

PROSTATE CANCER

The prostate gland



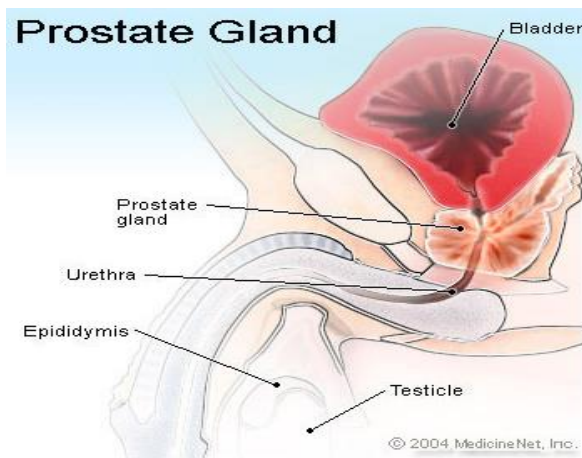
The prostate is a walnut sized gland located in front of the rectum and under the bladder. It surrounds the first part of the urethra which carries both urine and semen out of the body.

It produces a thick clear fluid that is an important part of semen. This fluid protects and nourishes the sperm.

Prostate cancer is cancer that starts in the prostate gland.

Most prostate cancers grow slowly.

It is the second leading cause of cancer-related death in men.



Types of Prostate Cancer

- i. Adenocarcinoma
 - Is the most common type
 - Includes Leiomyosarcoma and rhabdomyosarcoma
- ii. Prostatic Intraepithelial Neoplasia (PIN)
 - Prostate Carcinoma; develops near the surface of the prostate gland.

Causes of Prostate Cancer

The exact cause is not known.

Most likely related to changes in genetic material (DNA) in our cells.

- ✓ The male sex hormone testosterone aids the growth of prostate cancer cells.

Risk Factors

- Age- rare before 40, found mostly in men >65 years
- Race/Ethnicity- more common in blacks than white/ Asian Men

- Family history of prostate cancer especially first degree relatives, father, brother
- Personal history of kidney, bladder, lung, thyroid or melanoma skin cancer.
- Genetics – BRCA1 and BRCA2 genes increase risk
- Diet high in red meat and high-fat dairy products
- Obesity/high Basal Mass Index
- Lack of exercise
- Smoking
- Physical trauma, infection and inflammation (prostatitis)
- Exposure to radiation
- Inhalation or ingestion of cadmium, a mineral found in cigarette smoke, plastics, paint and nickel-cadmium batteries

Lowering Prostate Cancer Risk

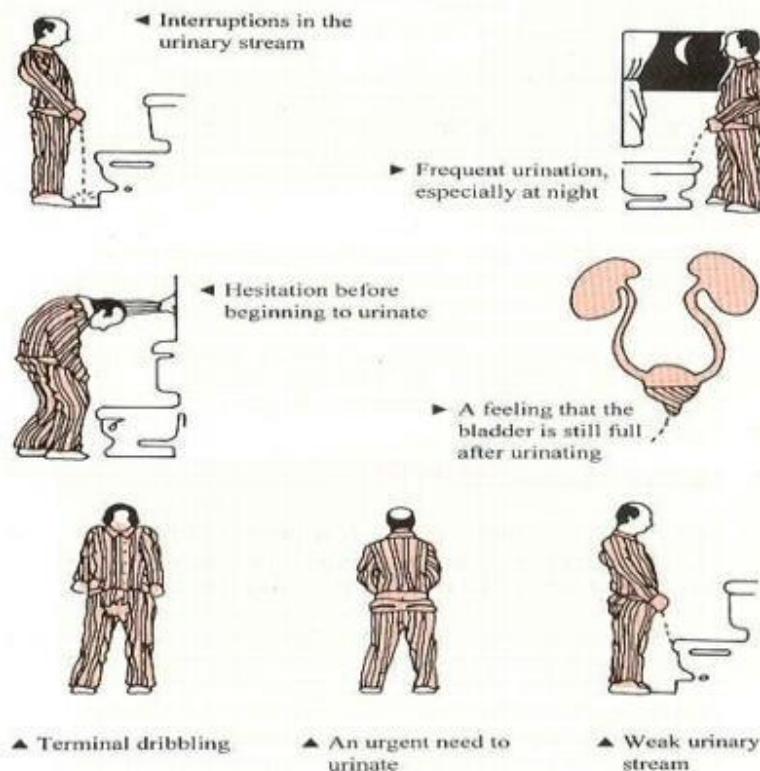
Maintaining healthy weight

Limiting intake of red and processed meats

Increasing intake of fruits, vegetables and whole grains

Signs and Symptoms

Symptoms may not occur in the initial stages of the disease. They develop later on as the disease progresses. They include:-

