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CLINICAL CASES

Simultaneous primary and secondary syphilis: a case report in an immunocompetent patient

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Abstract

Syphilis is a systemic infection that develops in different stages with clinical variability and is considered a great mimicker. The clinical stages are differentiated but sometimes occur simultaneously, especially in immunocompromised patients. Simultaneous primary and secondary syphilis (sPSS) is rare in immunocompetent patients, underscoring our present case. We report the case of a 23-year-old male patient, who developed numerous indurated ulcerations on the penile shaft and had extensive papular scaly plaques affecting mainly the palms and soles. Although many cases of sPSS are human immunodeficiency virus related, a high percentage of cases may occur in immunocompetent patients, underscoring the importance of the case presented.

Keywords: *Immunocompetent individual. Secondary syphilis. Primary syphilis. Treatment.*

Introduction

Syphilis is an infectious disease caused by the spirochete *Treponema pallidum*[1]. It is a systemic disease that affects the skin, adnexa, and mucous membranes. It is transmitted through direct contact with infected mucous membranes during sexual intercourse, most commonly in men who have sex with men (MSM)[1,2]. The course of the disease is usually classified as early or late syphilis. The first group (early syphilis) includes primary (chancre stage) and secondary (disseminated stage) disease. Late syphilis includes late latent syphilis, latent syphilis of unknown duration, and tertiary syphilis characterized by cardiovascular, neurologic, and gummy lesions.[1] In some cases, primary and secondary stages may occur concurrently, which is referred to as simultaneous primary and secondary syphilis (sPSS)[3-9]. However, it is often associated with immunocompromised (human immunodeficiency virus [HIV]-positive) patients and also affects immunocompetent patients[10,11]. We report the case of an immunocompetent patient with sPSS and review cases in the literature.

Case report

A 23-year-old man presented with genital ulcers that had been present for four weeks and had been previously treated with a class 1 steroid (clobetasol propionate) for two weeks. Physical examination revealed multiple ulcers with indurated bases involving the penile body (Fig. 1A). He also had multiple erythematous, papular, and scaly plaques on the palms (Fig. 1B) and soles, and bilateral non-painful inguinal lymphadenopathy.

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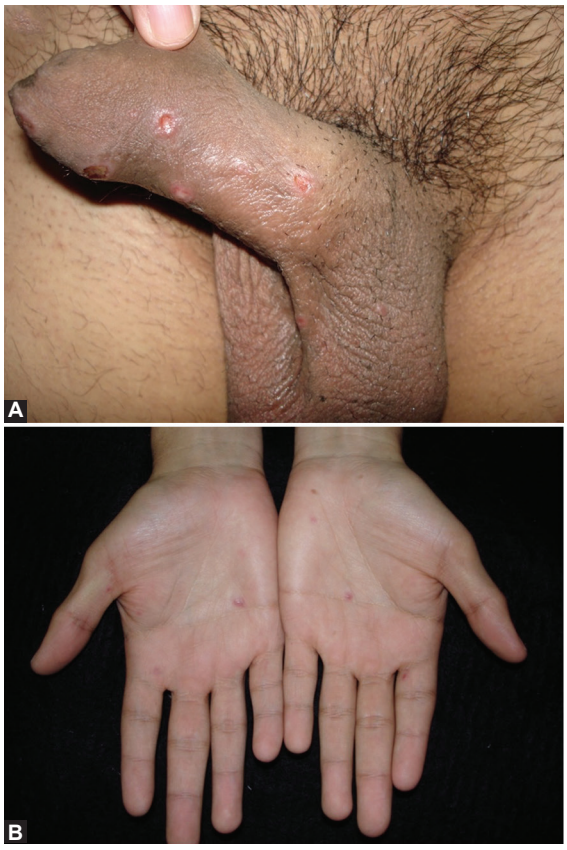

Figure 1. A: multiple indurated penile ulcers. **B:** palmar manifestation of papulosquamous syphilis.

Laboratory tests were positive for syphilis (FTA-ABS), and Venereal Disease Research Laboratory (VDRL) tests were reactive and high (VDRL titer 1:320). Serologic testing for HIV and hepatitis was negative. Histologic findings of penile ulceration and palm plaque included ulceration and psoriasiform hyperplasia, respectively, with abundant plasmatic CD79A+ cells. Spirochetes were not found. The patient was treated with a single dose of 2.4 million IU penicillin G benzathine without relapse.

