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A Case Study on Penile Cancer

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Abstract:- The majority of men who develop penile cancer are in their sixth decade of life. The most common histology is squamous cell carcinoma (SCC), and about half of the cases are thought to be influenced by human papillomavirus (HPV) infection. Few therapeutic choices are available to patients with serious illnesses, and their prognosis is still grim. Risk factors for PSCC (HPV) include phimosis, chronic inflammation, poor penile hygiene, smoking, immunosuppression, and circumcision in children. Accurate and early surgical staging of the inguinal lymph nodes is crucial for disease management due to the early lymphatic dissemination that separates PSCC from other malignancies and the limitations of imaging to detect micrometastatic sickness. Localized and advanced penile cancers, as well as their treatment, have a major impact on patients' and survivors' quality of life since they impair sexual and urinary function and produce lymphoedema. Rare cancer known as PSCC has been given the orphan disease designation.

Keywords:- *Penile cancer, Human papillomavirus (HPV), Squamous cell carcinoma (SSC)*

I. INTRODUCTION

In high-income countries, penile cancer is a rare tumor that affects 0.1–1 male per 100,000 men. The frequency varies greatly amongst communities globally as a consequence of associated risks including HPV (human papillomavirus infection), cigarette smoking, and poor hygiene, as well as preventive ones like standard neonatal circumcision. Penile tumor may thus represent up to 10% of male cancers in diverse African, Asian, & South American locations [1,2]. Penile squamous cell carcinomas (PSCCs), which develop from squamous cells present in the granular and preputial skin, account for 95% of all instances of cancer in the penile region. Based on WHO guidelines, they can also be divided into basaloid, warty, papillary, verrucous, sarcomatoid, adenosquamous, and a few more unusual types. They can also be driven by HPV or not be associated with HPV. In PSCC, the pooled HPV prevalence was 50.8%, according to a meta-analysis of global data [2]. On the penile and granular skin, additional tumors can also develop, including mucosal melanoma, sarcoma, and extramammary Paget's disease, but these are not the main topic of the current review. There are attempts being made to enhance the quality of life associated with the disease and its treatment because penile cancer and its therapy frequently cause terrible disfigurement [3]. As lymphatic spread is significantly associated with a poor prognosis, early diagnosis, and staging are essential [4]. There is evidence that early surgical staging of the groins, the primary lymphatic landing site of PSCC metastases, improves mortality, although adoption rates are limited because of the associated morbidity and, possibly, the learning curve of this treatment [5,6]. Platinum-based chemotherapy is the backbone of systemic therapy for advanced PSCC, although response rates range from 15 to 55 percent, and the median overall survival is just 12 months [7-10]. The majority of men with penile cancer receive treatment in ways that preserve their penile tissue. Advanced and closer-located penile tumors can still benefit from partial and complete penectomies. Patients who need surgery run the risk of suffering from significant functional and psychological morbidity. The surgical care of penile cancers is being approached by urologists differently as a result of recent studies and guidelines. In order to maximize patient functioning, surgeons can use penile-preserving procedures thanks to a decrease in the safe surgical margin guidelines from 2 cm to 3-5 mm. Recent research supports these recommendations by demonstrating that, although predicting increased odds of local recurrence, thinner surgical margins had no negative impact on survival rates for either particular cancers or the entire population. Although oncological clearance continues to be the desired objective for surgical care of penile cancer, patients are more likely to have a longer period of functioning without compromising oncologic outcomes since radical salvage surgery can be performed at a later time. In order to detect local recurrence and, if necessary, schedule salvage surgery to keep the cancer under control, patients must be educated on the value of routine self-examination and clinic follow-up. However, further research is required to fully understand the long-term effects. Ongoing investigations into the functional and psychological outcomes of individuals who have partial penectomy reveal favorable findings. However, radical surgery still has a place in cases of advanced penile malignancy. The paradigm of surgical management in penile malignancy is evolving to favor organ-preserving techniques in order to maximize functional, psychological, and aesthetic outcomes without compromising patients' oncologic outcomes [11].

