An Evaluation Of Radical Perineal Prostatectomy For Carcinoma

William E. Chase
AN EVALUATION OF RADICAL PERINEAL PROSTATECTOMY
FOR CARCINOMA

WILLIAM E. CHASE, M.D.*

The purpose of this paper is to present a frank evaluation of the experiences with definitive curative surgery for carcinoma of the prostate at the Henry Ford Hospital from 1920 through March 17, 1954. At the onset, it should be stated that Dr. John K. Ormond, Chief of the Division of Urology from the opening of the hospital until July 1952, was the guiding force and a very strong advocate for radical perineal prostatectomy for cancer of the prostate in suitably selected cases. Dr. Ormond performed his first such operation in 1931 and subsequently reported his experiences.1,2,3 From 1920 through 1930 there were 78 patients who had a definite diagnosis made microscopically of carcinoma of the prostate. Due to the methods of indexing and somewhat loose classification of clinical diagnoses as well as the practice of not indexing out-patient diagnoses this figure is probably not accurate and should actually be higher. The cases reported in this paper are all based on a definite pathological diagnosis made in the laboratory.

There are very many difficult questions which always arise when this operation is discussed among urologists. It is the writer’s opinion that such discussions divide urologists into two definite groups. First, there are the minority who have been trained to do this type of surgery, can do this type of surgery, and have been rightfully indoctrinated with the philosophy that the only way that early cancer of the prostate can be cured is by radical prostatectomy. The second group, and this includes probably the majority of practicing urologists, have had little or no training in this type of surgery, cannot do this type of surgery, and therefore, have developed a philosophy that all prostate cancers can or should be treated by older or newer palliative methods, whether the cancer is early or disseminated. The latter group prominently point out many bad things about the operation such as impotence, incontinence, fistulae, high operative mortality, no better survival rate, etc. It seems quite odd that all of these complications appear to cause the most discouragement to that group of urologists who do not or cannot perform this type of surgery. Early cancer of the prostate can be cured. The problem is not one of a surgical technique, but of better screening of all male patients to detect these early cancers by all physicians. The following data will present an evaluation of this operation and its complications.

CLINICAL MATERIAL

Because the first radical perineal prostatectomy for cancer was performed at the Henry Ford Hospital in 1931, the cases studied will be based on all cases of prostatic cancer pathologically diagnosed between January 1, 1931 and March 17, 1954, a period of 23 years. There were 510 cases of the disease during this period of which 75 had “curative” prostatectomy. Therefore, 14.7% of all cases were considered candidates for, and received, definitive surgery for cure.

Age Distribution:

The youngest patient was 44 years old and the oldest 76 years. The average age

*Associate Surgeon, Division of Urology.
for the whole group of 75 patients was 61.9 years. About 85% of the patients were between 50 and 70 years.

Race:
Only one of the 75 patients was Negro.

Interval Between First Detection and Definitive Surgery:
This interval from first detection by rectal palpation until the day of definitive surgery varied from 3 days to 4 years. The average was 71 days. This long average interval is accounted for by the number of referred patients from areas where the index of suspicion was low among the referring physicians or the physical examination and clinical findings did not apparently seem to warrant immediate perineal biopsy. About 50% of the cases had definitive surgery at least by 14 days after the suspicious nodule was first detected on rectal palpation.

Location of Suspicious Nodule:
This was described accurately in only 61 cases. There were 25 with isolated nodules in the right lateral lobe, 22 isolated in the left, nine involving both, three in the right lateral lobe with questionable spread beyond the capsule and two in the left lateral lobe with questionable spread beyond the capsule.

Pre-operative Symptoms:
Twenty-seven of the patients had no symptoms. The other 48 patients had varying degrees of prostatism, three having acute retention. Four patients had some type of back pain.

Prostatic Calculi:
Roentgenograms revealed prostatic calculi present in only two of the cases. X-ray examinations on all patients were negative for bony metastases. Seven cases had no X-ray examinations pre-operatively for metastases.

Phosphatase Determinations:
Determinations of acid and alkaline phosphatases were not done until 1942 in the hospital. After that date all determinations were within normal limits pre-operatively.

