

Prostate Cancer

BRIEF SUMMARY OF STAGING AND GRADING OF PROSTATE CANCER

INTRODUCTION

When a patient is found to have prostate cancer, his physician must learn many things about the patient and the cancer. Two important pieces of information about that individual's cancer are the STAGE and GRADE. No decisions about treatment can be made until this information is estimated.

STAGING PROSTATE CANCER

The STAGE is defined as the estimation of extent (size and location) of the cancer at the current time. More specifically, how extensive is the cancer within the prostate and if it has spread to tissues around the prostate, or to other parts of the body. The studies vary from patient to patient depending on various factors. The usual initial staging studies include the ultrasound report and pathology report from the initial biopsy, the rectal examination, and, often, a bone scan. On occasion, a CAT scan (computerized axial tomography) or MRI (magnetic resonance imaging) will be done of the pelvic and abdominal areas, and a chest X-ray. The stage of the cancer is the most important deciding factor in which treatment will be used.

Clinical Stage versus Pathological Stage?

In some instances, physicians will discuss 'clinical stage' and 'pathologic stage'. The clinical stage is the stage estimated by the physician before any surgery is done. The pathologic stage is the true extent of the cancer as found by the pathologist in the prostate specimen after removal of the prostate and lymph nodes. One obvious dilemma is the fact that clinical stage and pathological stage do not always agree. That is, the cancer can be more or less extensive than estimated by the pre-operative examinations and tests. If no surgery is done on the prostate or lymph nodes, the clinical stage is the only stage that is obtained.

What Staging systems are used?

Two commonly used staging systems exist--ABCD and TNM.

The ABCD is older and is a broad description of the cancer. The TNM system describes the prostate (T), the lymph nodes (N), and evidence of metastatic disease (distant spread) (M) separately.

With ABCD the cancer is denoted by one letter followed by one number A1, B2 etc.

With the TNM, the prostate is described by the T, the lymph nodes by the N and distant spread by ;the M. Each letter is followed by a describing number, T2aN0M0. This may

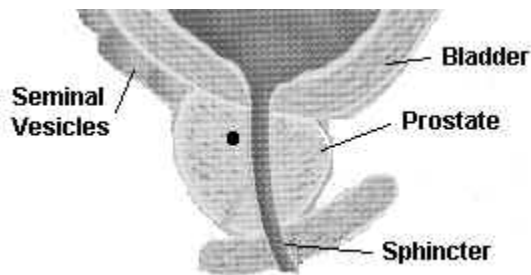
be confusing but ask if you have questions.

Stage A

Prostate cancer at this stage cannot be felt and causes no symptoms. The cancer is only in the prostate and was unsuspected. This stage of cancer is found when surgery is done for other reasons, such as for BPH (benign prostatic hyperplasia). All of these cancers are N0M0 meaning no extension of cancer or positive lymph nodes are suspected.

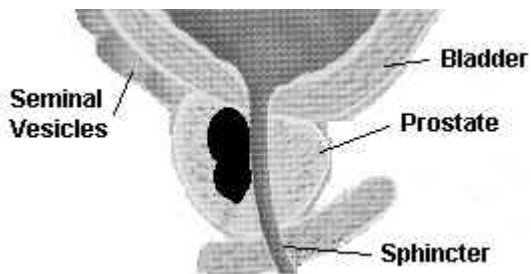
Stage A1 or T1a:

This cancer was not suspected by the urologist but found by the pathologist on prostate tissue removed for what was thought to be benign prostate enlargement. These cancers involve less than 5% of the prostate tissue removed (commonly referred to as 'focal'). Usually the cancer cells found are low-grade (discussed below).



Stage A2 or T1b:

This cancer was not suspected by the urologist but found by the pathologist on prostate tissue removed for what was thought to be benign prostate enlargement. These cancers involve more than 5% of the prostate tissue removed. The cancer cells found are either low or high grade (discussed below).

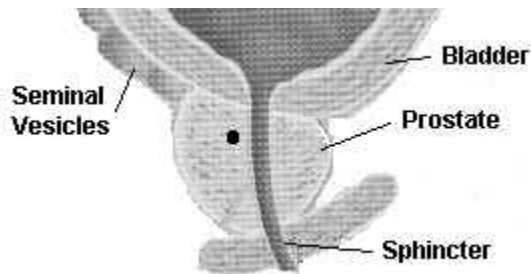


Stage B

The cancer is limited to the prostate alone. That is, the cancer has not extended or grown or spread outside the prostate. All of these cancers are N0M0 meaning no extension of cancer or positive lymph nodes are suspected.