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II. TYPES

Types of surgical procedures for carcinoma penis are described below

- Penile conserving surgeries
- Glansectomy
- Partial Penectomy: The penis is cut about 2 centimeters proximal to the tumors for sufficient oncological control. For erect urination, a 2-centimeter penile stump should be kept in place.
- Total Penectomy: Without removing the proximal corpora cavernosa, the penis is removed at or close to its suspensory tendon. When the size or location of the penile carcinoma prevents the preservation of a sufficient stump for upright urination, a total penectomy is recommended.
- Radical penectomy: the penis is removed along with the entire corporeal body up to its root. There are only a few reported instances of this procedure, which is uncommon [17].

III. INCIDENCE

The incidence of penile cancer is roughly one new case per 100,000 people in Europe and North America [12]. With extensive data gathering, the incidence is higher in Sweden. [13,14]. 2014 encountered a total of 940 new cases were reported in Germany, with 195 fatal cases and a mean age of onset of 70 years [15]. Males as young as 30 years old, however, could possibly get penile cancer. Penile cancer is a serious public health problem in many developing nations. Parts of Asia, Africa, and Central and South America all have significantly higher incidence rates (Brazil 6–8/100 000). In Uganda, the cumulative morbidity for men up to the age of 75 is 1%, while penile cancer accounts for 6% of all cases of male cancer in rural parts of India [16].

IV. ETIOLOGY & RISK FACTORS

Penile cancer can affect any male patient, although there are some established risk factors. Even though males as young as 50 years old account for up to 15% of occurrences, penile cancer is a disease that affects older men; in the United States, the median age at diagnosis is 68 years. Penile cancer is much more frequent in uncircumcised men than in young boys who were circumcised. Phimosis interferes with the monitoring of the glans, inner preputial layer, and coronal sulcus, which are the regions with high incidence and are closely associated with the risk for penile cancer.

Human papillomavirus (HPV) infection is discovered in about 50% of men with penile cancer, and particular HPV subtypes (such as HPV-16 and HPV-18) have been connected to the malignant development of condyloma acuminate. Sexual practices, particularly having multiple partners over the course of a lifetime, enhance the risk of developing penile cancer. The eight-fold greater risk of penile cancer associated with the human immunodeficiency virus (HIV) may be partially explained by a higher HPV incidence in males with HIV. Penile cancer is 3 to 4.5 times more likely to occur in smokers than in non-smokers, and it is also more likely to occur in other tobacco product users. Psoralen-UV-A photochemotherapy for psoriasis has been shown to enhance the risk of getting penile cancer. By definition, premalignant lesions and balanitis xerotica obliterans, also known as lichen sclerosis, both increase the risk of developing penile cancer by 3% to 9% over the course of time [19].

V. SIGNS AND SYMPTOMS OF PENILE CANCER

Penile cancer can cause changes in the skin of the penis, which should be checked by a doctor if they don't improve in 4 weeks or worsen.

- Flat, bluish-brown growths
- Smelly discharge (fluid) or bleeding under the foreskin
- An area of skin becoming thicker
- Changes in the skin color
- A lump
- An ulcer (sore) that might bleed
- A reddish, velvety rash under the foreskin
- Small, crusty bumps
- Swelling [18]