COMPLICATIONS
There were no post-operative deaths in the series. This is based on the first 30 days immediately after surgery as the post-operative period. The immediate post-operative complications were as follows:

Incontinence:
After the catheter was removed there were 14 patients who had no discernible incontinence and continued with normal voiding habits thereafter. In 52 patients there was incontinence varying from the slight stress type to complete lack of control. In most cases this was transient for only a few days to a few weeks. There were incomplete or no data in the records of 9 patients regarding incontinence.

The duration of post-operative incontinence was quite variable. Nine patients had persistent mild stress incontinence for their entire follow-up periods of from 22 months to 12 years. Of those who had initial incontinence and adequate follow-up
data, 35 had normal control and voiding habits after 60 days. The longest period after which a patient gained complete control was 18 months post-operatively.

Persistent total incontinence occurred in five patients. Two of these were alive at six years apparently free of cancer, one was alive at two years with obvious invasion of the external urethral sphincter with cancer, one died at 18 months post-operatively of cancer and had had a rectal injury at the time of operation, and one died of cancer at three years eight months after operation. Lack of follow-up data prevented further study of this complication.

**Epididymitis:**

This complication occurred in five patients, two on the right side and three bilaterally. In only two cases was it associated with long periods of inlying catheterization (39 and 48 days). In the other three cases the catheter was inlying for 9, 10 and 11 days post-operatively. No correlation could be made between this complication and pre-operative instrumentation.

**Thrombophlebitis:**

There were three cases of post-operative lower extremity thrombophlebitis. One required unilateral femoral vein ligation and recovered. One had bilateral involvement which was treated conservatively and recovered without further incident. The third had unilateral involvement with pulmonary infarction, was treated conservatively and recovered.

**Fistulae:**

Six cases of perineal urinary fistulae occurred in the series. Three were associated with rectal injuries at the time of operation and in the other three had been no rectal injury. The three without rectal injury all healed by the end of 90 days without surgical intervention.

The three cases who had fistulae associated with rectal injuries at surgery all required prolonged hospitalization and surgical corrections. None were persistent after they were surgically repaired. One patient, age 73 years, required 102 days hospitalization after his prostatectomy before the fistula was healed. His surgical specimen had shown carcinoma infiltrating the left seminal vesicle and he died with saturation metastases one and one-half years post-operatively. The second patient, age 62 years, required 62 days post-operative hospitalization before the fistula was healed. His surgical specimen had shown perineural lymphatic invasion with carcinoma but he was alive and well without evidence of recurrence four years post-operatively. The third patient, age 60 years, required 58 days post-operative hospitalization for healing of the fistula. His surgical specimen showed perineural lymphatic invasion but he was alive and well without evidence of recurrence at five years.

Obviously, the complication of rectal injury at the time of radical perineal prostatectomy means fistula-formation and prolonged hospitalization of the patient with probable further necessary surgery to correct the rectum and fistulae. It seems quite certain that when the rectal injury is noted before the urinary tract has been opened, the tear should be adequately sutured and the operation delayed until the rectum has healed, then either the radical perineal or retropubic approach can be used. If the
rectal tear is not recognized until after the prostatectomy is completed or if the operation is at an irreversible stage, then the surgeon has no alternative but to finish the procedure and hope for the best.

**Libido and Potentia:**

The follow-up data on the effects of the operation on these much-discussed subjects was very poor. There were only 18 patients whose records showed that they had been questioned on these subjects. Only four patients had normal libido and potentia. One of these was 49 years old at the time of prostatectomy, and alive and well without recurrence 14 years and two months post-operatively. He had had normal intercourse since 60 days after his operation. Seven patients had normal libido and no potentia. Seven patients both libido and potentia.

**Miscellaneous:**

One patient had gross hematuria for a few days and a fractured mandible when he fell out of bed during the immediate post-operative period. Another patient developed rather severe cardiac distress and arrhythmias immediately post-operatively but these were corrected within a few days.