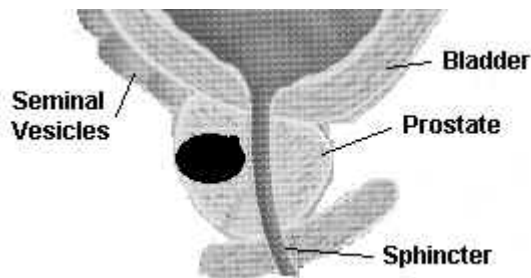
Stage B0 or T1c:

Tumor not felt on rectal examination. Biopsy done because of elevated PSA only.



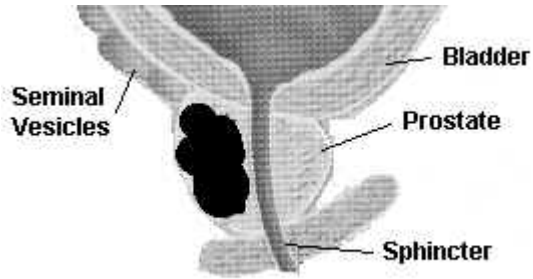
Stage B1 or T2a:

The cancer can be felt on rectal examination but involves only one side of the prostate and is less than 1.5 cm (3/5 of one inch) in size.



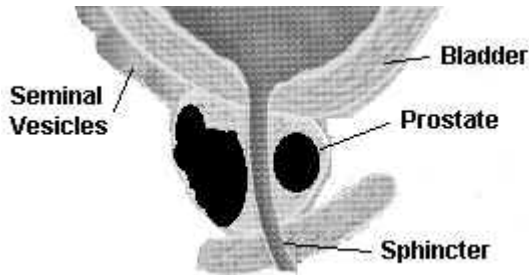
Stage B1 or T2b:

cancer involves more than half of one lobe, but not both lobes of prostate



Stage B2 or T2c:

The cancer involves both sides of the prostate.



Stage C or T3/4

Cancer cells have spread outside the covering (capsule) of the prostate to tissues around the prostate. The other glands that produce semen (seminal vesicles) may have cancer in them. All of these cancers are N0M0 meaning no extension of cancer or positive lymph nodes are suspected.

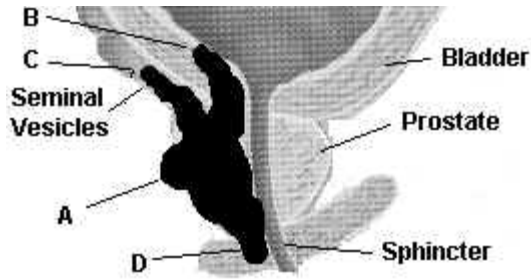
Stage C1 or T3a: Cancer extends beyond prostate capsule on one side only.

Stage C1 or T3b: Cancer extends beyond prostate capsule on both sides.

Stage C2 or T3c: Cancer extends into one or both seminal vesicles (gland nearby prostate).

Stage C2 or T4a: Cancer extends into bladder or rectum or sphincter (muscles that give urinary control).

Stage C2 or T4b: Cancer extends into other pelvic structures such as the muscles of the pelvic floor.



Stage C Cancers...

A denotes extension beyond capsule (C1/T3a if on one side, C1/T3b if on both sides)

B denotes bladder neck involvement (C2 or T4a)

C denotes seminal vesicle involvement (C2 or T3c)

D denotes sphincter involvement (C2 or T4a)

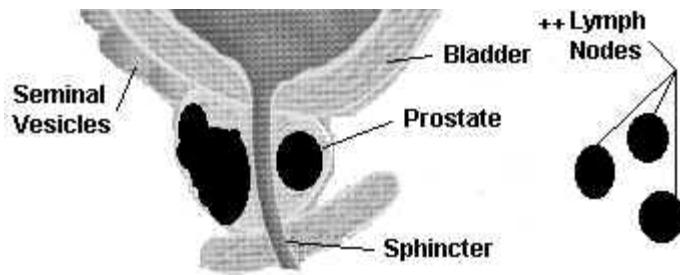
Stage D or N greater than 0 or M greater than 0

Cancer cells have spread (metastasized) to lymph nodes or to organs and tissues far away from the prostate. N0 mean no lymph node spread or metastases. M0 means no spread to other areas of body away from the prostate.

