

# TRANSURETHRAL RESECTION OF THE PROSTATE

## *A Five Year Review*

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After five years' experience with transurethral resection of the prostate, it seems worth while to evaluate our results. When the method was revived with new interest about five years ago, there was much controversy regarding its merit and the advisability of its use, but the test of experience has shown that the operation has met all requirements and has won a permanent place in the surgical treatment of bladder neck obstructions. This review includes the results secured in a series of 453 transurethral resections which I have performed; 62 were done for carcinoma of the prostate and 391 for various types of benign hypertrophy.

Prostatic obstructions are of two main types: (1) malignant and (2) benign. The former is recognized by the characteristic hard, nodular, fixed prostate, often with extension up toward the seminal vesicles. The clinical history usually reveals obstructive symptoms of relatively short duration (6 months to 1 year) which have then developed fairly rapidly. Marked bladder irritability is also suggestive of this type of obstruction.

The benign hypertrophies are subdivided further according to which of the lobes predominate. Thus, we have solitary middle lobe hypertrophy, simple bilateral lobe hypertrophy, the combined bilateral and middle lobe enlargement and, in addition, the sclerotic or glandular median bars. In these benign enlargements, the clinical history is of long duration, the earliest symptoms being increased frequency with some hesitancy in starting the stream, diminished force and nocturia. These symptoms gradually increase over a period of years until complete urinary retention finally results in many cases. Rectal examination may reveal a large, smooth, rounded gland but, on the other hand, too much reliance should not be placed on rectal palpation for it is a common experience to see even complete retention due to a middle lobe hypertrophy or a bar where rectal examination has revealed a relatively small prostate gland. A careful clinical history is, I believe, a more reliable guide in the diagnosis of bladder neck obstruction.

Thus the same type of lesion is not seen in all cases of bladder neck obstruction but various types are encountered. We have always contended that all types were not suitable for resection, but as time has gone on and experience increased, more and more cases are being treated by this method until it is now felt that only the very large, bilateral lobe hypertrophies require complete prostatectomy. This is a

very small group as may be judged from the fact that during the year 1935, it was necessary to do only nine prostatectomies.

The two chief advantages of resection are that there is less risk to the patient and the morbidity is diminished.

1. Less risk to the patient. Only eight fatalities have occurred in 453 cases, a mortality rate of 1.7 per cent. Four deaths occurred in the group of 391 benign cases, a mortality of 1.5 per cent and three deaths occurred in the group of 62 carcinomas, a mortality of 4.8 per cent. Most of the fatalities occurred in the earlier cases and no deaths have occurred in the last 206 consecutive cases of all types. It must be remembered too that the whole group includes many patients who were over eighty years of age and whose general condition would have precluded any other type of surgery. No attempt has been made to select only the good risk patients for this operation.

2. Diminished morbidity. The average hospitalization was nine days, the shortest four days and the longest forty-four days. Convalescence is not prolonged and many of the patients have resumed normal activities two weeks after operation. This has a decided economic aspect in that hospital expense is reduced and the patient is able to resume his occupation earlier.

The preoperative preparation has been progressively less rigorous during the five years. Originally, we used routine preliminary catheter drainage as for prostatectomy, but all too often, we encountered the elevation of temperature on the second or third day which is so commonly seen in patients with an inlying catheter. Therefore, this practice was gradually abandoned except in the badly infected and atonic chronically overdistended bladders. We have even gone farther in many of the more recent cases by dispensing with the preliminary cystoscopic examination. After general physical examination, the patient with a typical history of urinary obstruction is admitted to the hospital without any preliminary urethral instrumentation. A blood urea determination is made and the kidney function is determined by the urea clearance test. If these show no striking variation from normal, the patient is sent to the operating room the following day, given a spinal anesthetic and all preparations are made to proceed with the operation. The resectoscope is introduced, the bladder and bladder neck surveyed with the observation telescope and, if suitable for resection, we proceed with the operation. If not suitable (a circumstance not yet encountered since managing cases in this manner) we have simply given the patient the advantage of a cystoscopic examination under anesthesia and, at a later time, prostatectomy is carried out. It is actually true that patients handled in this manner have had less reaction than is occasionally seen

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following cystoscopic examination or even simple urethral catheterization. It is to be understood that this management applies only to the average uncomplicated cases which constitute, however, a considerable proportion of patients seen.

