



## PENILE CANCER – A CLINICAL UPDATE

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**ABSTRACT**

Penile cancer is a rare disease that affects about one in 100,000 males worldwide every year. Absence of childhood circumcision, phimosis, chronic inflammation, poor penile cleanliness, smoking, immune suppression, and infection with the human papillomavirus are all risk factors for PSCC (HPV). Infection with the human papillomavirus (HPV) and persistent inflammation are linked to carcinogenesis. Topical therapy, surgery, or radiotherapy can all be used to treat localized illness. Advanced stages of disease necessitate a multimodal approach to treatment. The best therapy sequencing and patient selection are constantly being researched. By affecting sexual and urinary function and creating lymphoedema, localized and advanced penile malignancies, as well as their treatment, have a severe physical and psychosexual impact on the quality of life of patients and survivors.

**KEYWORDS :** Penile cancer, staging of penile cancer, lymphadenopathy, pathology of penile cancer.

**INTRODUCTION:**

Penile cancer, or cancer of penis, occurs when abnormal cells in the penis begin to divide and expand uncontrollably. Penile cancer is an uncommon tumor that affects men between the ages of 50 and 70. (1, 2) While it is highly treatable in its early stages, treatment frequently has serious physical and psychological side effects.

The outward male sex organ is the penis. It is a major part of the body that consists of urinary and reproductive systems. The urethra is a tube that transports urine from the bladder to the outside of the body as well as sperm from the testicles. It's made composed of skin, nerves, smooth muscle, and blood vessels, among other body tissues. Circumcision is a procedure that removes foreskin.

**Epidemiology:**

In the United States and Europe, penile cancer accounts for 0.4–0.6% of malignant diagnoses and 0.1 percent of cancer fatalities (4, 5). In underdeveloped countries, on the other hand, where penile cancer is a major public health concern, the incidence is substantially higher. Brazil, India, and African countries, which have high rates of economic disparity and low rates of circumcision, have the greatest recorded incidence of malignant neoplasm's, with rates as high as 6%. (3). In contrast, countries with strong medical systems and religious practices that lead to high rates of circumcision, such as Israel, have the lowest rate of penile cancer at 0.1 per 100,000. (1, 6)

**Pathophysiology:**

Small lesions on the glans or prepuce are prevalent in the early stages of penile cancer. The appearance might be very different. Some show as flat, reddish-colored, ulcerated masses growing out of the penile skin, while others seem as whitish grey exophytic masses growing out of the penile skin. These lesions spread laterally over the penile skin's surface and frequently encompass the entire glans or prepuce before infecting the corpora and shaft of the penis. Although ulcerative and exophytic lesions grow at equal rates, ulcerative lesions appear to spread to lymph nodes (LNs) sooner. The glans penis and shaft are both drained by penile lymphatics, which drain to superficial inguinal LNs, deep inguinal LNs, and eventually external iliac LNs in the pelvis. Penile cancer can take many forms, including:

**Benign conditions of the penis:**

Growths on the penis can occasionally form that are abnormal but not cancerous. (They're harmless.) These lesions generally resemble warts or inflamed skin patches. They're most commonly found on the glans or foreskin, but they can also form along the shaft of the penis, just like penile cancer.

**Condylomas (genital warts)**

These growths resemble miniature cauliflowers. Some are so little that they require a magnifying lens to see. Others could be one inch or more in diameter. Infection with certain kinds of human papillomavirus causes condylomas (HPV).

**Bowenoid papulosis**

This illness is connected to HPV infection and is more common in young, sexually active men. On the shaft of the penis, it appears as little red or brown spots or patches. These may appear to be genital warts, but a microscope examination reveals dysplastic (abnormal) cells in the penile skin's surface layer.

Bowenoid papulosis is often confused with carcinoma in situ (CIS), commonly known as Bowen disease, a type of early-stage malignancy (described below). Bowenoid papulosis usually causes no difficulties and can even disappear on its own within a few months. If it doesn't go away and isn't treated, it can lead to Bowen disease in rare circumstances.

**Cancers of the penis:****Squamous cell carcinoma**

Squamous cells, which are flat skin cells, are where 95 percent of penile malignancies begin. Squamous cell carcinoma (also known as squamous cell cancer) is a type of cancer that can develop anywhere on the penis. The majority of these malignancies begin in the foreskin or glans (in men who have not been circumcised). These tumors have a modest growth rate. It's usually possible to cure them if they're discovered early on.