**SURVIVAL AFTER PROSTATECTOMY**

Further breakdown of the data on this group of patients revealed that there were several limiting factors which made a true evaluation of the operation rather difficult. First of all the exact types of operations had to be determined in all cases. There were 73 cases in the series which could be considered definitive surgery for cure and the types of operations were as follows:

- Radical perineal prostatectomy .................. 57 cases
- Subtotal perineal prostatectomy .................. 3 cases
- Radical Retropubic prostatectomy ................ 1 case
- Simple Perineal Prostatectomy with occult carcinoma found in specimen and unsuspected before surgery .................. 12 cases

73 cases

Furthermore, in studying the group of 57 radical perineal prostatectomies it was found that they had to be further subdivided into subgroups because many of them had had pre-and/or post-operative antiandrogen therapy. This subdivided them as follows:

- R.P.P. without pre-or post-operative antiandrogen therapy .... 30 cases
- Pre-op. antiandrogen therapy + R.P.P. .................. 7 cases
- Pre-op. antiandrogen therapy R.P.P. + Post-op. antiandrogen Rx 8 cases
- R.P.P. + antiandrogen therapy .................. 12 cases

57 cases

Similarly, the simple perineal prostatectomies, in which are included the 3 cases of so-called subtotal perineal prostatectomies, were subdivided according to the same criteria as follows:
Simple perineal prostatectomy without pre-or post-op. antiandrogen therapy 9 cases.
Simple perineal prostatectomy + post-op. antiandrogen therapy 5 cases.
The three cases of sub-total prostatectomy are included in the group above which
did not have antiandrogen therapy. With the operations so subdivided the survival
statistics can be more accurately and intelligently reported.

**RADICAL PERINEAL PROSTATECTOMY WITHOUT PRE-OR
POST-OPERATIVE ANTIANDROGEN THERAPY.**

There was a total of 30 cases. Twenty-six are alive. Of these 21 survived 5 years
or more or 70.0%. Three of these are dead. One died at eight years of cancer, one
died at nine years of cancer, and one died at five years of unknown cause. Five have
survived 10 years or more (10, 12, 12, 12, and 14 years) or 16.6%. Seven are alive
less than 5 years. Two are dead at less than five years with cancer (two and one-half
and four years).

*Pre-Operative Estrogen Plus Radical Perineal Prostatectomy*

There was a total of seven cases. Four are alive. Two survived 5 years or more
(5 and 6 years) or 28.8%. None have been followed 10 years or more. Two are alive
less than five years. Three are dead of coronary occlusions (nine months, two years,
and three and one-half years).

*Pre-Operative Estrogen Plus Radical Perineal Prostatectomy Plus Post-Operative Estro­
gen and/or Bilateral Orchidectomy*

There was a total of eight cases. Four are alive. Two survived five years or more
(five and nine years, the latter with cancer evident) or 25%. None have been followed
10 years or more. Two are alive less than 5 years. Four are dead with cancer (one,
two, three and four years).

**Radical Perineal Prostatectomy Plus Post-Operative Antiandrogen Therapy**

There was a total of 12 cases. Six are alive. Nine cases survived five years or
more or 75%. Four of these are dead with cancer (six years, seven years, eight years
ten months, and 13 years). One survived 10 years or more (died 13 years post-
operatively from cancer). One is alive less than five years (four years). Two are dead
with cancer at less than five years (22 months and three years).

**Simple Perineal Prostatectomy (Occult Carcinoma Found) Without Antiandrogen
Therapy**

There was a total of nine cases. Six are alive. Six survived five years or longer,
or 66.7%. One of these died at five years of coronary occlusion. Two survived 10
years or more (11 and 17 years), or 22%. One is alive less than five years (four years).
Two are dead at less than 5 years (one at one year of coronary occlusion and one
at three years of unknown cause).

