Prostate Cancer

INFORM DIAGNOSTICS
Subspecialty Anatomic Pathology

What is prostate cancer?

Prostate cancer is the most common type of cancer in men, aside from skin cancer, and is typically slow growing. And although a diagnosis of prostate cancer is worrying, the chance of recovery is high, especially with early diagnosis and treatment.

What is the prostate gland?

The prostate gland is part of the reproductive system in men. It produces the fluid that is released in semen. The prostate surrounds the base of the bladder, and is normally about the size of a golf ball.

Who gets prostate cancer?

In the United States, about 1 in 6 men will be diagnosed with prostate cancer during their lifetime. Although we don't know exactly what causes it, all men are at risk. It is mostly diagnosed in men over 50 years, and is more likely to occur in African-Americans. The risk of prostate cancer is also higher in men who have family members with the disease. Prostate cancer risk may even be higher in men who eat a high-fat diet, especially one with a lot of red meat or high-fat dairy products.

How is prostate cancer diagnosed at the lab?

Tissue from a biopsy is sent to a pathology lab. There the tissue is prepared on glass slides and reviewed by a pathologist, a clinician who has specialized in the diagnosis of disease.

The pathologist looks for abnormal cellular changes under a microscope. He or she interprets the findings under the microscope in the context of the clinical information provided by the healthcare provider. Some cases require additional special analysis to evaluate proteins, RNA and/or DNA.

The pathologist creates a pathology report with all the important findings, including critical information to help guide treatment and assess prognosis, which is sent back to the healthcare provider.

Although prostate cancer is diagnosed commonly in men, if detected early, it is highly treatable, and cure is likely.

The Gleason score

In addition to examining the biopsy sample to diagnose prostate cancer, the pathologist will also assign a Gleason score to help classify the aggressiveness of the tumor. This is assigned according to how the cancer cells look under the microscope, and will be a number that usually ranges from 6 to 10, where higher scores are associated with more aggressive cancers. In the biopsy sample, the pathologist assigns the most common and second most common tumor patterns (or the highest grade cancer, if different from the second most common pattern), and gives each a grade of 1 to 5. These grades are then combined to give the Gleason score. A score of less than or equal to 6 means the cells still look relatively normal, and there is little risk of the tumor spreading quickly. A score of 8 to 10, however, indicates that the cells are very abnormal and more likely to spread. A Gleason score of 7 indicates intermediate risk of tumor spread. Gleason scores assigned to biopsies are rarely less than 6.

The next step

After a diagnosis of prostate cancer and determination of Gleason score, the healthcare professional will order tests to determine the cancer stage, to see how much it has grown in the prostate or spread throughout the body.

- **Stage I**: This is very early cancer that is only present in a small area of the prostate gland. At this stage, the prostate cancer cannot be felt by digital rectal examination, and is usually detected due to an abnormal prostate specific antigen (PSA) level.
- **Stage II**: At this stage, the cancer has grown within the prostate, but has not spread elsewhere. It can often be felt by digital rectal examination at this stage.
- **Stage III**: The cancer has begun to spread outside the prostate, but only to nearby tissues.
- **Stage IV**: This involves wider spread of the cancer throughout the body, and commonly involves lymph nodes, lungs, and bones.

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Determining the stage is important to help the healthcare professional decide the appropriate treatment.

Treatment and care

Treatment options vary widely. For some low-grade, low-risk cancers confined to the prostate, "active surveillance" may be chosen, where definitive treatment and surgical resection are avoided, and the cancer is carefully monitored for growth, using annual PSA testing and physical examination, as well as prostate biopsies at regular intervals (every one to two years). However, higher grade and high-risk/stage tumors may require surgery or radiation therapy, due to a higher risk of the cancer progressing. For more advanced stage disease, hormone therapy and chemotherapy also are available.

The chosen treatment depends on factors such as disease stage, Gleason score, and patient age and health status. The good news is that more than 90% of all prostate cancers are diagnosed at an early stage, before they have spread away from the gland. The patient and healthcare provider discuss various treatments and the best solution. The patient will have ongoing monitoring by the healthcare professional for any changes in condition. This may include repeat PSA blood tests every six months, along with a digital rectal examination. Repeat biopsies can be performed as necessary, and bone scans and/or CT scans may also be used to check for evidence of spread of the cancer. In the meantime, the patient should report any changes in bladder function or sexual habits to their healthcare provider.

Thankfully, the number of prostate cancer-related deaths can be significantly reduced through a combination of prevention, early diagnosis, and appropriate treatment.

Learn more

prostate-cancer.org/

www.nlm.nih.gov/medlineplus/prostatecancer.html

www.webmd.com/prostate-cancer/default.htm

www.pcri.org