**Verrucous carcinoma** is a type of cancer that affects the skin. Buschke-Lowenstein tumor is a type of verrucous cancer that grows on the penis. This is a rare type of squamous cell carcinoma that can originate anywhere on the skin. This malignancy has the appearance of a big genital wart. Verrucous carcinomas grow slowly but might grow to be quite massive. They have the ability to penetrate deep into neighboring areas.

**Carcinoma in situ (CIS):**

Squamous cell carcinoma of the penis is diagnosed at this stage. Only the top layers of skin contain cancer cells at this stage. They haven't penetrated the deeper tissues yet. Doctors may call the condition by different names depending on where the CIS is located on the penis.

Erythroplasia of Queyrat is another name for CIS of the glans. Bowen disease is a type of CIS that affects the shaft of the penis (or other regions of the genitals).

**Melanoma**

Melanoma is a form of skin cancer that begins in melanocytes, the cells that give the skin its brownish color and protect it from the sun. These tumors have a proclivity for rapidly growing and spreading. They're more deadly than the more prevalent types of skin cancer, basal and squamous cell carcinoma. Melanomas are most commonly found on sun-exposed skin; however they can also be discovered in unusual sites such as the penis. Melanomas make up a very small percentage of penile malignancies.

**Basal cell carcinoma**

Another type of skin cancer that can develop on the penis is basal cell carcinoma (also known as basal cell cancer). It accounts for only a small percentage of all penile malignancies. This cancer grows slowly and only rarely spreads to other regions of the body.

**Adenocarcinoma (Paget disease of the penis)**

This extremely rare kind of penile cancer can arise from sweat glands in the penis's skin. It's difficult to identify the difference between this and penile cancer in situ (CIS).

**Sarcoma**

Sarcomas make up a minor percentage of penile malignancies. These malignancies arise in the penis' blood arteries, smooth muscle, and other connective tissue cells. See Soft Tissue.

**Penile Cancer Stages**

Doctors will try to determine if a man's penile cancer has spread and, if so, how far it has progressed. This is referred to as staging. A cancer's stage refers to how much cancer is present in the body. The American Joint Committee on Cancer (AJCC) TNM method, which is based on three critical pieces of evidence, is the most often used staging approach for penile cancer.

- The main tumor's extension (T): How far into the penis has the malignancy spread, and has it impacted neighboring tissues or organs?
- Lymphoma spread (N): Has the cancer spread to surrounding lymph nodes (in the groin and pelvic area)? If that's the case, how many are affected?
- Cancer has spread to distant areas (metastasis): Has the cancer migrated to other parts of the body? (Distant lymph nodes or organs such as the lung, liver, or bones are the most prevalent sites of dissemination.)

The spread of cancer to distant places (metastasis) (M): Has the cancer spread to sections of the body that are far away? (Distant lymph nodes or organs such as the lung, liver, or bones are the most prevalent sites of dissemination.)

The grade of the cancer cells is another element that can influence the stage of some malignancies. This is a metric for how distinct cancer cells are from healthy cells. A number, ranging from 1 to 3, is frequently used to indicate the grade. Tumours with a higher grade tend to grow and spread faster than cancers with a lower grade.

If surgery was done to examine neighboring lymph nodes for cancer, to sections of the body that are far away? (Distant

lymph nodes or organs such as the lung, liver, or bones are the most prevalent sites of dissemination.)

The results of a physical exam, biopsy, and any imaging tests that may have been performed are used to assign a clinical stage to penile cancer. If surgery was done to examine neighboring lymph nodes for cancer, separate para: The grade informs your doctor about the cancer's prognosis and treatment options. The World Health Organization (WHO) classification system is used to classify squamous cell malignancies. Squamous cell tumors are graded in this article. Low-grade malignancies tend to grow slowly. Cancers of a higher grade grow more quickly.

Grade X indicates that the grade cannot be determined. Grade 1 (low grade) cancer cells resemble normal cells. Grade 2 cancer cells resemble normal cells in appearance. Grade 3 (high grade) cancer cells have a distinct appearance and do not resemble normal cells. Some malignancies appear to be highly unusual. They're sometimes referred to as "undifferentiated" by doctors. They're sometimes referred to as 4<sup>th</sup> graders.

**Risks And Causes of Penile Cancer:**

Although the specific cause of penile cancer is unknown, there are a number of risk factors to consider.

Having one or more of these risk factors does not guarantee that you will develop cancer.

Are over 60 years old and have the human papillomavirus (HPV) Have an immune system that is compromised as a result of HIV or AIDS They haven't been circumcised. Fluids and a thick build-up known as smegma can collect under your foreskin, increasing the risk of cancer growth.

Have phimosis, which causes your foreskin to be tight and difficult to clean. It can also cause a build-up of fluid.

Psoriasis when treated with a combination of psoralen and ultraviolet (UV) radiation.