We performed a literature review of cases of sPSS. Of the 24 patients (including the present case), 23 were male and only one was female, with a mean age of 39.6 ± 9.41 years (Table 1). The main risk factors described were multiple sexual partners, unprotected sexual contact, and MSM. Regarding immunological status, 13 (54%) patients were immunocompetent at the time of syphilis diagnosis, which excluded HIV infection; 11 patients were immunosuppressed (45%) and 16 (66%) cases had comorbidities, mainly HIV infection (11 cases, 68%). Most patients were MSM (7 cases, 29%); however, this information was not reported in 8 (33%) cases. Multiple chancres occurred in 9 (37%) patients, and the time of development of sPSS ranged from 3 days to 3 months.

Discussion

sPSS is considered a relatively common disease in immunocompromised patients, associated with HIV infection in at least 25% of cases[12]. This is due to the alterations in innate and humoral immunity caused by HIV infection, which favor the spread of the pathogen through the bloodstream and promote the rapid appearance of secondary lesions and atypical disease features; these atypical presentations are often observed in patients with high viral loads and low CD4+ T-lymphocyte counts[13].

The simultaneous occurrence of primary and secondary lesions in immunocompetent patients is rare but possible[14,15]. The mechanism by which immunocompetent patients without comorbidities[9], as in our case, present simultaneously with chancre and secondary manifestations is not well understood. However, some theories have been proposed. One is that there is a window period for detection of HIV with a negative test but coinfection with both sexually transmitted diseases[1,3,4]. Another theory is that primary chancre, which consists of a local tissue reaction associated with inoculation, occurs three weeks to 90 days after sexual contact and usually resolves six weeks before secondary manifestations, representing hematogenous dissemination of spirochetes[1,5]. This rapid dissemination results in secondary features developing before the primary lesion disappears[5]. Other theories suggest that multiple sexual contacts may cause re-infection without adequate protection or that autoinoculation may be a possible explanation[3].

Regardless of immunologic status and clinical presentation, all patients, including our case, were successfully treated with penicillin G benzathine (single or multiple doses) without relapse.

Although sPSS is mainly associated with immunocompromised patients, it is not an exclusive feature and affects immunocompetent patients[16,17]. At the time of syphilis diagnosis, whether typical or atypical, HIV infection must be excluded because both diseases share the same risk factors. Immunocompetent patients with sPSS and a seronegative result at the time of diagnosis need to be followed up because they may be in a window period[1,8]. It is essentially an appropriate treatment to prevent relapse and long-term complications.

Table 1. Characteristics of cases of primary and secondary syphilis reported in the consulted literature

Author/ References/year	Immunologic status	Comorbidities	Age (Years)	Sexual practice	Diagnostic tests			Primary lesions/ Site of lesion	Secondary lesions	Evolution time	Treatment
					VDRL	Hemagglutination	Dark field				
Present case	IC	-	23	HS	1:320	-	-	M; penis	Scaly plaques on palms and soles	1 month	PGB 2.4 MIU/IM 3D
Jiamton et al.[2], 2018	IC	-	23	MSM	1:64	> 1:80	+	S; perianal	Erythematous papules and macules on palms and soles	3 months	PGB 2.4 MIU/IM SD
	IC	*Chlamydia trachomatis* infection.	17	HS	1:64	Reactive	+	M; penis	Plaques and papules on trunk, extremities, palms, and soles	1 month	PGB 2.4 MIU/IM SD
	IS	VIH infection. Late syphilis (5 years earlier).	34	BS	1:256	> 1:80	+	S; penis	Scaly erythematous plaques on palms and soles, CL	2 weeks	PGB 2.4 MIU/IM 3D
	IS	VIH infection. Latent syphilis (1 year earlier).	25	MSM	1:64	> 1:80	+	M; penis and scrotum	Scaly erythematous plaques on palms and soles	12 days	PGB 2.4 MIU/IM SD
	IS	IV drug user. HIV infection. Previous early syphilis infection. HSV infection	21	MSM	1:256	Reactive	+	M; penis	Erythematous maculopapular plaques on the trunk, palms, and extremities	3 days	PGB 2.4 MIU/IM SD
	IC	HSV infection	37	MSM	1:128	> 1:80	+	S; penis	Erythematous macules on palms and soles	2 weeks	PGB 2.4 MIU/IM SD
	IC	-	22	HS	1:32	Reactive	+	M; scrotum	Discrete brown plaques on palms and soles	1 month	PGB 2.4 MIU/IM
	IS	HIV infection. Previous latent syphilis (5 years).	24	MSM	1:512	Reactive	+	S; penis	Scaly erythematous plaques on palms/ soles. Whitish plaques in the pharynx; CL	1 week	PGB 2.4 MIU/IM 3D

(Continues)

