

# Zoon's balanitis presenting as discrete polyp on glans penis

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## ABSTRACT

The diagnosis of genital dermatological conditions in males can be challenging and rely on physical examination and biopsy. This report describes an unusual case of Zoon's balanitis producing a discrete polyp on the glans penis, in addition to the classically described well-demarcated erythematous macule.

## 1. Introduction

Balanitis is defined as inflammation of the glans penis, which can also encompass the prepuce (balanoposthitis). It is a common condition affecting 3–11% of males, with risk factors including advancing age, lack of circumcision and diabetes. Several conditions can cause balanoposthitis including infections, contact dermatitis, irritation, inflammatory dermatoses and premalignant lesions.<sup>1</sup> Clinical examination, together with biopsy in some cases, is the cornerstone of diagnosis and treatment.

Zoon's balanoposthitis (also known as balanitis circumscripita plasmacellularis or plasma cell balanitis), is an idiopathic inflammatory disorder affecting the glans penis, the coronal sulcus and the inner aspect of the prepuce. It is estimated to account for 5–10% of presentations for penile disorders. It typically presents as sharply demarcated, occasionally eroded patches, with a glossy surface and reddish-brown colour ("cayenne pepper spots"), caused by erythrocyte extravasation and haemosiderin deposition. Lesions occur on the glans, and commonly also on the opposing prepuce, termed "kissing lesions". Although classically a macular lesion, there has been a previous reported case of an ulcerated, partly polypoid lesion on the glans found to be Zoon's balanitis on histopathology,<sup>2</sup> which was concurrently diagnosed with penile carcinoma-in-situ on a separate lesion.

Here we report the unusual presentation of Zoon's balanoposthitis producing a discrete polypoid lesion arising from the glans penis.

## 2. Case presentation

A 44 year old male presented with a raised lesion on the glans penis,

which had been present for 3 months. Initially, the patient noticed a small lump (size of a rice grain) which quickly grew in size to 10x6x10mm, and was sensitive to touch but not painful. He had a background of mild longstanding phimosis, and his prepuce was erythematous and inflamed. His past medical history included obesity, hypertension and eczema. There was no history of sexually transmitted infections. On examination, there was a well demarcated, eroded, erythematous patch involving the corona of the glans penis and inner prepuce, surrounded by a white margin and multiple post-inflammatory hyperpigmented spots. On the glans laterally there was a 1cm polyp with a glossy erythematous surface and no visible ulceration (Fig. 1).

The patient underwent excisional biopsy of the polyp and the wound was closed primarily. Representative punch biopsies were also taken from the penile shaft adjacent to the coronal sulcus. Post operative recovery was uneventful. Histopathology of the glans polyp demonstrated an ulcerated exophytic nodule of inflamed mucosa with prominent vasculature (Fig. 2). The polyp had a dense plasma cell-predominant infiltrate, with a minor component of lymphocytes and neutrophils. There was a proliferation of vertically oriented vessels in the superficial stroma. Where present, the squamous epithelium was thinned, flattened and spongiotic. Two punch biopsies from the inner prepuce demonstrated ulcerated mucosa with similar stromal changes of a dense plasmacytic infiltrate with superficial neutrophils and prominent vasculature. There was no evidence of dysplasia or malignancy. No vasculitis or fungal organisms were identified. Stains for spirochetes, including Warthin-Starry and *Treponema pallidum* immunohistochemistry, were negative in the three samples. The overall histological findings support the diagnosis of Zoon's balanoposthitis.

The patient was initially treated with Kenacomb ointment (0.1%

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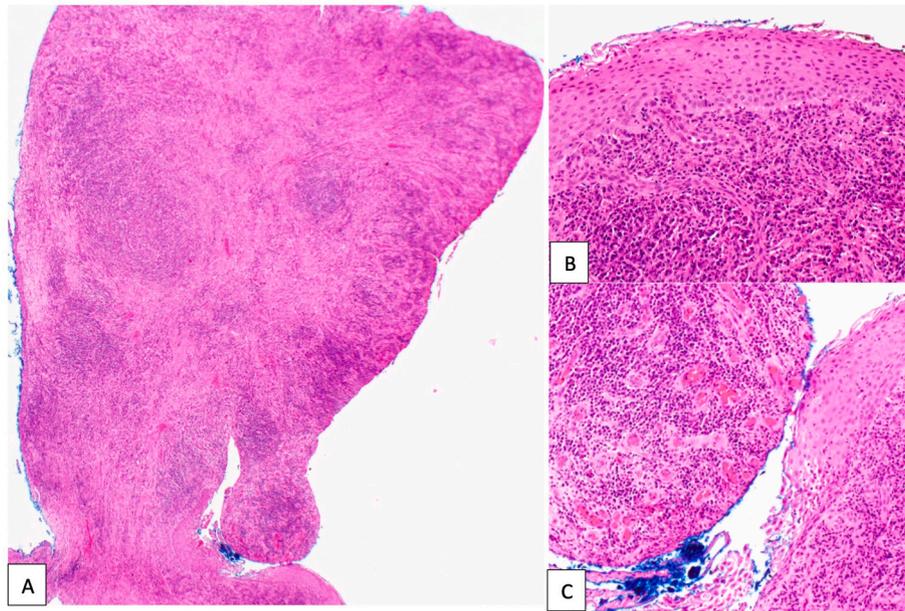
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**Fig. 1.** Clinical presentation. Discrete raised polyp arising from glans laterally near coronal sulcus. The internal prepuce demonstrates a discrete erythematous macular lesion, which would usually overlie the polyp if the foreskin were not retracted.