VI. PATHOPHYSIOLOGY

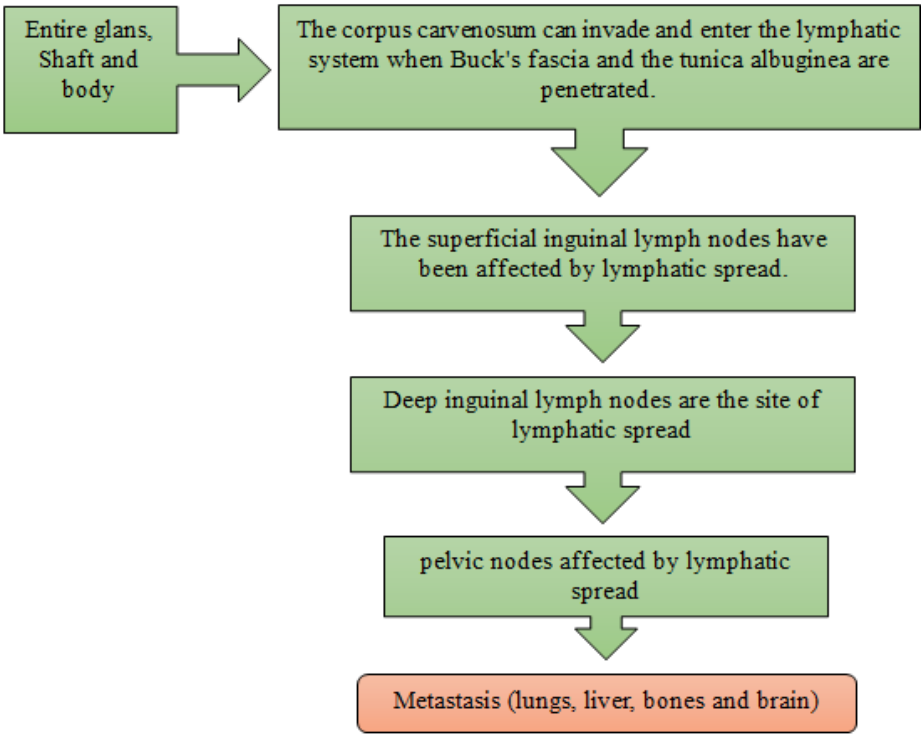

Fig 1Pathophysiology

➢ *Case Study*

A Male patient of 53 years was admitted to the hospital with complaints of a Blister in the gland of the penis, pain at the site, and gradually the pain increased for one month. He has a past medical history of type 2 diabetes mellitus for 4 years and coronary artery disease (Percutaneous Transluminal Coronary Angioplasty Procedure) done 2 years back and his medication history shows that he was taking T. Nebivolol -75 mg, T. Glimepiride -1mg, Inj. Insulin. On physical examination, he was conscious, oriented, and afebrile. His vitals were as follows: Temperature was normal (98.6°F), Pulse rate was normal (87beats\min), Respiratory rate was normal (20breaths\min) and Blood Pressure was normal (120\80 mmHg).

Prior to surgery, general anesthesia (**3.2 ml of Inj. Bupivacaine +0.5% Heavy +0.3mcg of Inj. clonidine**) was administered and surgery was carried over the Lithotomy position. The penectomy with Bilateral inguinal lymph node dissection procedure was done.

➢ *Investigation*

EXCISIONAL BIOPSY: The entire lesion is taken out during an excisional biopsy. The lesion must be tiny, such as a nodule (lump) or plaque (raised, flat region), in order for this sort of biopsy to be performed. Typically, hospitals or outpatient surgery centers do these biopsies. It is possible to employ general anesthesia, which puts you to sleep, or local anesthesia, which numbs the area.[20]

➢ *Procedure*

Penectomy with Bilateral Inguinal Lymph Node Dissection procedure was done.

Under spinal anesthesia, the treatment was carried out. A piece of sterile gauze was used to cover the portion of the penile affected by the tumor. To prevent excessive blood loss and create a blood-free area for dissection, a safety margin of 1 cm was marked with a marker pen. The base of the penis was then bound with a tourniquet. Over the drawn line, the cut was made. Dissection was carried out in layers, starting with the skin and moving on to Buck's fascia, tunica albuginea, corpora cavernosa, and corpus spongiosum. Vascular tissues were cut or cauterized. For proper speculation, the uninvolved urethra was transacted 1 cm distal to the penile stump. With 3-0 Vicryl sutures, the corpora spongiosa was continuously sutured. Hemostasis was accomplished and the tourniquet was loosened. The "Parachute" approach was used to suture the skin to the urethra while using 3-0 Vicryl. At the peak of speculation, the ventral surface of the urethra receives the first suture to secure it to the skin. Lateral and dorsal sutures are then applied. A mild dressing is applied following the procedure's completion and the confirmation of hemostasis.

VII. CONCLUSION

Although penile cancer is uncommon, it frequently has a poor prognosis due to a delay in detection and a presentation in the latter stages of the disease. The primary form of treatment is surgical resection, with penile amputation being the gold standard for surgery. There are further organ-sparing methods, but they should only be used in the early stages of malignancy. Even though early inguinal lymph node dissection has been used to treat many cases of penile cancer, the treatment of lymph nodes is still a difficult issue. The existence of inguinal lymph node

metastases, which are strongly linked with the development of distant metastases, continues to be the most important prognostic factor.

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