Table 1. Characteristics of cases of primary and secondary syphilis reported in the consulted literature *(continued)*

Author/ References/year	Immunologic status	Comorbidities	Age (Years)	Sexual practice	Diagnostic tests			Primary lesions/ Site of lesion	Secondary lesions	Evolution time	Treatment
					VDRL	Hemagglutination	Dark field				
Mohanan and Udayashankar[3], 2021	IC	-	24	HS	1:64	-	-	S; penis	Scaly papules and plaques on palms and soles	3 days	PGB 2.4 MIU/IM SD
Nahlia and Setyowatie[4], 2020	IS	HIV infection.	55	MSM.	1:16	Reactive	+	M; penis	Erythematous macules, alopecia	3 weeks	PGB 2.4 MIU/IM SD
Arias-Santiago et al.[5], 2011	IC	-	54	-	-	1:128	-	S; penis	Erythematous papules on palms	4 days	PGB
Sánchez et al.[6], 2021	IC	Amygdalectomy	28	-	1:32	Reactive	-	M; extragenital	Erythematous macules on the trunk	1 month	PGB 2.4 MIU/IM 3D
Morgante et al.[7], 2020	IC	Tobacco use (TI > 11)	26	-	1:32	-	-	S; lips	Scaly erythematous plaques on palms and soles, papules on legs	2 months	PGB 2.4 MIU/IM 3D
Arunprasath et al.[8], 2021	IC	-	22	-	1:64	Reactive	-	M; penis	Scaly erythematous plaques on the scrotum	10 days	PGB 2.4 MIU/IM SD
Cancela and Bengoa[9], 2003	IC	Cognitive delay.	20	MSM	1:16	-	-	S; scrotal	CL	-	PGB2.4 MIU/IM 2D
De Sousa[10], 2013	IS	HIV infection. Antiretroviral treatment	34	-	1:128	-	+	S; penis	Moth-eaten alopecia, erythematous plaques, and papules on arms, palms, and soles	10 weeks	PGB 2.4 MIU/IM SD
Pérez-Cortés et al.[11], 2014	IS	Marijuana user. VIH infection. *S. aureus* chancre infection.	30	HS	1:64	-	+	S; penis	Scarce erythematous papules on palms and soles	1 month	PGB 2.4 MIU/IM 3D
Füeßl[12], 2016	IC	-	68	-	1:8	-	-	S; upper lip	Scaly plaques on the hands and feet	6 weeks	PGB

(Continues)

Table 1. Characteristics of cases of primary and secondary syphilis reported in the consulted literature *(continued)*

Author/ References/year	Immunologic status	Comorbidities	Age (Years)	Sexual practice	Diagnostic tests			Primary lesions/ Site of lesion	Secondary lesions	Evolution time	Treatment
					VDRL	Hemagglutination	Dark field				
De Sousa[13], 2013	IS	HIV infection	30	HS	1:128	-	+	S; penis	Scaly macules and papules on arms, palms and soles	5 weeks	PGB 2.4 MIU/IM; SD
Contreras et al.[14], 2018	IS	HIV infection	36	-	Reactive	-	-	S; penis	Erythematous maculopapular plaques on the trunk, palms, and soles	1 month	PGB 2.4 MIU/IM; SD
Mitra et al.[15], 2021	IS	HIV infection. Antiretroviral treatment	48	-	Negative	1:1024	-	S; penis	Annular copper-colored plaques on soles	6 weeks	PGB 1.2 MIU/IM; 3D
Kutsuna and Fujiya[16], 2021	IC	-	25	Female sex worker	1:64	1:10240		S; lower lip of the mouth	Maculopapular rash on the face	4 weeks	Amoxicillin/ Probenecid; 14 days
Noviyanthi et al.[17], 2022	IS	HIV infection. Antiretroviral treatment	35	HS	1:128	Reactive	-	M; penis	Alopecia; plaques with thick scales extremities, trunk, palms, and soles	1 month	PGB 2.4 MIU/IM 2D

IC: immunocompetent; IS: immunosuppressed; MSM: men who have sex with men; HS: heterosexual; BS: bisexual; S: single lesion; M: multiple lesions; CL: condylomata lata. PGB: Penicillin G benzathine; MIU/IM: million I.U. intramuscular; SD: single dose; 2D: 2 doses; 3D: 3 doses.

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Conflicts of interest

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Ethical disclosures

Protection of people and animals. The authors declare that no experiments were carried out on humans or animals for this research.

Data confidentiality. The authors declare that they have followed the protocols of their work center regarding the publication of patient data.

Right to privacy and informed consent. The authors have obtained the informed consent of the patients and/or subjects referred to in the article.

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