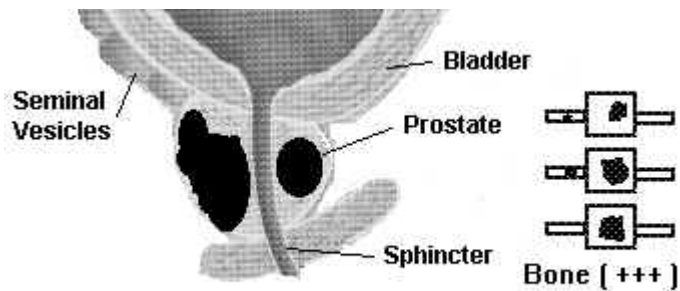
Stage D1 or N1: Spread to a single pelvic lymph node, less than 2 cm (4/5 of inch) in greatest dimension.

Stage D1 or N2: Spread to a single pelvic lymph node, more than 2 cm (4/5 of inch) but less than 5 cm (two inches) in greatest dimension or to multiple lymph nodes all less than 5 cm.

Stage D1 or N3: Spread to any pelvic lymph node, greater than 5 cm (two inches) in greatest dimension.



Stage D2 or M1: cancer cells have spread to lymph nodes far from the prostate or to any other parts of the body outside the pelvic region, such as the bone, liver, or lungs.



Other Staging Criteria....

--Recurrent Cancer --

Recurrent disease means that the cancer has come back (recurred) after it has been treated. It may come back in the prostate or in another part of the body.

Another new staging system that is used by some to describe the various aspects of Stage D disease are as follows:

- D0 Elevated Acid Phosphatase
- D1 Positive pelvic lymph nodes
- D1.5 Rising PSA after failed radiation or surgery
- D2 Metastatic disease in bone and/or other organs (lung, liver, etc)
- D3S Hormonal sensitive prostate cancer
- D3I Hormonal insensitive prostate cancer

What is new in Staging?

The stage of one's cancer is one of the most important factors in determining how the cancer might be treated.

A new test to predict spread of cancer is called 'Microvessel Density' or Biostage. This test is done on the biopsy specimen and help predict whether the cancer has spread beyond the prostate.

Another research development that is not yet perfected involves looking for substances or cell parts of prostate cancer in the blood. In other words, we would suspect spread of prostate cancer out of the prostate if cell parts or proteins from the prostate cancer can be found in the blood. We are looking at many substances, but the most researched substance is called RT-PCR, which stands for 'reverse transcriptase - polymerase chain reaction'.

Other experimental predictors of cancer stage involve looking at the gene, protein and DNA makeup of individual cancer cells. These include p53, bcl-2, OA 519, HER-2/neu, NM 23, p21, NSE, PC 1, E-cad, PD 41, PCNA, Ki67, Rb, bcc, and PSNA. Prostate specific membrane antigen (PSMA), apoptosis (programmed cell death), and neuroendocrine differentiation are also being studied. These are very technical terms and are not meant to confuse you. None of these tests are reliable enough to be used by your physicians as staging tools as of yet.

Much more testing will be needed before these types of blood tests will determine treatment options.

Other staging tools

PSA (prostate specific antigen) has gained widespread use in the detection and also the monitoring of prostate cancer. Although PSA levels can be suggestive of tumor volume and stage, specific values for determining stage does not exist. Guidelines that are often followed suggest that most prostate cancers are confined to the prostate if the PSA is less than 10 ug/ml, particularly if the Gleason grade is less than 7. PSA values greater than 20 are associated with an increased risk of high stage disease.

Transrectal ultrasound and Computerized Axial Tomography (CAT scan) is generally thought to be insufficiently accurate for pre-treatment staging of prostate cancer.

Magnetic Resonance Imaging (MRI) of the prostate gland has shown increased staging accuracy since the introduction of a special probe called the 'endorectal coil'. Its use is still considered investigational and is not used extensively at this point. Its accuracy (or sensitivity) is in the range of 70-75%. MRI of the spine however is widely accepted as a tool to confirm the presence of cancer in bones that are suspicious on bone scan.

GRADING PROSTATE CANCER

The GRADE is defined by the pathologist from the prostate biopsy. The grade gives us

an idea of how fast the cancer might be growing or how aggressive it might be. High grade cancers grow faster and spread earlier than low grade cancers. Today, cancer specialists usually use the Gleason grading system, named after a pathologist, Dr. Gleason, from the University of Minnesota. Dr. Gleason's system involves looking for different patterns of aggressiveness within the prostate cancer and then giving two grades or scores of 1 - 5. These two scores are added up to give the total Gleason score which will range from 2 - 10. The higher the score, the more aggressive the tumor will be.

