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Traumatic neuroma of the penis

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## Case Presentation

### Traumatic neuroma of the penis

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## Abstract

Traumatic neuromas are tumors produced by a reactive process to regenerate injured nerves that result in a disordered proliferation of nerve bundles. These tumors are usually related to previous surgery or trauma. We describe a case of traumatic neuroma on the penis of a 24-year-old man; the tumor was initially suspected to be a condyloma. A shave biopsy was both diagnostic and curative.

**Keywords: Traumatic Neuroma Penis**

## Introduction

Traumatic neuromas are nerve sheath tumors that result when a nerve has been injured by some kind of trauma [1]. The severed nerve tissue proliferates in a disorganized fashion in an attempt to repair and reconnect the proximal and distal portions of the nerve. The result is a tumor in which the ratio of axons to Schwann cell fascicles approaches 1:1. These tumors are not malignant and can be completely asymptomatic or present with pain [2]. They appear as firm oval papules or nodules that are skin-colored to pink in the subcutaneous or deeper tissues [3].

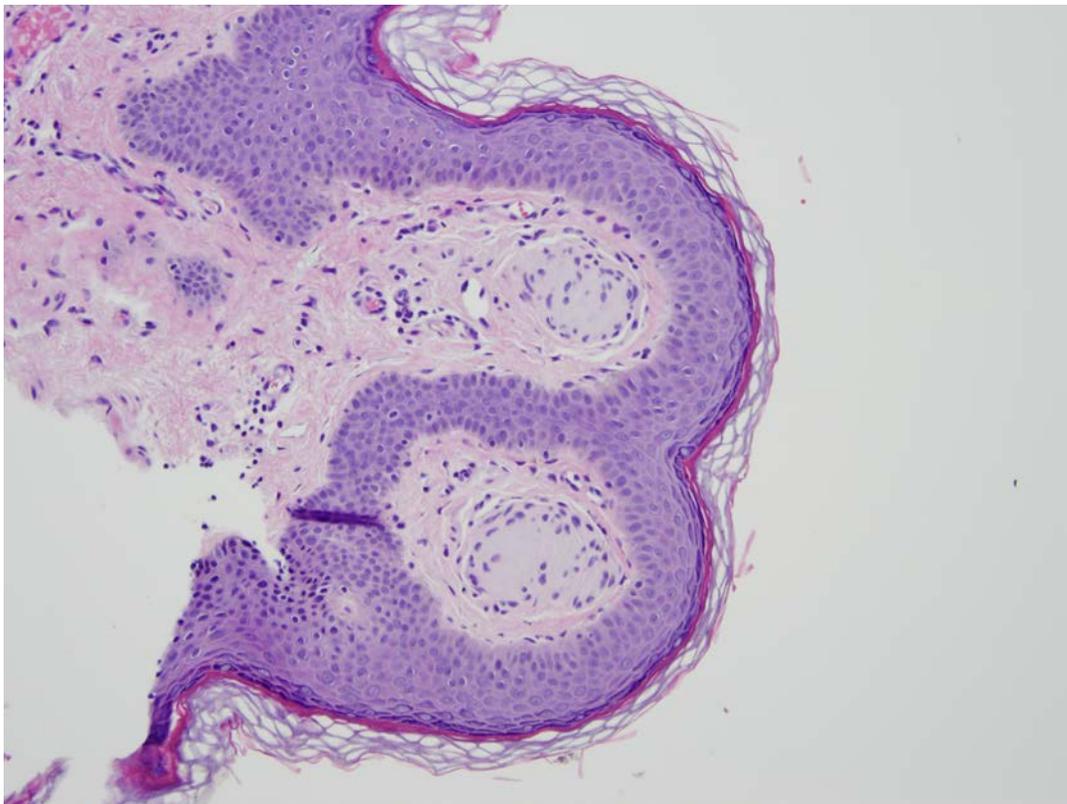
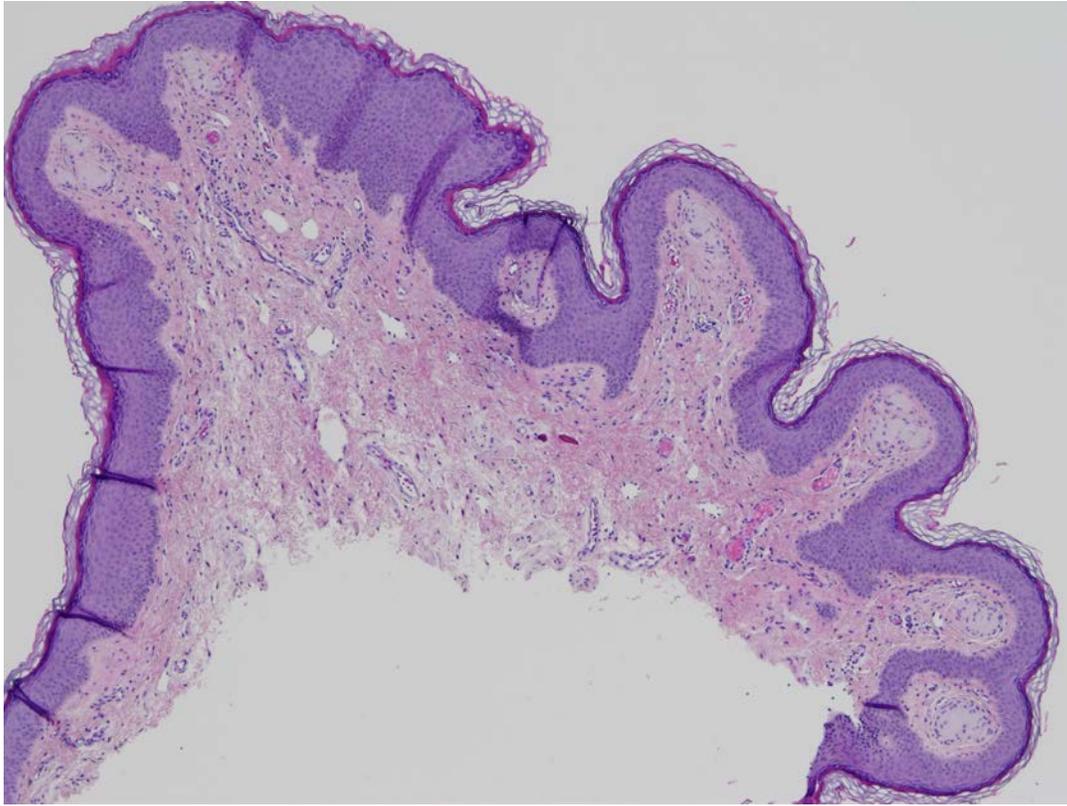
Genital traumatic neuromas are rare and are often misdiagnosed as condylomata if not confirmed by biopsy. Histopathologically, these lesions are composed of an irregular arrangement of nerve fascicles in a fibrous stroma. The arrangement of the fibrous tissue around the individual fascicles can give the appearance of multiple nerves. There are perineural cells with epithelial membrane antigen that surround each fascicle, allowing for differentiation from other types of neuromas. As is the case with most nerve tumors, mast cells are generally seen scattered throughout the lesion [2, 3].