**Simple Perineal Prostatectomy Plus Post-Operative Antiandrogen Therapy,—Occult
Carcinoma Found**

There was a total of five cases. Two are alive. Three survived five years or more,
or 60%. One of these died at 12 years of cancer and had had post-operative estrogens
and bilateral orchidectomy. One is alive at nine years with local evidence of cancer
and had had pre-operative estrogen and negative frozen section at perineal biopsy. The prostatectomy was done for obstructive symptoms. The third patient is alive at seven years with cancer. One patient survived 10 years or more, or 20%. This patient died at 12 years and had had post-operative estrogens and bilateral orchidectomy. None were alive at less than five years. Two patients were dead at less than five years (two years ten months of unknown cause and four years ten months of questionable cancer).

**Survival On All Radical Perineal Prostatectomies Followed Five Years or More (To 1949)**

There was a total of 48 cases followed for this period. Thirty-six survived five years or more, or 75%. Seven cases survived 10 years or more, or 14.5%.

The radical retropubic prostatectomy is now two years post-operative, has excellent control, has occasional erections, and shows no evidence of recurrence to date.

**Miscellaneous Data:**

The length of time the inlying catheter was maintained post-operatively in the group of radical perineal prostatectomies averaged 13.9 days (6 to 48 days). Those patients with fistulae required much longer periods of catheterization (16, 18, 28, 39, 40, and 48 days, respectively). The length of time of catheterization post-operatively in the group of simple perineal prostatectomies averaged 8.8 days (three to 11 days).

The length of hospitalization for the group of radical perineal prostatectomies averaged 23.3 days (eight to 102 days). As stated above the cases with fistulae required much longer hospitalization. Hospitalization for the group of simple perineal prostatectomies averaged 19.5 days (12 to 29 days). It must be remembered that these figures include cases operated long before the antibiotic days and some of the shortest hospital stays were during that early period.

The relationship of spread of tumor in the operative specimen to survival proved interesting. There were 17 cases which showed some type of such tumor spread either grossly or microscopically in the operative specimen.

**Gross Spread: (five cases)**

One patient, age 56 years, showed grade-2 adenocarcinoma with extension into the bladder neck region and died at three years of cancer. One, age 73 years, had grade-2 adenocarcinoma in the gross specimen with extension into the left seminal vesicle and died at one and one-half years of cancer. One patient, age 61 years, had grade-2 adenocarcinoma with extension into both seminal vesicles and through the surgical capsule and died at four years three months of cancer. Another patient, age 61 years, had a grade-2 adenocarcinoma with rather marked local extension in several quadrants and died at seven years of cancer. The last patient, age 72 years, had grade-2 adenocarcinoma with gross local extension and is alive with metastases at seven years post-operatively.

**Perineural Lymphatic Invasion by Tumor: (12 cases)**

Three patients with grade-2 adenocarcinomas died of cancer at five years two months, seven years ten months and eight years two months respectively. Two patients with grade-2 adenocarcinomas had cardiac deaths at nine months and three and one-
half years. One patient with grade-3 adenocarcinoma died of cancer at 13 years. Six patients are still alive. Five of these with grade-2 adenocarcinomas have survived four, four, five and 10 years respectively without evidence of recurrence or metastases. The last patient with grade-3 adenocarcinoma has questionable local recurrence of tumor at one year post-operatively.

A study of the time at which first recurrences of tumor were noted post-operatively and subsequent survivals after this detection proved of interest. These data are shown in Table 1. All of these cases had radical prostatectomy unless otherwise noted. It is clearly seen that the shortest interval of recurrence is four months and the longest is 11 years.