For example, a typical Gleason graded cancer might be written as Gleason 4+3 = 7, or Gleason 2+2 =4. Sometimes Roman numerals are used, but with the same numbers.

Rarely, only one score will be used in medical reports and this can be confusing. To get the true total Gleason score in these instances, the number needs to be doubled. Some experts believe that if the cancer contains any Gleason 4 or 5 tumor, whatever the total score, the chances for spread outside the prostate are higher.

The older system of grading used only three different grades: well-differentiated, moderately differentiated, and poorly differentiated. It is still used in general discussions about cancer.

Well-differentiated meant the cancer had more resemblance to normal prostate tissue and therefore usually did not grow or spread quickly. Poorly differentiated tumors did not resemble normal prostate tissue and usually grew quickly and spread to other tissues earlier. Moderately differentiated were in the middle.

To compare systems we say that:

Gleason 2, 3, and 4 are well-differentiated

Gleason 5, 6, and 7 are moderately differentiated

Gleason 8, 9 and 10 are poorly differentiated.

Grade, while important, has less bearing on the treatment decisions than the stage. After the grade and stage are known, other factors also come into play before making any decision about future treatment.

Other tests to help GRADE prostate cancer

Another less commonly used grading test looks at the number of chromosomes in the cancer cells or 'ploidy' (ploy-dee). The test is called 'flow cytometry'. Normal human cells have 46 chromosomes. This is referred to as 'diploid' (dip-ployed), meaning 23 pairs. When flow cytometry is used to count the chromosomes, we discover that some cancers have an extra chromosome and are called 'aneuploid' (an-u-ployed). Aneuploid cancers tend to spread more quickly and have a worse prognosis-- but not always! Other tests looking at chromosome abnormalities are being studied in research

laboratories around the world.

While 'ploidy' and other chromosome tests do give us some information, the STAGE of one's cancer is still more important in determining treatment options. However, just as important are each individual's health, life expectancy and current medical conditions.

TREATMENT OVERVIEW OF PROSTATE CANCER

TREATMENT OF LOCALIZED PROSTATE CANCER -- CURRENT THOUGHTS

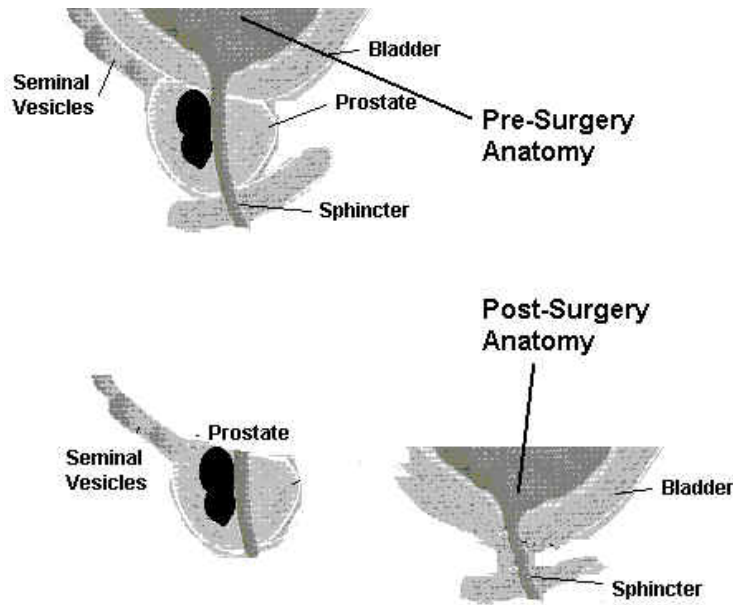
To make any sense of this handout, you must already understand that the diagnosis of prostate cancer has been made, and that we have no reason to suspect that the cancer has spread from the prostate. Any treatment that can control the cancer in the prostate, will therefore control all the cancer. The following are the choices that are available to us in the treatment of localized prostate cancer (Stage B).

NO TREATMENT OR SURVEILLANCE ONLY

This option consists merely of close observation of the cancer, looking for any signs of progression with blood tests, scans and physical examinations. Specific cancer treatment will be undertaken only when problems arise from the cancer growth. While this approach may seem out of the question in most cases, withholding treatment is appropriate and justifiable in certain circumstances. The treatments might be more risky than the disease. For instance, an elderly male (in his 80's?) with localized cancer, and with no symptoms, might be better left alone. In the absence of symptoms, and in the presence of other medical situations which are more threatening, observation is correct.

