Condom herpes: an interesting entity

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Genital herpes has superseded the bacterial sexually transmitted diseases (STD) as the most prevalent STD seen worldwide, with an estimated 491 million being affected. It is encountered with an increasing frequency, with a prevalence of 11.9% in the USA, and can present in atypical and severe ulcerative forms, especially in human immunodeficiency virus (HIV)-infected individuals. Though a definitive antiviral treatment with acyclovir, valacyclovir or other derivatives exists, the property of latency and reactivation leads to its increasing incidence and prevalence. The common sites of involvement in the males are the glans, prepuce, and shaft of the penis. The male condom, if used appropriately, is the most effective among the barrier methods of contraception, with an additional advantage of protection from STDs. However, it has a failure rate of up to 13%. The efficacy of condoms in preventing herpes simplex virus 2 (HSV-2) transmission has been studied in several contexts; condoms are often associated with a decreased risk of HSV-2 transmission, yet fallacies can occur. Here, we describe a male who developed a primary episode of genital herpes at the base of the penis, despite proper usage of condoms during intercourse. This presentation can be likened to condom chancre, a much-described entity of primary syphilis.

Keywords: condoms, genital herpes, chancre, sexually transmitted diseases, herpes simplex virus-2

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INTRODUCTION

Genital herpes is a common viral sexually transmitted disease (STD) found worldwide caused by the herpes simplex virus, which is of two types: herpes simplex virus 1 (HSV-1) and herpes simplex virus type (HSV-2). HSV-1 mostly causes oral lesions and herpes labialis, whereas HSV-2 is sexually transmitted and causes genital herpes [1]. HSV is peculiar because it can persist within the human host in the dorsal ganglion of cervical or sacral nerves lifelong. It demonstrates latency and can reactivate and cause flare-ups during episodes of decreased immunity like fever, trauma, other infections, mental and physical stress, and human immunodeficiency virus (HIV) infection. The highest risk of HSV-2 transmission to a sexual partner is when active lesions occur, but transmission is known even during latency periods. Worldwide, approximately 491 million people are infected with HSV-2 [2]. It is encountered with an increasing frequency, with a prevalence of 11.9% in the USA, and can present in atypical and severe ulcerative forms, especially in HIV-infected people. On the other hand, HSV-2 infection by itself is a risk factor for acquiring HIV infection.

The common sites of involvement in males are the glans, prepuce, and shaft of the penis. Clinically, it can present in multiple ways: primary episode, non-primary first clinical episode, and recurrent episode [3]. A primary episode is defined as a true primary episode in which a patient previously

seronegative for HSV-1 and HSV-2 acquires HSV for the first time and exhibits signs and symptoms. A non-primary first episode refers to an HSV-2 infection in a person who has been previously infected with any type of HSV but is showing clinical signs and symptoms for the first time [1,3,4]. Typical clinical presentation is the occurrence of grouped vesicles on an erythematous base on the genitalia, especially over the glans, frenulum, and shaft of the penis in men. The first episode is accompanied by fever and constitutional symptoms like myalgia and malaise in 80% of cases [3]. Antiviral therapy is recommended to shorten the duration of symptoms and signs in primary infection. Clinical recurrences can also be treated or prevented with continued antiviral therapy [5-7].

Condoms have been considered to be highly effective in preventing HSV infection. Here, we report a case of herpes simplex occurring in the pubic area of a male at the base of the penis despite condom usage [8-10]. The presentation can be considered similar to condom chancre [11].

CASE PRESENTATION

A 30-year-old male presented with painful blisters on the pubic area of seven days' duration. The patient had a history of condom-protected sexual intercourse with a female acquaintance two weeks prior. There was no history of genital ulcer, discharge, or similar lesions any time before the onset of lesions. On examination, there were multiple grouped vesicles on an erythematous base on the right side of the pubic region in proximity to the base of the penis, just outside the area ordinarily covered by condoms (Figure 1), with unilateral tender inguinal lymphadenopathy consistent with a clinical diagnosis of genital herpes. The glans penis, foreskin, and buttocks were uninvolved. Systemic examination was within normal limits. A Tzanck smear from an intact vesicle was inconclusive. A vesicular fluid sample sent for HSV PCR returned positive for HSV- 2. The patient was treated with oral valacyclovir 1000 mg twice daily for ten days and was advised to abstain from sexual activity until the healing of the lesions.

