

Lichen Planus of the Penis. Premalignant or Not?



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Penile carcinoma is a rather rare malignant disease which often has devastating consequences for the patient and therefore comprises a diagnostic and therapeutic challenge for the urologist. The incidence is 0.1-7.9/100,000 males, worldwide. In Europe the incidence is 0.1-0.9/100,000.

The primary occurrence sites include the glans (48%), prepuce (21%), the glans and prepuce simultaneously (9%), the coronal sulcus (6%) and finally the shaft (in less than 2% of the cases) [1].

The tumour itself is characterised by a quite aggressive nature since palpable inguinal nodes can be present at the time of diagnosis in 58% of the patients.

It is most common in men between 45-60 years of age [2]. It peaks at the age of 80 but its incidence is not unusual in young men (22%) [4]. This is the main reason why early detection and treatment is of the essence.

Nevertheless, 15-50% of men with remarkable penile lesions delay seeking medical care for more than a year [25], mainly out of embarrassment of revealing their problem.

Histological types

Most of the penile tumours are squamous cell carcinomas (SCC) [1,3-5]. What is most characteristic are the different degrees of mitotic activity accompanied by keratinisation. The normal rete pegs are disrupted and

invasive cellular formations penetrate the basal membrane and surrounding tissues [4, 25].

Carcinoma in situ has different names when it comes to penile and genital forms. It is called erythroplasia of Queyrat when it is located at the glans, penis, prepuce or the penile shaft and is called Bowen's disease if it involves the rest of the genitalia or the perineal region [1-5]. The normal mucosa is replaced by atypical hyperplastic cells which are characterised by mitotic figures at all levels [4].

Risk factors and premalignant conditions

Any of the lesions listed below can be considered as a premalignant condition for penile cancer occurrence and should be treated with extreme caution and diagnostic precision:

1. Balanitis Xerotica Obliterans (variation of lichen sclerosus et atrophicus, associated with squamous cell carcinoma).
2. Condyloma Acuminatum (HPV related [11, 19, 21], associated with squamous cell carcinoma)
3. Bowen's disease (rare, mainly in elderly men, usually on the shaft of the penis and appears as a solitary, dull-red plaque with areas of crusting and oozing [19-22]).
4. Erythroplasia of Queyrat tends to affect elderly, uncircumcised men, appears as a solitary, sharply defined, bright red, glistening, velvety, non-tender, plaque on



Figure 1: Penile Cancer (Courtesy of Mr R Pearcy, Consultant Urologist, BRI).



Figure 2: Penile cancer (Courtesy of Mr R. Pearcy, Consultant Urologist, BRI).

the glans, the inner surface of the prepuce, or the coronal sulcus) [19-22].

5. Bowenoid papulosis mostly on the shaft of the penis in circumcised young men. It appears as multiple, small, slightly elevated, red or violet, slightly scaly or warty papules, which sometimes coalesce into large plaques. Histology is typical of Bowen's disease and it is associated with HPV infection. Lesions may remain static, spontaneously regress, or progress to Bowen's disease [19-22].
6. Cutaneous horn characterised by hyperkeratosis, dyskeratosis, acanthosis.
7. Leukoplakia associated with both CIS and squamous cell carcinoma.
8. Kaposi's sarcoma in the immunosuppressed patient.

There is also a variety of certain environmental and physical conditions that gradually could facilitate cancerous alterations.

1. Exposure to chemicals such as insecticides, fertilisers, styrene and Acrylonitrile.
2. Cigarette smoking.
3. Ultraviolet radiation as in PUVA increases risk.
4. Immune suppression eg in HIV patients or transplantation surgical procedures [4, 19, 21-23].

It is fascinating, though, that there are lesions that can be considered as potentially premalignant conditions, even though their histological type is of a purely benign nature. Such an example is penile lichen planus.

Lichen planus

What would be a big issue here is if lichen planus, when diagnosed, could be considered as a premalignant condition for penile cancer or is it certain that due to its benign nature such a scenario can be ruled out? At the Urology Department of the Bristol Royal Infirmary we believe that the truth lies somewhere in between.

This sort of skin lesion should always be thoroughly investigated because the danger of being under-diagnosed is always present, especially for chronic cases (more than 18 months).

The actual role of pre-existing dermatoses such as lichen planus, in the pathogenesis of SCC is still unsettled. Nevertheless, the feedback to support a suggestion of lichen



Figure 4: Postoperative photo. Tumour excised to normal margins. (Courtesy of Mr R Pearcy, Consultant Urologist, BRI).



Figure 3: Lichen planus of the glans penis.

planus related penile cancer so far is inadequate (six cases reported worldwide) or not properly recorded and that is partly attributed to the fact that at times the diagnosis may be made on the wrong grounds. Additionally, there is no substantial evidence to prove that penile lichen planus is more aggressive than its oral counter-part [23-25].

What could also be misleading is that at the time of definite diagnosis any pre-existing dermatosis may have been missed so that the cancerous lesion is considered to be primary SCC. This can take place due to an extended time interval between first occurrence and actual diagnosis.

Men tend to ignore the problem, and avoid having expert opinion. As was mentioned above, this type of irresponsible attitude is mostly attributed to embarrassment, guilt, ignorance and personal neglect. Some of these patients (15-50%) delay medical attention for more than a year. Sometimes even their personal physician may cause delays to what would be a therapeutic approach due to false clinical judgment [3]. They either seek or are prescribed various anti-inflammatory (steroid based), antibiotic and antifungal regimens which even if they are effective for a certain period of time, just delay diagnosis for months or even years [2-4].

Histology

What is profound is the inflammatory reaction, clearly differentiated by the basal lamina with the exception of linear deposits of fibrin and fibrinogen as well as liquefaction in the basal membrane which may lead to its degeneration. In addition to apoptotic keratinocytes (evident hyperkeratosis accompanied by keratinocyte apoptosis [Civatte bodies]), colloid bodies are composed of globular deposits of IgM (occasionally immunoglobulin G [IgG] or immunoglobulin A [IgA]). These histological features indicate a possible correlation of chronic lichen planus to cellular atypia of malignant nature and invasion of basal membrane.

Clinical manifestations

As the name lichen planus itself implies, the lesion is characterised by a flat, annular configuration of papules seen on the glans or the prepuce. Less commonly linear white striae can be seen [25].

Diagnosis

Definite diagnosis of both penile cancer and lichen planus

can be achieved solely by histological examination of the skin lesion after having it excised.

Conclusion

As an epilogue, what seems to be quite important is to bear in mind that cases of chronic lichen planus related to penile cancer have actually been reported and that the urologist's mind should always be in a state of high suspicion in order to be able to handle successfully a difficult diagnostic dilemma. The number of reports though, is not sufficient to support a strong case yet.

What remains to be seen is how relevant these two clinical entities can be and how can this fact be applied to everyday evidence-based clinical practice. ■

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