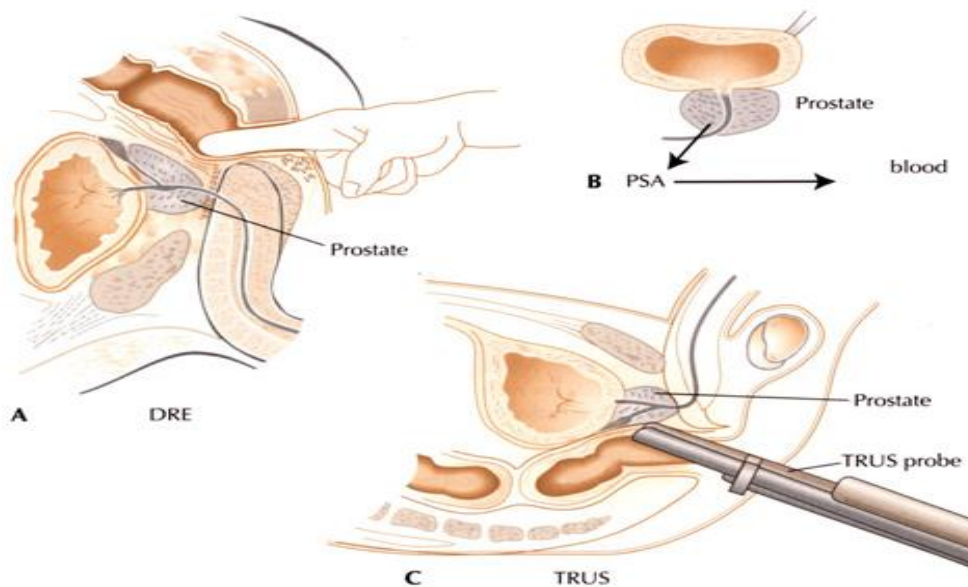


Other symptoms

- Pain on urination
- Blood in the urine/semen
- Weight loss particularly in elderly men
- Erectile dysfunction
- Frequent pain/stiffness in the lower back, hips or upper thighs

The symptoms are caused by the enlarged prostate pressing on the urethra thus blocking the flow of urine.

Screening



EARLY DETECTION OF PROSTATE CANCER

- 1) Prostate Specific Antigen (PSA) blood test
 - Normal PSA <4 ng/ml
 - A PSA level below 4 does not necessarily mean that cancer isn't present -- about 15% of men with a PSA below 4 will have prostate cancer on biopsy
 - Men with a PSA level in the borderline range between 4 and 10, have about a 1 in 4 chance of having prostate cancer.
 - If the PSA is more than 10, the chance of having prostate cancer is over 50%
- 2) Digital Rectal Exam (DRE)
- 3) Transrectal Ultrasound
- 4) Prostate Biopsy

Screening recommendations for early detection of prostate cancer

At age 50 for men at average risk for prostate cancer.

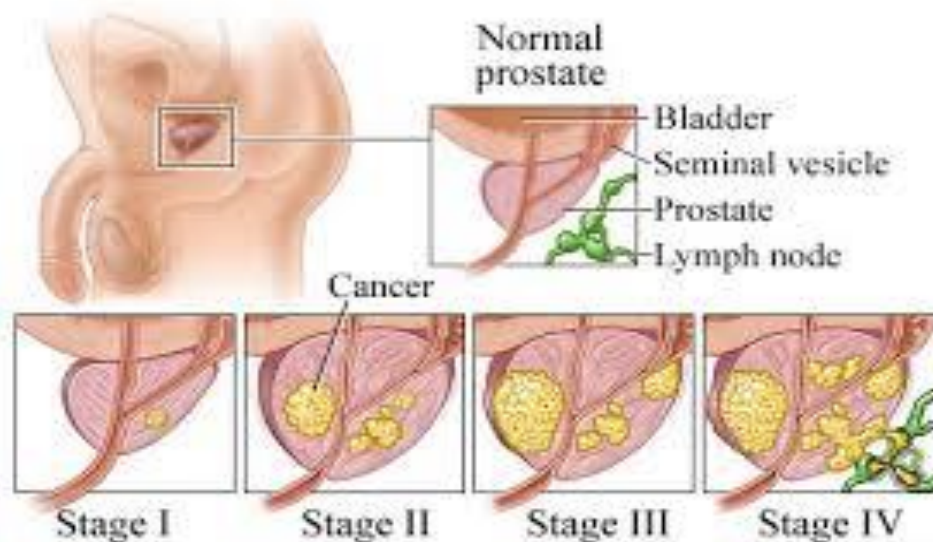
At age 45 for men at high risk for prostate cancer.