**Fig. 2.** Histopathology of polyp resected from glans penis. (A) Low-power image demonstrating ulcerated polyp with dense stromal inflammation (B) High-power image showing squamous epithelium with parakeratosis and a band-like infiltrate of plasma cells in the underlying stroma (C) High-power image shows a proliferation of superficial vessels in the dermis.

triamcinolone acetonide, neomycin, gramicidin, nystatin) for 4 weeks to reduce inflammation before proceeding to circumcision. The histopathology of the circumcision specimen was concordant with the biopsies, without evidence of dysplasia or malignancy. The patient recovered well post circumcision, with a significant improvement in symptoms.

### 3. Discussion

Penile lesions have a broad differential including infectious (e.g. secondary syphilis), inflammatory (e.g. Reiter's syndrome), vascular (e.g. angiokeratomas) and malignant. Neoplastic lesions can have a broad range of presentations, with both penile intraepithelial neoplasia (PeIN, erythroplasia of Queyrat) and squamous cell carcinoma having a variable appearance and potentially mimicking benign conditions. The clinical differentiation between Zoon's balanoposthitis and other

dermatoses may be challenging, and thus biopsy and histopathological examination are required for definitive diagnosis.

Zoon's balanitis is generally considered a benign condition, and typically manifests in middle-aged to older men, who are uncircumcised. Although the aetiology is unknown, contributing factors include history of local infections, local humidity or smegma accumulation, poor hygiene, heat and friction leading to chronic irritation. Histopathological findings classically include dense band-like infiltration of plasma cells, neutrophils, eosinophils and lymphocytes in the dermis with plasma cells exceeding 50% of all the cells. The dermis also commonly exhibits vascular dilation and proliferation, extravasated erythrocytes and the presence of haemosiderin. The epidermis can be atrophic or normal thickness with spongiosis and parakeratosis.<sup>3</sup> While the presence of plasma cells are classically associated with Zoon's, they can also be present in a number of infections, most notably syphilis, and thus

serology is an important investigation when infection is suspected.

Management of Zoon's balanoposthitis can be medical or surgical. European guidelines recommend commencing management with moderate strength topical steroids with, or without, an antibacterial agent.<sup>4</sup> Case reports also suggest topical calcineurin inhibitors (tacrolimus, pimecrolimus) or mupirocin ointment may be beneficial, however the quality of evidence is low. Other modalities recently reported include targeted laser and photodynamic therapy to the lesion. Carbon dioxide and Erbium:YAG lasers can offer precise ablation of the lesion and, to-date, have been well tolerated in case reports. Photodynamic therapy has been used for refractory Zoon's balanoposthitis lesions, and together with topical porphyrin precursors is thought to subdue activated T-lymphocytes inducing immunosuppression thus reducing plasma cell attraction to the dermis.<sup>5</sup> Circumcision remains the definitive treatment of Zoon's balanoposthitis according to the European guidelines for the management of balanoposthitis,<sup>4</sup> with resolution of symptoms without future recurrence in a majority of treated patients.<sup>1</sup> Improvement of symptoms after surgery may be due to the removal of aggravating factors causing chronic inflammation (eg. friction, poor hygiene).<sup>5</sup> Studies have reported improvement in symptoms from 6 weeks post circumcision.<sup>5</sup>

#### 4. Conclusion

This case reports an unusual presentation of Zoon's balanitis as a discrete polypoid lesion, in contrast to the traditionally described macular plaque. Importantly, there was no evidence of infection, vasculitis or dysplasia to confound the diagnosis. The patient was successfully treated by excising the polyp from the glans and confirming diagnosis with biopsies of the prepuce, followed by circumcision once the

diagnosis was established.

#### Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

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#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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