Original Article

Nonvenereal Penile Dermatoses: A Retrospective Study

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Abstract

Context: A variety of nonvenereal diseases can affect the penis and diminish quality of life. Many present similar clinical features and a cutaneous biopsy may be necessary to clarify the diagnosis. **Aims:** To characterize nonvenereal penile dermatoses with histological confirmation in a southwestern Europe hospital during a 9-year period. **Materials and Methods:** A retrospective study was conducted. We reviewed all penile biopsies performed between January 1, 2007 and December 31, 2015 and studied the causes of the nonvenereal penile dermatoses. **Results:** The sample included a total of 108 patients, aged 62.9 (±17.8) years, between 16 years and 96 years of age. Eighteen dermatoses were identified. Inflammatory diseases were present in 65. 7% of patients (71/108) and neoplastic dermatoses in 34. 3% (37/108). Concerning inflammatory dermatoses, the most frequent were Zoon balanitis (27.8%, 30/108), followed by lichen sclerosus (15.7%, 17/108), psoriasis (11.1%, 12/108), and lichen planus (4.6%, 5/108). In patients with psoriasis, 10 had lesions only in the penis, similarly to all patients with lichen planus. The most frequent malignant tumor was squamous cell carcinoma (SCC) (15.7%, 17/108). The most common *in-situ* tumor was erythroplasia of Queyrat (8.3%, 9/108). A case of basal cell carcinoma (BCC) was found. Kaposi sarcoma and mycosis fungoides on penis were also diagnosed, as an additional form of presentation to their generalized disease. **Conclusions:** In this study, inflammatory diseases were the most frequently diagnosed dermatoses, while SCC was the most common malignant tumor found. In the majority of psoriasis and lichen planus cases, clinical lesions were only present in the genital area.

Keywords: *Diagnosis, penile dermatoses, skin manifestations, therapeutics*

Introduction

A variety of nonvenereal diseases can affect the penis and may diminish quality of life or even, as with squamous cell carcinoma (SCC), have associated mortality. They may be classified into various groups based on their pathogenesis, but differential diagnosis is difficult if based only on clinical manifestations.[1] They may be of infectious origin such as candidiasis, inflammatory as psoriasis, lichen planus or lichen sclerosus, or neoplastic disorders, both benign and malignant.[1-4] Therefore, its identification can be challenging and a cutaneous biopsy needed in order to clarify the diagnosis.

Objectives

The aim of this study was to assess all cases of nonvenereal penile dermatoses with histological confirmation over a 9-year period and to characterize the frequency, treatment, and evolution of the most frequent disorders.

Patients and Methods

A retrospective study of all nonvenereal penile dermatoses with histological confirmation diagnosed in a southwestern Europe hospital between January 1, 2007 and December 31, 2015 was conducted. All penile biopsies performed during this period (a total of 171 penile biopsies) were reviewed and all cases of nonvenereal dermatoses with an etiological diagnosis and clinical information were included. The exclusion criteria were: sexually transmitted diseases (20), nonvenereal penile dermatoses without clinical information (27), and unspecific alterations in histological examination (16). Based on pathological findings, the dermatoses were classified into two types: inflammatory or neoplastic. Some of the inflammatory dermatoses were also categorized according to the anatomical distribution of the skin lesions: localized to penis or also involving other body areas. Patients gave informed consent for the photographs and the use of all clinical data. Data was analyzed using SPSS 22.0 software.

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Results

A total of 108 patients were included, medium age 62 (±17) years, between 16 years and 96 years of age. Eighteen dermatoses were identified [Table 1]. Inflammatory diseases were present in approximately 66% of the patients (71/108) and neoplastic dermatosis in 34% (37/108).

The most frequent inflammatory dermatoses were Zoon balanitis (27.8%, 30/108), followed by lichen sclerosus (15.7%, 17/108), psoriasis (11.1%, 12/108), lichen planus (4.6%, 5/108), unspecific balanitis (4.6%, 5/108), pemphigus vulgaris (0.9%, 1/108), and Fordyce disease (0.9%, 1/108).

In patients with Zoon balanitis, 29 were treated with topical corticosteroids and six of those were submitted to circumcision. One patient was treated with CO2 laser therapy, who had no relapse, as also all circumcised. Among the remaining patients who had been treated with corticosteroids, only one developed SCC, 2 years later after the histological diagnosis of Zoon balanitis.

Lesions of psoriasis were limited to the penis in 10 patients; two had generalized disease with lesions in other body areas. All diagnosed cases of lichen planus presented only with penile manifestations. In one patient with penile psoriasis, the lesion was excised, without relapse in a 3-year follow-up period, while all other patients with psoriasis and lichen planus were treated with topical corticosteroids with good response.