DISCUSSION

Genital herpes is the most frequent sexually transmitted disease (STD) seen currently [1,4,5], with almost equal incidence in both genders. In males, it commonly presents on the glans or shaft of the penis as grouped vesicles, which may later evolve into pustules or polycyclic erosions [5,6]. The primary episode may be associated with pain, itching, dysuria, urethral discharge, tender inguinal lymphadenopathy, and constitutional symptoms like fever and malaise [5]. Recurrent episodes are unpredictable but less severe and can occur anywhere in the peri-genital region, including the genitalia, groins, buttocks, and thighs [5]. Primary and recurrent infections mandate antiviral therapy with acyclovir, valacyclovir, or their analogues. Acyclovir, a guanosine analogue, inhibits HSV DNA synthesis. On oral intake, it reaches the viral infected cells, and is converted to acyclovir monophosphate by viral thymidine kinase, then converted to acyclovir triphosphate by cell enzymes. This derivate inhibits viral DNA polymerase by inhibiting deoxyguanosine triphosphate, thereby inhibiting viral replication. It has poor oral bioavailability and a short half-life. Hence, it is being replaced by valacyclovir, its prodrug, which has a better bioavailability and requires less frequent dosing. Acyclovir is given as 400 mg thrice daily, whereas valaciclovir dose is 1 g twice daily. Famciclovir is a purine analog with high bioavailability and is used at a dose of 250 mg twice daily [12]. Treatment duration is 7-10 days, or till lesions heal.

Figure 1. Multiple tender vesicles on an erythematous base at the root of the penis on the right side.

The effectiveness of condoms in preventing HSV-2 transmission has been studied in several contexts; condoms are often associated with a decreased risk of HSV-2 transmission [5-10]. It was reported that condoms were differentially protective against HSV-2 transmission by sex; condom use reduced per-act risk of transmission from men to women by 96% ($P < 0.001$) and marginally from women to men by 65% ($P = 0.060$) [10]. Condoms are advocated as a means of protection from STDs. Distributing condoms and promoting their usage is integral to any STD awareness program.

The occurrence of syphilitic chancres proximally on the penile shaft close to the radix penis, the outside area of protection by a condom, is called condom chancre [11]. This demonstrates the fact that condoms are not adequately protective. Condom chancre is attributed to mechanical friction and stricture of a rubber condom, leading to minor trauma that facilitates the transmission of *Treponema pallidum*, causing the development of primary chancres [11]. Similarly, men may acquire HSV infection despite condom use during heterosexual intercourse, especially if they are HSV-naïve, as there is a larger mucosal area of shedding of HSV in the case of an infected female [10,11]. This can cause inoculation of the virus into the unprotected skin. Therefore, a clinical diagnosis of a primary episode of herpes can be made in such cases. Primary episodes have also been reported in the anal region of males [13]. Case reports similar to ours could not be found in the literature, which highlights the novelty of the case.

CONCLUSIONS

Condoms are universally considered to be protective against all STDs. If properly used, condom failure is a rare event. However, even in scenarios where a condom is used properly, STDs may rarely occur, as in our case. The clinical presentation of genital herpes in this manner at the base of the penis can be likened to condom chancre in syphilis. Therefore, a clinical entity of 'condom herpes' can be considered here. It is essential to educate patients regarding the proper use of condoms, which prevents unwanted pregnancies and STDs, and caution them regarding rare fallacies like this, taking care to stress upon further use of condoms for continual protection from STDs.

Conflict of Interest: None declared.

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