In some medical environments, Sweden, for example, no treatment or observation has become a fairly standard approach to early prostate cancer. They believe that in some patients, the disease will grow so slowly that radical treatment is unneeded because patients will die of other diseases. In patients whose prostate cancers grow quickly, they feel comfortable in treating the spread with non-curative medical treatment. For the most part, this approach goes against the attitudes of most American cancer specialists. Still, observation has many supporters and must be considered in certain situations. Patients who have low stage (limited amount of cancer) in addition to low grade cancer (unaggressive cancer on microscopic examination) are the only patients in whom no treatment should be considered. Higher stage cancer or aggressive high grade cancers have a very high chance of cancer problems within a short period of time.

SURGERY or RADICAL PROSTATECTOMY



Surgical removal has one major and obvious benefit--it has the opportunity to remove all of the cancer. Removal of the entire prostate is felt to be the standard therapy for localized prostate cancer. Simply, the entire prostate is removed and the bladder is reconnected to the urethra (channel through the penis). Removal of part of the prostate or just the cancer is not recommended. Too many prostate cancers have multiple areas of involvement within the gland that are undetected, making partial removal a poor choice. Also, partial prostatectomy is not technically feasible.

The major advantage of total prostate removal is the simple fact that IF the cancer is localized to the prostate, as we believe, then removal of the prostate will cure the cancer -- it is out! If the cancer is not localized to the prostate, that means it has spread; removal of the prostate will not cure the cancer.

The major disadvantages are:

Incontinence--2-4% of men will have permanent problems with urinary control-- they will require some form of protection (diapers). In those rare cases, a surgical appliance can be implanted to control incontinence if it does remain a problem.

Impotence--The nerves that stimulate erections run adjacent to the prostate on their way to the penis. If all of these nerves are removed during total prostatectomy, impotence (inability to achieve an adequate erection) will result. In certain circumstances, some of the nerves that create erections can be spared with a success rate between 40-70%. Not every male is a good candidate for nerve sparing because of the extent of disease. Patients who develop impotence, and even those whose erections were not adequate before the surgery can be treated with a variety of modalities. Treatment of impotence

in post-prostate surgery includes vacuum pumps, self injections of medications and placement of prostheses -- all of which work, and work well in selected patients.

Blood loss--Radical prostatectomy carries with it an average blood loss of greater than one unit of blood. On occasion, but rarely, the blood loss can be more than three or even four units and require transfusion. About 1 in 10 patients require a transfusion if they have not donated blood to the blood bank. To prevent the use of bank blood many patients elect to store their own blood for subsequent use, if needed.

Surgical complications--pain, infection, anesthetic problems, pneumonia, blood clots, and heart problems can occur with any major operation. Unique to prostatectomy are injury to the rectum (adjacent to the prostate), and scarring of the new connection between the bladder and urethra, which might require a minor surgical procedure to stretch or dilate the scarred area. This can be performed in the office or in day surgery.

Recovery Time: The operation lasts two to three hours and the hospitalization usually lasts 2-3 days. All patients go home with a catheter in place, continually draining the urine into a special leg bag. You will be seen two weeks after discharge from the hospital to have the catheter removed. Most men have poor urinary control at the beginning and will require some form of protection, such as a diaper. Within three weeks, most men have achieved reasonably good control and require minimum protection and have resumed their normal activities. Sometimes the recovery is slower, but rarely more than three to six months.

RADIATION THERAPY -- EXTERNAL BEAM (including Proton and Neutron Beam)

External beam radiation therapy is by far the simplest of therapies. Over a six to seven week period, the patient will receive a radiation treatment lasting about 15 minutes, 5 days a week. The radiation is aimed at the prostate from many different angles in an attempt to reduce the dosage to the surrounding tissues while maximizing the dosage to the prostate and the cancer.

The major advantage of external radiation therapy is its ease of administration. Other advantages include the fact that there is no surgery, no anesthesia, and no blood loss. The biggest disadvantage is that the cancer is left in place and one must hope that the amount of radiation delivered is enough to cure the cancer. Unfortunately, with the surrounding structures being sensitive to overdoses of radiation, namely, bladder and rectum, the prostate cancer is often stunned but not cured. The chance of recurrence of prostate cancer treated with external beam radiation therapy is in the range of 6 out of 10 as measured by rising of the tumor marker PSA.