- African American men
- Men who have a first-degree relative diagnosed with prostate cancer at an early age (younger than age 65)

At age 40 for men at even higher risk

- Those with several first-degree relatives who had prostate cancer at an early age

Staging of Prostate Cancer



Stage I

The cancer is only in the prostate.

The cancer cannot be found during a Digital Rectal Examination (DRE). It is found by chance, when surgery is done for a different reason, usually for Benign Prostatic Hyperplasia (BPH).

Stage II

The cancer is more advanced, but has not spread outside the prostate.

Stage III

The cancer has spread outside the prostate. It may be in the seminal vesicles but has not spread to the lymph nodes.

Stage IV

The cancer has spread beyond the seminal vesicles and may be in the nearby muscles and organs such as the rectum, bladder and pelvic wall. It may have spread to the lymph nodes and to other body parts.

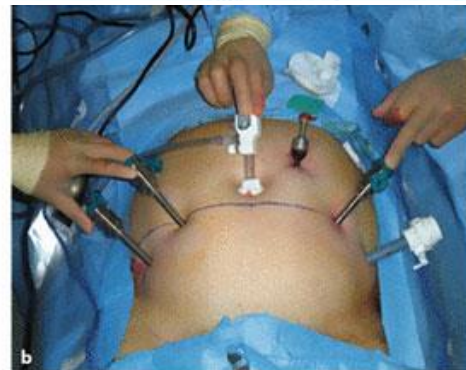
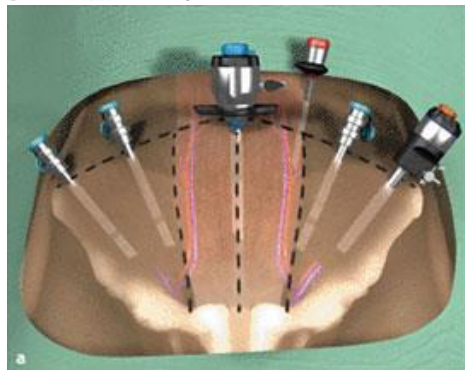
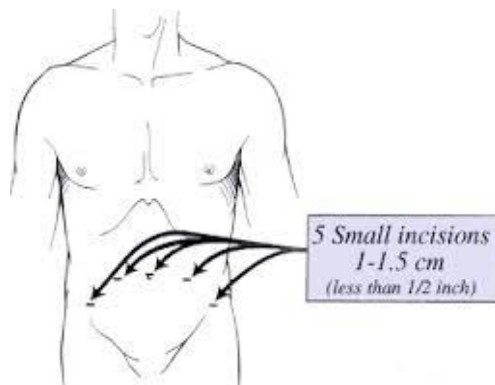
Recurrent; the cancer has come back after a time when it could not be detected.

It may occur in or near the prostate or in any other part of the body e.g. bones

Treatment

I. Surgery

- Radical retro pubic prostatectomy
- Radical perineal approach
- Laparoscopic radical prostatectomy (LRP)/Key hole surgery



The surgeon makes several small incisions instead of one large incision. Long, thin instruments are placed inside the cuts. The abdomen is filled with carbon dioxide gas to enable the surgeon to see the prostate clearly. The surgeon puts a thin tube with a video camera (laparoscope) inside one of the cuts which allows him to see a magnified view of your abdomen during the procedure on a video screen. The prostate gland is cut from the surrounding tissues and is removed through one of the cuts in the abdomen

Advantages

- Less pain
- Reduced blood loss
- No large incision.
- Shorter hospital stay and earlier return to activities compared to open surgery.

Possible complications of surgery

- Urinary incontinence
- Erectile dysfunction
- Robotic assisted laparoscopic radical prostatectomy
- Transurethral resection of the prostate (TURP)

II. Chemotherapy

III. Radiation Therapy; kills cancer cells or shrinks tumors

- External beam radiation therapy (ERBT)
- Brachytherapy (internal radiation)

IV. Cryotherapy

Freezes cancer cells

V. Hormone therapy (androgen deprivation)

Used to lower the level of male hormones (androgens) such as testosterone which cause prostate cancer cells to grow.

Types

- Orchiectomy
- Luteinizing Hormone Releasing (LHRH)analogs
- LHRH antagonists
- Anti-androgens

VI. Vaccine treatment

Prostate cancer vaccine, sipuleucel-T (Provenge) has been approved to treat advanced cancer that is not responding to initial hormone therapy.