## Case synopsis

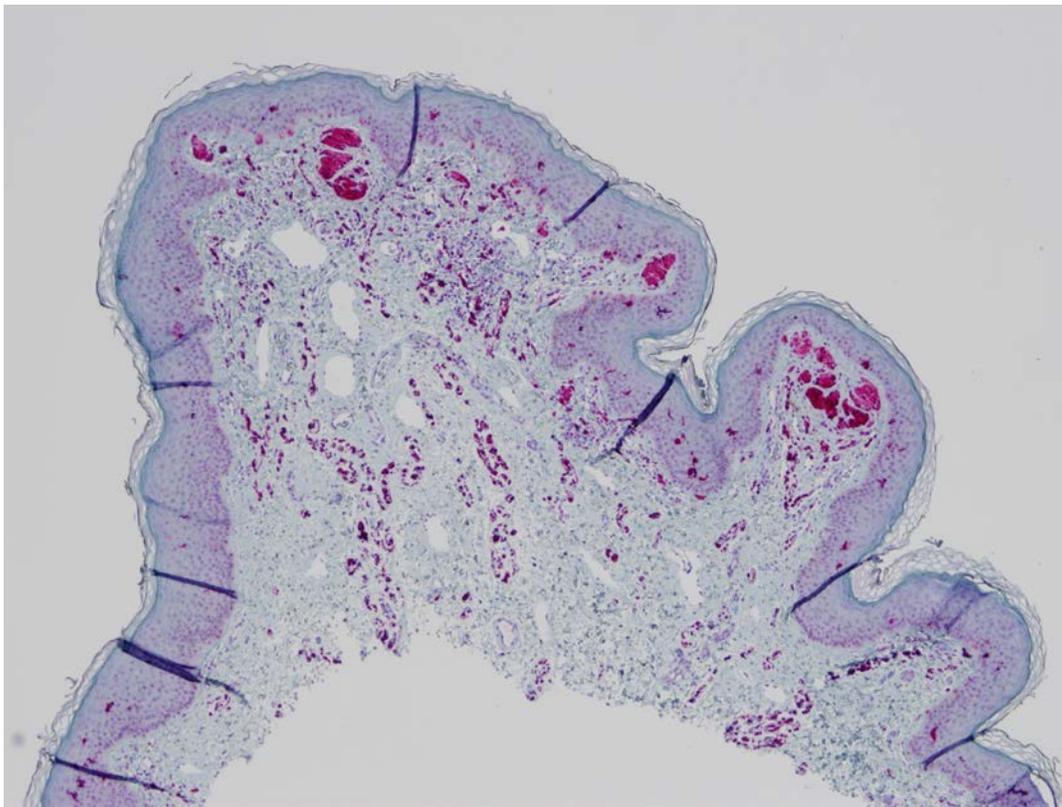
A 24-year-old man presented for evaluation of a lesion on his penis, which he noticed 2 days after having unprotected sex with a new partner. He denied any history of trauma to the area or any past history of sexually transmitted diseases. The patient had been circumcised at birth. He denied pain, pruritis, or constitutional symptoms. On clinical examination, he had a 4mm mammillated flesh-colored papule on the ventral shaft of his penis. Laboratory tests for RPR, HIV, gonorrhea, and chlamydia were negative. A shave biopsy of the lesion was performed to rule out condyloma acuminatum. Histopathologic evaluation revealed prominent Meissner corpuscles, slight proliferation of dermal nerve bundles, and dilated blood vessels. The overlying epidermis was mildly acanthotic. No squamous atypia or viral cytopathic changes were seen. The nerve fibers and Meissner corpuscles were highlighted with an S100 stain. The patient was diagnosed with a traumatic neuroma of the penis.



**Figure 1A & B.** 4mm mammillated flesh-colored papules on the ventral penile shaft.



**Figure 2A & B.** Shave biopsy revealed marked Meissner corpuscles, slight proliferation of dermal nerve bundles, and dilated blood vessels (H&E, 4x). The overlying epidermis was mildly acanthotic, with prominent Meissner corpuscles in the dermis (H&E, 10x).



**Figure 3.** An S100 stain highlights the nerve fibers and Meissner corpuscles (S100, 4x).

## Discussion

Genital traumatic neuromas are exceedingly rare in the literature with a total of 24 cases reported to date [4, 5, 6, 7, 8, 9]. Montgomery et al presented the first case in 1990 of a 58-year-old man with a tender papule that developed after injury to his penis when he walked through a glass door [4]. In 1999 Brehmer-Andersson reported 3 more cases of traumatic neuromas excised from the prepuce or shaft of the penis in three sexually active young men. Each case was histologically similar and nothing in the histories gave any other clues to the cause. In his report he asked if the tumors could be related to sexual activity [5]. In a letter published in the *Journal of the American Academy of Dermatology* in 2006, a case of a 29-year-old uncircumcised man presented with multiple neuromas of the penis. This patient reported no history of sexual activity in the last 2 years. However, the duration of the lesions was not reported [6]. In 2006 and 2008 there were two cases of traumatic neuromas occurring in eleven- and six-year-old boys treated five and three years after circumcision, respectively [7, 8]. A study by Salcedo et al. in 2008, analyzed 17 cases of genital traumatic neuromas [9]. In each case the original diagnosis was condyloma acuminatum. The age range of patients was 23-59 years old and the lesions ranged from 1-7mm in size. Ten of the cases occurred in men who had biopsies done on the penis in the previous 3 years and the neuromas were attributed to this recent trauma. In the other five men there was no recent reported trauma but each patient was circumcised.

Our patient tested negative for any sexually transmitted diseases and was found to have a traumatic neuroma on biopsy. The possible inciting events in this case were recent or past vigorous sexual activity leading to microtrauma, previous circumcision, or other unknown trauma. This case illustrates the need to include the diagnosis of traumatic neuroma in the differential diagnosis for a new papule on the penis in a young male. The treatment for these lesions is surgical excision and the prognosis is excellent. This patient's shave biopsy proved curative and he has had no complications or new lesions in the two years following diagnosis.

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