During the last two to three weeks of treatment, diarrhea and urinary urgency and frequency are quite common and on occasion so severe that the treatments need to be temporarily halted. These symptoms usually resolve two to three weeks after the radiation treatments have ceased. Permanent radiation injury to the bladder or rectum occurs in a small percent of patients creating chronic pain and/or bleeding. Difficulty with erections (impotence) occurs in 35% of patients who were having no problems

prior to treatment..

Proton and Neutron beams are variations of external beam radiation using a different source of radiation and always combined with standard external beam radiation. Complications with these sources of radiation seems to be higher and long term data about cure rates is not available. Very few proton and neutron centers exist in the United States.

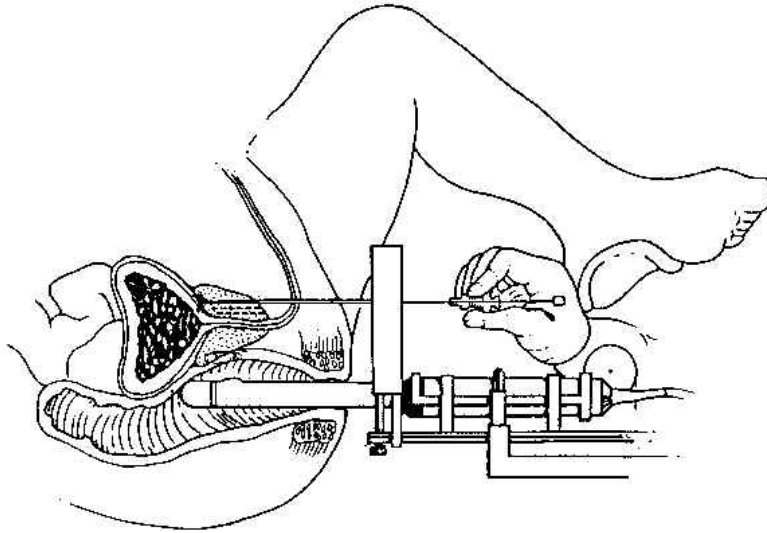
IMPLANT THERAPY OR BRACHYTHERAPY

Implants (or the technical term 'brachytherapy') are forms of radiation therapy with many of the same risks and benefits. Implants are ultrasound guided radiation treatments done under anesthesia. The operation lasts from 1 - 2 hours and hospitalization is usually not required. Some implants are permanently left in place (Iodine, Palladium, Gold(rarely)) and some are temporary (Iridium). Implants allow for higher doses to the prostate while sparing the surrounding tissues. A theoretically higher cure rate should be observed. Implants are often combined with external therapy, depending on the type of implanted radiation and the extent of the cancer.

HISTORICAL IMPLANTATION

In the early 1970s, a new approach was developed to confine radiation exposure to the prostate gland, increase radiation dosage to the tumor in order to kill the cancer, and minimize side effects. Researchers began to implant radioactive iodine (I-125 Seeds) directly into the prostate, thereby providing internal radiation therapy exactly where it was needed. The term 'brachytherapy' is the technical way of describing needle implantation. In these early attempts, surgery was performed to expose the prostate gland (which is known as open retropubic surgery) and the radioactive seeds were implanted by the surgeon, essentially freehand, without the aid of imaging techniques now available. This early method of prostate implantation began at New York City's Memorial Sloan-Kettering Cancer Center. Other radioactive agents are available, including radioactive palladium and radioactive gold. I-125 and palladium appear to be well suited for prostate implantation. They give off very low energy radiation, or X-rays, that do not travel outside the prostate gland and pose no threat to patients or those in close contact with them.

In the early 1980s the open freehand method was abandoned at Memorial Sloan-Kettering because it produced success rates inferior to prostate removal or external radiotherapy techniques. However, in 1985 reports from Denmark showed that an ultrasound directed implant allowed more precise placement of I-125 seeds without an operation or an incision. Since then this new method has used exclusively and allows very accurate placement of the I-125 and palladium seeds.



WHO ARE BEST CANDIDATES FOR IMPLANTATION?

Patients with small prostate tumors (early stage) are the best candidates. That means that about 50% of the patients with prostate cancer will fit this criteria. The development of more sensitive tumor detection techniques means that prostate cancer patients are being diagnosed at earlier stages, permitting more patients to become potential candidates for seed implantation.

WHO ARE POOR CANDIDATES FOR IMPLANTATION?

Patients with very large prostate tumors which have extended beyond the prostate capsule or to other organs. Patients with very large benign portions of their prostate (BPH or benign prostatic hyperplasia) or patients who have had prior prostate surgery (TURP or transurethral resection of prostate) may be poor candidates for implantation.

