

# Bladder cancer



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**BLADDER CANCER** Bladder cancer is the growth of malignant cells in the urinary bladder. Most forms of bladder cancer start in the superficial layer of the transitional epithelium, and most often affect the transitional cells. It may also be called transitional cell carcinoma or even urothelial carcinoma. Urothelial carcinoma is also a term used for transitional cell cancer in the renal pelvis, ureters, and urethra. Bladder cancer is a relatively common disease.

It is the fourth leading cancer among men (following prostate, lung, colorectal cancers), and the tenth leading cancer among women; occurring in men about three times more often than women. Like most types of cancer, bladder cancer usually involves epithelial cells, in this case, the transitional epithelium that lines the urinary bladder. Constant repetitive damage to the epithelium causes the mature cells to die. This stimulates rapid replication in the basal layer, and soon new colonies of immature cells migrate to the surface.

These new cells are easily disrupted by genetic mutations and may become malignant growths that cause bleeding into the bladder. The causes of bladder cancer vary according to medical history and geographical location. People who have had pelvic radiation for other problems and people who have had chronic infections, bladder stones, or catheter use are at an increased risk for developing bladder cancer. In Africa, Asia, and South America, bladder cancer is associated with a specific parasitic infection, called *Schistosoma haematobium*.

In the United States and industrial countries, most cases of bladder cancer are directly related to more controllable factors. The transitional epithelium of the bladder seems to be particularly susceptible to damage from environmental toxins. Several genetic mutations that limit the body's ability to slow down tumor growth or invasion have been linked to bladder cancer. These mutations are frequently triggered by exposure to carcinogenic substances. About half of bladder cancer cases are believed to be related to cigarettesmoking.

Other contributing factors include exposure to aromatic chemicals used in dry cleaning fluid, hairdressing chemicals, and textile and rubber industries. The earliest most dependable sign of bladder cancer is hematuria (blood in the urine). The urine of a bladder cancer patient is often noticeably reddened or rust colored, although the patient has no particular pain in the early stages of the disease. If the tumors continue to grow and invade deeper layers of the bladder, secondary symptoms may develop.

These are the result of mechanical pressure, including the bladder irritability (painful urination, increased frequency of urinating, reduced urine output) and compression on the rectum, pelvic lymph nodes, and any other structures that may be in the way. In order to diagnose bladder cancer, urine samples may be tested to look for shedding cancer cells, and a digital rectal exam (or a pelvic exam if the patient is a woman) provides information about tumors.

Otherdiagnostictechniques include using dye to stain the urine and make the bladder easy to radiograph. Specific markers for bladder cancer have

recently been identified, but tests to find them are not yet consistently accurate or widely available. However, continued development in this area show a promising future toward the early detection and treatment of this disease. How to treat bladder cancer depends on the stage at diagnosis.

Surgeons can use a small wire loop at the end of a cystoscope to remove abnormal tissue, or another tool may be used to burn the tumor away with electricity. More invasive surgeries may remove part or the entire bladder, and if signs of pelvic metastasis are present, other tissues as well. Urine flow may be routed out of the body through a stoma, or a variety of surgeries have been developed to form artificial bladders from parts of the large or small intestine. In addition to surgery, radiation and chemotherapy may be used in the battle against bladder cancer.

More than 70% of bladder cancer diagnoses are made when the cells affect only superficial layers of tissue. Of course, this is excellent news because the survival rate for cancers caught early is much better than for cancers caught in stage three or later. Even so, bladder cancer has an unusual habit of growing in several places at once, so although it may be possible to catch one or two tumors, any invisible third, fourth, and fifth tumors may not become symptomatic for another several months.

This means that the reoccurrence rate for bladder cancer is surprisingly high; up to 80% percent of bladder cancer patients have at least one reoccurrence. The relation between bladder cancer and carcinogenic substances is one of the most clearly demonstrated links between environmental exposures and cancer. The good news is the bladder cancer is

probably a completely preventable disease, if exposure to the carcinogenic substances is limited or eradicated. References Bladder Cancer. (2008).

Retrieved 30 January, 2009, from Mayo Clinic Foundation for Medical Education and Research Web site: <http://www.mayoclinic.com/health/bladder-cancer/DS00177> General Information about Bladder Cancer. (2008). Retrieved 30 January, 2009, from National Cancer Institute Web site: <http://www.cancer.gov/cancertopics/types/bladder> Health Information: Bladder Cancer. (2008). Retrieved 30 January, 2009, from University of Wisconsin Hospitals and Clinic Authority Web site: <http://apps.uwhealth.org/health/adam/hie/1/000486.htm>