Every individual with lichen sclerosus had topical high potency corticosteroids applied, with circumcision being necessary in three of them. There were no cases of SCC during the follow-up period.

The majority of neoplastic dermatoses were malignant tumors. Among those, the most frequent was SCC (15.7%, 17/108), with only one case of basal cell carcinoma (BCC). *In situ* SCC, erythroplasia of Queyrat, was diagnosed in 8% (9/108). Kaposi sarcoma and mycosis fungoides were histologically diagnosed in one patient each.

The remaining patients had benign tumors such as seborrheic keratosis (2.8%, 3/108), angiokeratoma, angioma, lentigo, and milia cyst (0.9%, 1/108 each).

Partial or total penectomy was performed, respectively, in 14/17 (83%) and 3/17 (17%) of the 17/108 (15.7%) patients with SCC.

Erythroplasia of Queyrat was the etiological diagnosis in 9/108 cases, beings treated with CO2 laser in six. One patient was later submitted to partial penectomy because of relapse and evolution to an invasive SCC. Partial penectomy was done in other two cases as primary intervention and only one was treated with cryotherapy associated with imiquimod. There was not any other case of relapse during the follow-up. The unique penile BCC was excised and did not relapse.

All benign tumors were successfully treated and excised, except for one seborrheic keratosis, treated with CO_2 laser therapy.

Discussion

Since our study was based on nonvenereal pathology with histological confirmation, we expected most cases to be of neoplastic etiology. However, in our study and like in others,[1-4] inflammatory diseases were the most diagnosed dermatosis. This could be due to the similar clinical appearance among various penile dermatoses and because some of them, like psoriasis or lichen planus that usually appear also in other body areas, rarely manifest themselves as a unique penile lesion, which makes the diagnosis more difficult.[5,6]

Zoon balanitis was the most common inflammatory disease diagnosed histologically. Its a chronic disease of unknown etiology, described mainly in middle-aged or elderly uncircumcised man that begins as one or more roundish or polycyclic dark red patches with indistinct borders on the glans and/or internal preputial lamina [Figure 1].[7,8] The differential diagnosis with erythroplasia of Queyrat and lichen sclerosus may be difficult and in those cases a skin biopsy must be performed. Development of SCC in this disease was described since 1999, but there was only one case of SCC in our series. In our study, 79% (26/30) of these patients responded well to corticosteroids, but in 21% (6/30) it was necessary circumcision with a successful rate of 100%, as it has been described previously.[6,7] The CO2 laser therapy in one of our patients that did not relapse demonstrates that it can be an effective procedure in this disease as described by Retamar RA *et al*.[7]

Psoriasis is a chronic, inflammatory skin disease, with the genitalia being involved in up to 30% of psoriasis

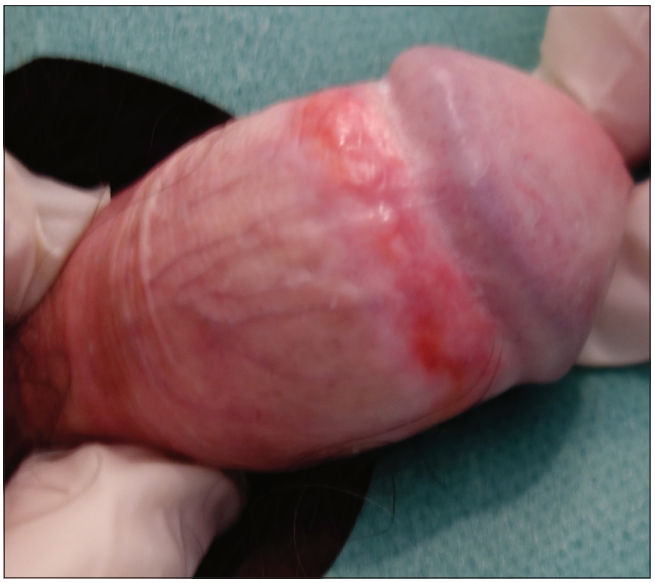

Figure 1: Zoon balanitis – reddish plaque, well-defined, around the glans

patients. In 2–5% of the patients, the lesions may occur only in this area. Lesions may appear on the glans and prepuce as small papules or large patches [Figure 2]. The location on the glans may be the first and only lesion.[5,6]

Lichen planus has an estimated frequency of about 1% in the general population. The male genitalia is involved in 25% of cases, the glans penis being the most commonly affected with annular lesions frequently present. Fine white streaks are usually visible on the surface, the so-called Wickham's striae [Figure 3]. Like psoriasis, the majority of patients also have lesions in other areas.[6] In our study, lichen planus was only limited to the penis and among the 12 patients with penile psoriasis, only two also had lesions in other body areas. Several reports have cited the isolated occurrence of lichen planus and psoriasis on the glans penis.[5, 9-11] The explanation can be related with the Koebner phenomenon, after trauma, caused by sexual intercourse, tight clothes, chemical, such as contact with urine or related to sunburn.[5] The treatment of both diseases consists in topical corticosteroids as first line with our patients having had a satisfactory response with such topical therapy.