HOW IS IMPLANTATION DONE?

Tiny pellets containing radioactive medication, such as Iodine-125 or palladium are used. Seeds are permanently implanted directly in the middle of the prostate where they give off low-level radiation continuously for up to one year. Using TRUS (transrectal ultrasound) guidance, these seeds can be positioned so that radiation is distributed throughout the entire prostate gland. Since only a small area is irradiated by each seed, relatively little radiation reaches the adjacent normal organs-the colon, which is directly under the prostate gland, or the bladder, lying on top of the gland.

The implant procedure does not require a surgical incision. Instead, the seeds-smaller than grains of rice-are contained in thin needles which are passed into the prostate gland through the skin between the scrotum and rectum. As the needles penetrate through the prostate, they are seen on the screen of the ultrasound machine and can be accurately guided to their final position. While the needles are being inserted the ultrasound probe is in the rectum. When each needle is in its correct position in the prostate, the needle is slowly withdrawn and the individual seeds are injected into the prostate gland. The ultrasound probe and the needles are removed when the procedure

has been completed. The numbers of needles and seeds required varies from patient to patient depending on the size of the prostate gland.

Advantages:

* Preliminary results from centers using I-125 and palladium since 1985 with selected patients shows a very similar disease-free intervals compared to radical prostatectomy and better than external beam therapy. The first implants were done 10-12 years ago so that long term numbers are just becoming available for analysis. 10 to 15 years of follow-up would be needed to have valid results.

* Seed implantation is normally done as an outpatient procedure taking about one hour to perform. The patient usually leaves the hospital the same day as the implant procedure or stays in the hospital for one night and then resumes normal activities within several days.

* Because they are placed at the site of the cancer, the seeds can deliver two to three times more concentrated radiation to the prostate gland than external radiation therapy, which must use a lower dose because it also affects healthy tissue.

* Incontinence occurs in less than 1% of patients who have not had prior surgery.

* Impotence occurs in less than 25% of patients under the age of 70. For patients over the age of 70, impotence occurs more often.

* This procedure is well suited to older patients because it is much easier to withstand than surgery or external radiation.

Disadvantages:

* There is little information yet on the effectiveness of the implant treatment after 10 years. While the current clinical data show good results through the first five to ten years, younger men are advised more strongly to consider radical prostatectomy.

* It is very common to experience problems with urination after seed implantation. These symptoms will gradually decrease after 6 to 12 months.

IMPLANTATION USING HIGH DOSE RATE AFTERLOADING WITH IRIIDIUM

Another newer treatment variation of brachytherapy is called HDR or High Dose Rate Afterloading. In this technique, which is used in only a few centers in the USA, needles are placed into the prostate similar to seed implants. The position of the needles is then checked with ultrasound or CAT scan and a dose plan is created. With the needles in place, the patient is transferred to a special lead lined room that protects the staff from the effects of radiation. A computer driven device then places a radioactive substance, usually Iridium-192, into the needles for a measured length of time depending on the computer model. This appears to give a more exact dose of radiation to the prostate. The patient, with the needles in place, will receive one to four treatments. External

beam therapy is often added to this type of radiation. HDR therapy in the USA started 4-5 years later than seed implantation programs. Therefore, data from HDR treated patients is too early to determine how effective it might be, but early information is quite favorable.

CRYOTHERAPY

Cryotherapy or 'freezing' the prostate has been around for 40 years. The original technique involved open surgery and placement of liquid nitrogen directly into the prostate cancer. The overall success rate was marginal and the technique was abandoned in the early 60's. More recently, cryotherapy using ultrasound as a guide to place needles has returned. To date, insufficient data exists to know how effective cryotherapy might be. The frozen tissue dies and is then either urinated out or re-absorbed into the body. The major drawback of cryotherapy is the fact that all of the cancer is not removed and long term recurrence rates are higher than with other treatments.

CHEMOTHERAPY

Chemotherapy is the use of medicines or drugs to stop the growth of cancers. Chemotherapy is used for the most part in patients whose disease has spread to other parts of the body (metastases) and is resistant to other forms of treatment.

The drugs are very powerful and work by killing cells that tend to grow quickly. Cancers tend to grow quickly, but, unfortunately, so do cells in bone marrow, gut and other areas. Anemia, weakness, nausea, vomiting, diarrhea and other side-effects can occur. Unfortunately, chemotherapy rarely cures prostate cancer, but merely palliates or temporizes the cancer growth. Because of the poor track record with prostate cancer, chemotherapy tends to be used only when all other avenues of treatment have been exhausted.