The technic of the operation need not be given here but it should be emphasized that it is not an easy operation to perform and, to one who has done both, it is decidedly a more difficult procedure than prostatectomy. The amount of tissue to be removed varies according to the individual case, but in every instance, sufficient tissue must be removed to create an unobstructed channel from the trigone of the bladder out to the verumontanum. In my experience, bleeding has not been a troublesome problem and in only one instance has it been necessary to open the bladder suprapubically because of bleeding. This occurred four years ago which was quite early in our experience with the method. Great care must be exercised to prevent injury to the external sphincter. Not a single instance of urinary incontinence has been encountered in the entire 453 cases.

Postoperatively, these patients have very little discomfort and minimum sedation is required. The catheter is removed routinely on the second day following operation and the patient is then allowed to get out of bed and to have bathroom privileges. The average patient will experience some frequency and bladder irritability for a few days but ordinarily this subsides quite rapidly. Usually the patients are dismissed from the hospital five to seven days following the operation.

The results of the operation have been eminently satisfactory when the five year period is considered. Benign hypertrophies must, of course, be separated from carcinomas of the prostate when results are discussed.

In the cases of benign hypertrophy, all patients have been relieved of their symptoms of obstruction, although a small group still have some bladder irritability and frequency. One fact stands out prominently; that is, the results of the operations performed in the past two or three years have been more uniformly satisfactory than in the earlier cases. This may quite logically be attributed to increased experience which brings greater courage to remove larger amounts of tissue. In view of more recent experience, I am now certain that in many of the earlier cases, an insufficient amount of tissue was removed to secure a perfect result. When the results with the entire group of patients with benign hypertrophy are evaluated, we find that 90 per cent have had entirely satisfactory relief from their symptoms while only 10 per cent, although relieved, still present some bladder complaints or have been found to carry some residual urine. Most of this latter group, however, are quite satisfied with the result as compared to their condition before operation.

It is with hesitancy that results have been expressed in numerical figures, and it is done only to give a general picture of the effectiveness of the operation. So many individual factors are present which affect the result that each patient should be analyzed separately to give a true picture. Such associated conditions as diverticulitis of the bladder, atony from long-standing obstruction, the degree of renal impairment and the general health and vitality of the patient have a decided bearing on results and are not taken into consideration when the group is analyzed as a whole. When one considers all these factors, it is not surprising that a small percentage of the patients continue to have some trouble even though their condition has been improved markedly. In some instances, therefore, one must be satisfied to have made a bad situation better. It must also be remembered that many patients who were extremely bad risks could not have survived prostatectomy, but these have been made comfortable by resection.

The question of recurrence is decidedly pertinent when considering results. When the method was new, one of the criticisms presented by antagonists was that the obstruction would quickly return since only a part of the gland is removed. The fact is, however, that of the 391 operations performed for benign hypertrophy, a second resection for recurrent obstruction has been necessary in only six instances and all of these occurred in the early cases in which I now believe, as previously stated, that an insufficient amount of tissue was removed at the original operation. It would seem that a five year period is sufficiently long to conclude that recurrence is decidedly infrequent and even if it does happen, the operation can safely be repeated.

In carcinoma of the prostate, resection constitutes merely an important palliative method and cannot, of course, cure the disease. Unfortunately, malignancy of the prostate produces no symptoms until urinary obstruction occurs and, by that time, it is so extensive that complete removal is not possible. One is called upon, however, to relieve the symptoms of obstruction and resection offers an ideal method.

Resection has been performed in sixty-two cases of carcinoma of the prostate and in thirty of these, radiation therapy has been added; that is, deep x-ray or radium. There were three operative deaths, a mortality of 4.8 per cent. In every instance, the obstructive symptoms were alleviated and the patient's comfort increased. In general, the patients who had radiation in combination with resection, survived longer than those in whom resection alone was done, the average survival being two years in the former as compared to one and two-thirds years in the latter. It has been necessary to perform a second resection within a year for recurrent obstructions in several of the patients with malignancy. The chief grati-

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fication to be derived from the results in carcinoma of the prostate is the knowledge that the comfort of the patient has been increased and that he is not forced to endure a permanent suprapubic cystotomy, a method previously recommended for the relief of obstruction due to an inoperable prostatic malignancy.

Thus we believe as the result of this experience, that transurethral resection has proven its merit, and is the operation of choice in the vast majority of cases of bladder neck obstruction. The results have been gratifying to the patient as well as the surgeon and it has been a step forward in the management of this distressing disease of old age.