**Symptoms of Penile Cancer:**

The majority of penile cancers involve the skin that covers the penis (foreskin) or the head or tip of the penis (glans).

The following are the most common signs and symptoms:

1. An unhealed growth or sore that lasts longer than four weeks
2. A rash.
3. Bleeding under the foreskin or from the penis
4. An odorous discharge
5. Thickening of the penis or foreskin skin, making it difficult to pull the foreskin back (phimosis)
6. A change in the color of your penis or foreskin's skin a bulge in my groin, tiredness, and stomach ache without putting in any effort

These signs and symptoms may not necessarily indicate that you have penile cancer. However, it's critical to get them examined by a professional.

**Diagnosis of Penile Cancer:**

Other testing, such as a biopsy, may be recommended. It is subjected to laboratory tests to see if it contains cancer cells.

X-rays, CT scans, ultrasounds, and magnetic resonance imaging are examples of imaging tests (MRI). These examine your internal organs for malignancies or other symptoms of cancer spread.

**Treatment of Penile Cancer:**

If your cancer is in its early stages, your treatment may include: A topical medication for your skin Cryotherapy, which involves

freezing and destroying cancerous tissue with an extremely cold liquid or device Mohs surgery, which involves doctors removing affected skin one layer at a time until they reach healthy tissue Lasers to cut and destroy cancerous areas Circumcision, which is the surgical removal of the foreskin.

You may also have if your cancer is more advanced or prone to spread:

If your cancer has gone to your groin, you may need surgery to remove some or all of your lymph nodes. Radiation and/or chemotherapy to eliminate cancer cells from your body A penectomy, which is a procedure in which part or your entire penis is removed.

The importance of early detection cannot be overstated. Not only will you get greater outcomes, but you'll also have additional therapy options.

#### Recurrent cancer:

The treatment for cancer that returns after treatment (recurrent cancer) is determined by the location of the recurrence and the treatments employed previously. A recurring penile cancer may be treated with surgical excision of part or the entire penis if a penectomy was not performed previously. Radiation therapy is another possibility. Some tumors that recur in the lymph nodes may be treated with surgery, radiation treatment, and/or chemotherapy. Chemotherapy may also be beneficial in the treatment of penile malignancies that have spread to other regions of the body.

#### Long-Term Side Effects of Penile Cancer Treatment:

Penile cancer and its treatment can have long-term, life-altering consequences. When possible, penile-sparing procedures are employed to limit these alterations, but they cannot always be avoided.

#### Urination

After surgery, most men can still control the start and stop of urine flow. They're still continential because the ring of muscle that controls urine flow (known as the sphincter muscle) is close to the bladder and is unaffected by penile surgery. However, whether half of the penis (partial penectomy) or the entire penis (total penectomy) is removed, the way a man urinates may vary. A partial penectomy can sometimes leave enough of the penis to allow for reasonably normal urination. Men who have had a total penectomy, on the other hand, frequently have to sit to urinate.

#### Sexuality

Treatments other than penectomy can typically be employed if penile cancer is detected early. Once you've fully healed, conservative methods like circumcision, local therapy other than surgery (laser ablation, topical chemotherapy), or Mohs surgery may have no effect on sex and sexual satisfaction.

#### Lymphedema

The lymph nodes in the groin, as well as the arteries that link them, aid in the drainage of fluid from the groin and lower body into the bloodstream. When lymph nodes in the groin are removed or treated with radiation, it might cause issues with fluid outflow in the legs or scrotum, resulting in abnormal swelling. Lymphoma is the medical term for this illness. It has a wide range of chances of development.

Because more lymph nodes were removed to check for cancer spread in the past, this condition was more common. Less lymph nodes are routinely removed nowadays, which reduces the risk of lymphedema. Even with less treatment, lymphedema can still occur. It's also a risk that can last a lifetime. See our Lymphedema page for more information.

#### Clinical Trials:

These studies, which test new medications, are seeking for

innovative approaches to treat early and advanced penile cancer. Clinical trials are a great method to try out new medicines that aren't yet available to the general public.

#### Prevention of Penile Cancer:

There is no single way to prevent cancer, however there are certain things you can do to reduce your risk: Have a circumcision. It's easier to keep the area clean when you don't have a foreskin. If you have a foreskin, make sure to clean underneath it gently. Avoid using tobacco. To avoid HPV and HIV infections, use safe sex practices.

#### CONCLUSION

Penile cancer is curable in all stages with the right treatment, although the prognosis is largely determined by how well the regional (i.e., inguinal) lymph nodes are managed. The treatment of this rare disease has been centralized in many nations.

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