HORMONE THERAPY

The prostate gland is uniquely male. Its very existence is due to the presence of male hormones, which the prostate, and most prostate cancers, require to grow. This observation led urologists to the use of hormone reduction to treat prostate cancer in the 1940s and except for newer drugs, the principles of hormone reduction still stand today. The usual way of effecting hormone reduction are either a monthly shot (Lupron or Zolodex) or surgical removal of the testicles (orchiectomy). Pills may be added to either of these treatments to potentiate hormone reduction.

Unfortunately, hormone therapy is effective only temporarily in most patients. Seven out of ten men will have an initial reduction in the tumor, but within 2-3 years most cancers that do respond will again start to grow. Because hormone therapy is not curative, we usually do not recommend this for localized cancer with life expectancy greater than 10 years.

DIET/HERBAL THERAPY

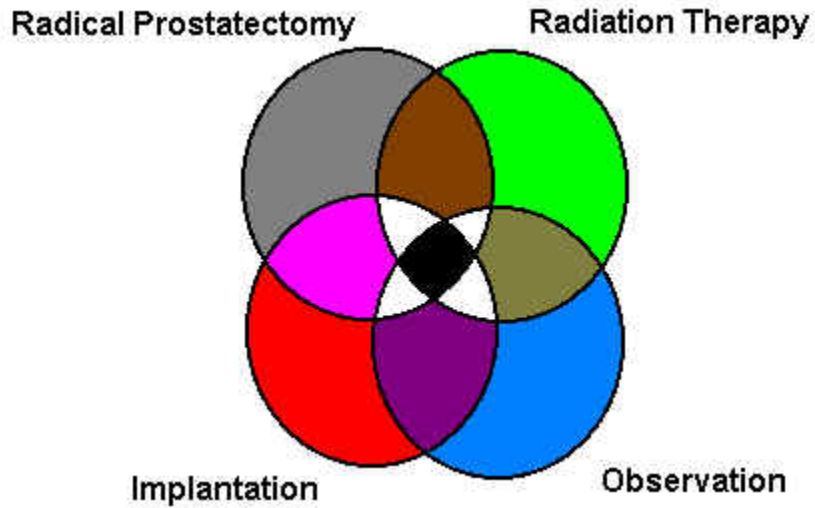
To date, no evidence exists to show that any dietary changes or herbal therapy will cure prostate cancer. We do know that people with high fat diets and animals fed high fat diets have a higher incidence of prostate cancer. Low fat diets may be preventative, but once a cancer is formed, changing diets will not cure the cancer. The only mineral or herb which might protect against prostate cancer is selenium according to a small number of studies. Selenium use will not cure a prostate cancer.

Follow-up to Treatment.

After your treatment is rendered, regardless of which treatment is undertaken, we will be following your progress very closely. If surgery or observation is chosen, the follow-up will be through our office. If radiation or implants are used, the follow-up will be shared by our office and the radiation therapists.

The keys to follow-up in most circumstances will be the rectal exam of the prostate, or, in the case of surgery, the area where the prostate was. We will be looking for evidence of recurrence or regrowth of the tumor. If suspicious areas occur, ultrasound and biopsies of these areas may be indicated.

In addition, the Prostate Specific Antigen or 'PSA' blood test can be used as a marker for the effectiveness of treatment. If the prostate gland is removed (Radical Prostatectomy) we expect the PSA level to be unmeasurable. The PSA report will say "<" or "less than" the lowest value that a particular test can measure, for example "<0.05". If the "<" or "less than" is not present, it suggests that the PSA level was measurable. If any PSA is measured after Radical Prostatectomy, then the presence of prostate cancer cells somewhere in the body has to be suspected. Prostate cancer cells that have spread to other areas also leak PSA. Even if we cannot find the areas of spread with scans or other tests, the presence of PSA means that the cancer is present. IF the treatment of the cancer was with any form of radiation, chemotherapy or hormone therapy, the PSA level will not necessarily become unmeasurable. The normal prostate cells may not be destroyed and may still leak normal amounts of PSA. However, the PSA level should be stable if the treatment is working. That means a rising PSA level suggests growth of the cancer.



In summary, all the treatments discussed above are appropriate and acceptable. Perhaps, some more than others in certain situations. This handout is an outline of the important points of each treatment. More than likely you will have other questions to be answered. Some of the terminology may not make sense. You may have heard of other treatments for cancer that might be applicable. We expect to be able to discuss all these questions with you in further detail.