A Case of Male Genital Psoriasis without Involvement of the Glans Penis

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Abstract
Genital psoriasis is a debilitating condition affecting approximately 49% of male psoriasis patients at least once during their lifetime. This condition often presents as generalized plaque psoriasis and features well-demarcated, erythematous plaques affecting the glans penis and corona. Presentations of male genital psoriasis which disagree with this description may be under- or misdiagnosed, delaying appropriate management. We present the first reported case of chronic plaque psoriasis affecting the penile shaft without involvement of the glans. Both consistent histologic and non-cutaneous features of psoriasis facilitated diagnosis in this patient. The sclerotic plaque on the patient’s penile shaft resolved following biologic therapy for psoriasis. This rare presentation of genital psoriasis highlights important learning points for clinicians and dermatopathologists. First, genital psoriasis may affect the penile shaft without involvement of the glans penis. Second, non-cutaneous signs of psoriasis can inform diagnosis when clinical presentation is atypical. Third, psoriasis exhibits a broad spectrum of histopathology.

Introduction
Psoriasis is a chronic, inflammatory cutaneous disorder, affecting at least 11.4% of the general population [1]. Genital psoriasis affects approximately 49% of male psoriasis patients at least once during their lifetime [2]. In most patients, genital psoriasis is a presentation of...
generalized plaque psoriasis, although the external genitalia may be affected in isolation in 2%–5% of patients with psoriasis [3]. Genital psoriasis in men often manifests as well-dемarcated, erythematous plaques [4]. In addition to plaque psoriasis, the genital area may also be affected by pustular psoriasis [5].

In men, the entire penis, scrotum, and inguinal folds may be involved. In uncircumcised men, psoriatic plaques are most common on the proximal glans penis and under the prepuce [6]. In circumcised men, the most commonly affected areas are the glans penis and corona [6]. In either case, the glans penis is commonly affected. We present the first reported case of recurrent plaque psoriasis affecting the penile shaft without involvement of the glans penis over the course of a decade.

**Case Report**

An uncircumcised 20-year-old man of Chinese background was referred in 2015 for management of an intractable skin lesion of the ventral penile shaft. He had previously consulted several dermatologists over 5 years, and the presumptive diagnosis was ‘consistent dermatologic changes secondary to human papilloma virus infection’. This diagnosis was supported by the anatomical site, and vacuolated keratinocytes on shave biopsy histology suggestive of viral cytopathic effect. However, at the time of referral, the patient’s condition recurred despite three surgical excisions and a shave biopsy from 2010 to 2013. One biopsy taken during this time was of the glans and did not show any sign of psoriasis.

On initial examination, there was a lichenified plaque just proximal to the frenulum (Fig. 1). There was no other skin lesion or dermatosis. An excisional biopsy confirmed a benign lesion with significant hyperkeratosis.

The lesion recurred despite adjunctive oral prednisolone (25 mg daily for 2 weeks in mid-2015) as well as topical agents as monotherapy or in combination, including betamethasone dipropionate ointment 0.5 mg/g in optimized vehicle, mometasone furoate 1 mg/g lotion, tretinoin 0.05% cream, mupirocin 2% cream, and clobetasol 0.05% in white soft paraffin. In early 2016, CO₂ laser was employed as an alternative treatment modality. While lesion thickness was improved significantly, lesion size was still unchanged 6 months after.

In early 2017, the patient was treated empirically with oral valaciclovir and flucloxacillin, and topical mupirocin following the appearance of an impetiginized plaque on the left alar crease. In retrospect, this was likely an exacerbation of facial psoriasis.

**Fig. 1.** Penile shaft at initial presentation.
In 2020, the patient requested further treatment of the persistent plaque which had thickened despite topical treatment. CO₂ laser was used as a means to achieve intricately controlled ablation in order to minimize scarring. However, the lesion recurred as a flat white cobbled non-scaled oval plaque on the proximal frenulum (Fig. 2).

In early 2020, the patient developed features of mild extragenital psoriasis including facial and truncal erythema, hypervascularity of the nail beds and palmoplantar hyperkeratosis. A definitive diagnosis was made of plaque psoriasis, with genital involvement as the first manifestation. Treatment with either acitretin or methotrexate resulted in some improvement of induration but severe erythema remained (Fig. 3). Moreover, there was only modest improvement of severe induration of the soles from psoriasis, for which biologic therapy was indicated. The patient commenced tildrakizumab in September 2021. Three months after, the central sclerotic plaque had softened and thinned, with restoration of natural skin creases.

Discussion

Genital involvement may be the only manifestation of cutaneous psoriasis in 2%–5% of patients [3]. Other non-cutaneous signs of psoriasis, such as nail or joint involvement, may serve as useful clues. In fact, nail psoriasis is more common among patients with genital involvement [7].

We suggest that psoriasis may be more commonly diagnosed on the glans compared with the shaft as it is easier to examine without a need to stretch the skin taut. Hence, we hypothesize that the true incidence of plaque psoriasis affecting the shaft in isolation could be higher in reality. Other inflammatory dermatoses responsive to common therapies may mislead diagnosis and delay optimal management.

In the histologic context of parakeratosis present as broad thick zones, the differential diagnosis apart from psoriasis includes glucagonoma and deficiency states, pityriasis lichenoides, and granular parakeratosis [8]. These conditions have different clinical features, making
parakeratosis a hallmark sign of psoriasis based on clinicopathologic correlation. Parakeratosis was reported consistently from the patient’s biopsies. In a recent comprehensive case series, histologic examination of tissue from 51 patients highlighted that psoriasis encompasses a broad spectrum of features [9], and at best only 96% of cases may exhibit what are currently considered consistent histologic features. Irregular acanthosis and hypergranulosis were histologic features of psoriasis mentioned in the patient’s most recent reports. Irregular acanthosis and hypergranulosis were present in 84% and 65% of subjects from that case series, respectively.

This is the first case report of genital psoriasis affecting the penile shaft without involvement of the glans. To date, male genital psoriasis has only been reported in individual cases and case series of both circumcised and uncircumcised men always with involvement of the glans penis in isolation or in combination with the shaft. There has been a single previous case reported of male genital psoriasis without involvement of the glans. However, the diagnosis was questionable as it was based solely on response to treatment with ‘topical steroids’ and without any histology [10]. This currently uncommon presentation of genital psoriasis highlights the importance of careful clinical examination of genital skin, identification of non-cutaneous involvement in psoriasis and considered clinicopathological correlation.

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Statement of Ethics

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. Ethical approval is not required for this study in accordance with local or national guidelines.

Conflict of Interest Statement

Author Mr Nicolas Zubrzycki has no conflict of interest to declare. Dr Liang Joo Leow has received education, writing and travel support from Sun Pharmaceutical Industries, Inc.

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Author Contributions

Mr Nicolas Zubrzycki and Dr Liang Joo Leow contributed significantly to this manuscript to justify authorship criteria. Mr Nicolas Zubrzycki and Dr Liang Joo Leow collaborated to conceive the study. Mr Nicolas Zubrzycki drafted the manuscript. Mr Nicolas Zubrzycki and Dr Liang Joo Leow read and approved the final manuscript.
Data Availability Statement

All data generated or analyzed during this study are included in this article.

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