<table>
<thead>
<tr>
<th>Detection Post-operatively</th>
<th>Extension at Operation</th>
<th>Survival after first detection of recurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 months Bladder wall</td>
<td></td>
<td>2 years 8 months</td>
</tr>
<tr>
<td>6 months none</td>
<td></td>
<td>Alive at 9 years</td>
</tr>
<tr>
<td>10 months none</td>
<td></td>
<td>1 year 4 months</td>
</tr>
<tr>
<td>20 months none</td>
<td></td>
<td>Alive with Foley catheter.</td>
</tr>
<tr>
<td>1 year 10 mos. L.t. sem. ves.</td>
<td></td>
<td>9 months</td>
</tr>
<tr>
<td>2 years none</td>
<td>locally</td>
<td>17 months</td>
</tr>
<tr>
<td>2 years locally</td>
<td></td>
<td>Alive with bony metastases 6 years post-op. (4 years after recurrence)</td>
</tr>
<tr>
<td>2 years locally</td>
<td></td>
<td>Alive 7 years post-op. with metastases (5 years after recurrence)</td>
</tr>
<tr>
<td>3 years Sem. vesicles and capsule</td>
<td></td>
<td>16 months</td>
</tr>
<tr>
<td>5 years 6 mos. Perineural lymphatic invasion</td>
<td></td>
<td>3 years</td>
</tr>
<tr>
<td>6 years none</td>
<td></td>
<td>3 months</td>
</tr>
<tr>
<td>6 years 10 mos. Perineural lymphatic invasion</td>
<td></td>
<td>7 years (died of cancer 13 years post-op.)</td>
</tr>
<tr>
<td>7 years 6 mos. none</td>
<td></td>
<td>Alive with cancer at 6 months.</td>
</tr>
<tr>
<td>11 years none</td>
<td></td>
<td>8 months (had bilateral orchidectomy)</td>
</tr>
</tbody>
</table>

There are four cases in which the first detection of recurrence or metastases is over five years after radical prostatectomy and one case over 10 years after the operation. These data surely represent additional evidence that one should think in terms of “survivals” instead of “cures” and that probably a ten year survival rate after such cancer surgery is a more accurate yardstick for evaluating curative surgery for cancer of the prostate than is the more popular 5 year survival rate. These late recurrence times make one a bit fearful to think about “cures” even when there is no evidence of tumor extension at the time of operation either grossly or microscopically.

DISCUSSION

An attempt has been made to evaluate the available data on patients at the Henry Ford Hospital who have had operations which the author feels can be classified as curative surgery for cancer of the prostate gland. Probably the most difficult problem in such a study is to discard, hesitatingly, many cases which might be included in the
study except that they lack sufficient recorded data. The invaluable worth of accurate and detailed notes in patients' charts and histories regarding all aspects of pre-and post-operative management and follow-up on this and all types of surgical procedures cannot be stressed enough among house and senior staffs. Simply having a Tumor Registry is not enough. The notes and evaluation of the patients have to be done by a surgeon who understands the problems and the end results to be obtained by the surgical procedure. Otherwise much clinical material has to be discarded which might have added more statistical potency to such a study.

Hugh J. Jewett recently analyzed 320 radical perineal prostatectomies done at the Johns Hopkins Hospital between 1904 and 1954. This probably represents the largest and most statistically sound series yet reported in the literature. In his series the 5-year survival was 48% as compared to the Ford Hospital series which is 75 per cent. His 10-year survival rate was 25 per cent as compared to the Ford Hospital series of 14.5 per cent. There was a 61 per cent 5-year and 37 per cent 10-year survival rate in Jewett's series when the tumor was confined to the prostate gland at the pre-operative rectal examination. The 10-year survival rate was increased to 49 per cent when there was no histological evidence of extension of the cancer beyond the prostatic capsule. From a study of the Ford Hospital series and the long periods of time after operation at which recurrences can occur this last figure on 10-year survival should not incite too much optimism as far as absolute "cures" are concerned. Jewett has not subdivided his cases into unadulterated radical prostatectomies and those were given adjunct antiandrogen therapy which this author thinks is essential in order to correctly evaluate the operation.

At Ford Hospital perineal prostate biopsy is being done routinely on all nodules meeting clinical diagnostic requirements. There have been slightly more negative biopsies than positive, but this is considered appropriate and indicates an excellent index of suspicion and strong desire to cure early prostatic carcinoma. When the biopsy is negative and prostatectomy for obstructive symptoms is not necessary, the patient leaves the hospital in about seven days in excellent condition.

**SUMMARY**

The experiences of the Division of Urology of Henry Ford Hospital with definitive surgery for cure of carcinoma of the prostate gland have been evaluated and discussed.

Again it is strongly stressed that accurate, intelligent and detailed clinical records are absolutely essential in determining the value of surgical procedures. This is particularly important in the post-operative follow-up of functional results.

**BIBLIOGRAPHY**