Genital lichen sclerosus is a chronic inflammatory skin disease responsible for male sexual dyspareunia and urological morbidity [Figure 4]. Early aggressive treatment may prevent disease progression and most patients achieved remission with ultrapotent topical corticosteroid in 75–90%[6, 12-14] as in our study, with an excellent response in 84% of those treated. Circumcision is recommended if maximal conventional medical treatment is not possible or fails. It was necessary only in three patients. Although, SCC can develop on lichen sclerosus, there were no cases of malignancy in our study.

In the neoplastic diseases of this body area, primary malignant penile cancer is uncommon in Europe, with an incidence of less than 1 per 100,000 males and with SCC accounting for more than 95% of the cases.[6] The clinical appearance of penile SCC varies from an erythematous plaque to more verrucous and exophytic lesions that may coalesce into an irregularly shaped mass [Figure 5]. As in other series, the most common neoplastic tumor was SCC. The diagnosis was made relatively early, allowing less invasive surgery (partial

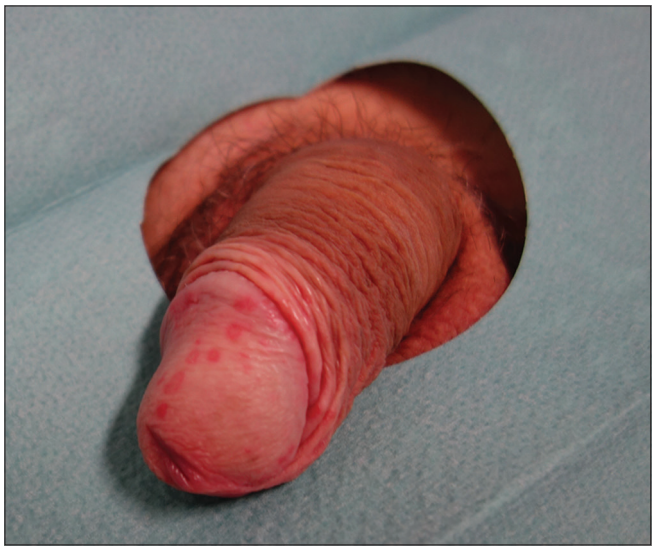

Figure 2: Penile psoriasis – papules and plaques, salmon color, on the glans

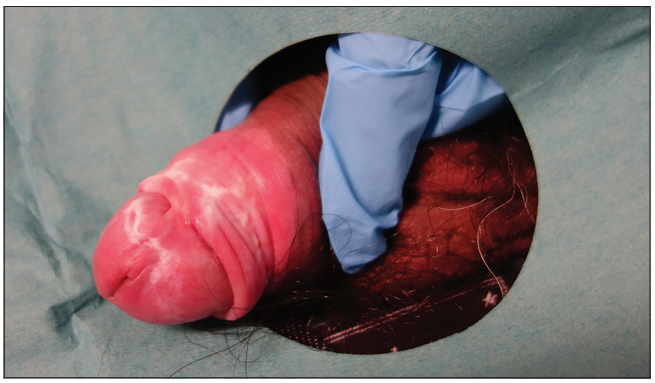

Figure 3: Lichen planus – whitish striae on the glans and foreskin

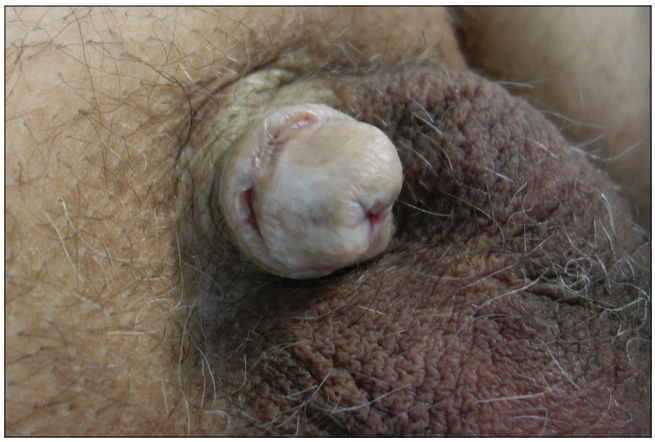

Figure 4: Lichen sclerosus – white plaques on the glans and foreskin

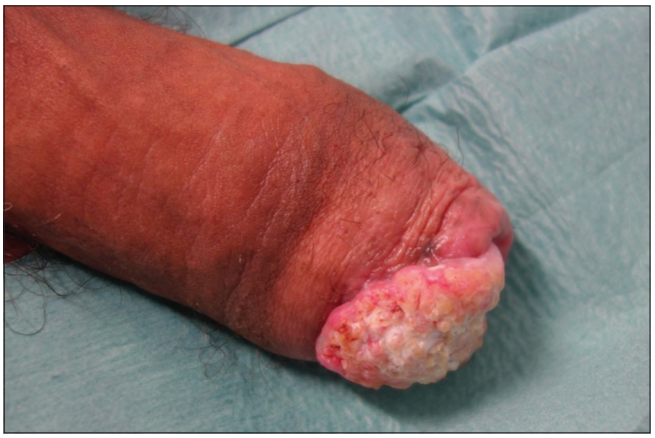

Figure 5: Squamous cell carcinoma – verrucous mass on the glans

Table 1: Nonvenereal penile dermatoses

Types	Subtypes	Number (%)	Age (years; $\bar{x}$ (st))
Inflammatory	Zoon balanitis	30 (27.8)	72(±13)
	Lichen sclerosus	17 (15.7)	60(±12)
	Psoriasis	12 (11.1)	56(±16)
	Lichen planus	5 (4.6)	67(±18)
	Unspecific balanitis	5 (4.6)	53(±18)
	Pemphigus vulgaris	1 (0.9)	16
	Fordyce disease	1 (0.9)	22
	Sub total	71 (65.7)	63(±17)
