot[8] and others state carcinoma may begin anywhere inside the prostatic capsule, and Dossot observed that 11.6 per cent of adenomas of the prostate underwent malignant degeneration.

Perineal prostatectomy is, I believe, the procedure of choice for carcinoma of the prostate if it can be removed in its entirety. In most cases, however, when the patient is first observed by the physician, complete surgical removal is a technical impossibility. In this latter group if obstructive symptoms are present, transurethral resection is indicated, followed or preceded by bilateral orchidectomy. In the absence of obstructive symptoms and residual urine, bilateral orchidectomy alone suffices.

Sufficient time has not elapsed to warrant making definite statements as to the ultimate result of orchidectomy. Up to the present time, however, the results are extremely gratifying. Munger[12] has secured similar results by the application of deep x-ray therapy to the testicles, which in some instances may be the preferable procedure.

VASECTOMY

Although many urologic surgeons advocate bilateral vasectomy as a routine procedure prior to transurethral resection, it has been my experience that the incidence of epididymitis following operation is so extremely low that routine vasectomy is unnecessary. Exceptions may occur as when the patient has had an indwelling catheter for some time before admission, or has had repeated mild attacks of epididymitis.

CONCLUSIONS

1. Patients should be individualized, and the type of operation recommended is influenced by the findings in the individual case.

2. Over 90 per cent of patients suffering from prostatism may be promptly and permanently cured by transurethral resection. The goal of the resectionist is a transurethral prostatectomy.

3. Bars, median lobe hypertrophy, contractures, small fibrous prostates, and large adenomas of the prostate may be adequately treated by transurethral resection.

4. A difference of opinion exists as to the preferable treatment for the very large adenomas of the prostate.

5. Perineal exposure permitting removal of the entire gland as well as the posterior lobe of the prostate is the preferable treatment at the present time for early malignant neoplasm of the prostate.

6. Orchidectomy with or without transurethral resection is advocated for advanced malignant neoplasms of the prostate when perineal prostatectomy is technically impossible due to the extent of the disease.

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