Neoplastic	Squamous cell carcinoma	17 (15.7)	66(±18)
	Erythroplasia of Queyrat	9 (8.3)	62(±16)
	Basal cell carcinoma	1 (0.9)	89
	Kaposi sarcoma	1 (0.9)	73
	Mycosis fungoides	1 (0.9)	40
	Seborrheic keratosis	3 (2.8)	48(±20)
	Angiokeratoma	1 (0.9)	34
	Angioma	1 (0.9)	72
	Lentigo	1 (0.9)	33
	Milia cyst	1 (0.9)	45
	Epidermoid cyst	1 (0.9)	54
	Sub total	37 (34.3)	61(±18)
	Total	108 (100)	

($\bar{x}$: Average; st: Standard deviation)

penectomy) in the majority of cases, with lower morbidity for the patients.

Erythroplasia of Queyrat (SCC *in situ* on the glans) usually presents as a sharply, define borders, slightly raised erythematous plaque on the glans penis or the inner side of the foreskin. The surface may be somewhat smooth, scaly to frankly warty [Figure 6]. The progression of erythroplasia into SCC has been reported to occur in 10–33% of cases. Surgical excision is the treatment of choice, but topical 5-fluorouracil and CO laser may also be used.[6,13]

In our series, there was a preferential treatment with CO2 laser therapy, with a success rate of 83%, similar to other studies.[15] Only one case of erythroplasia of Queyrat became an invasive carcinoma in an individual infected with HIV. Partial penectomy was necessary in only two patients as a primary intervention. There was no relapse in none of these.

Study limitations were that it was a retrospective study and only dermatoses with histological confirmation were included, excluding others clinically diagnosed. However, our findings may provide useful clinical data for an easier differential clinical diagnosis and treatment options of penile dermatoses.

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Nil.

Conflicts of interest

There are no conflicts of interest.

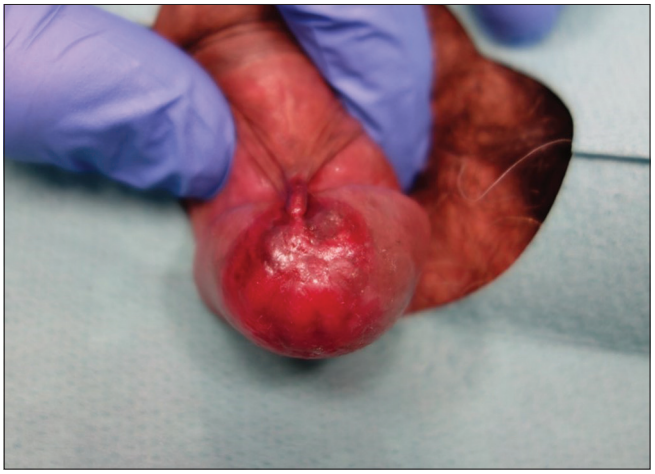

Figure 6: Erythroplasia of Queyrat – reddish plaque on the glans with some periurethral nodules

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