

A Case Report: Psoriasis-mimicking Lesions of Secondary Syphilis in HIV Positive Patient

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Abstract: Syphilis is a sexually transmitted disease that is considered to be "the great imitator" because of the clinical appearance that resembles various types of skin diseases. The coincidence between syphilis and Human Immunodeficiency Virus(HIV) often occurs, and the incidence increases, especially in the male population who have sex with men. Uncommon syphilis clinical manifestations are common in HIV patients. This paper reports a 28-year-old man who was infected with HIV, came to Dr. Sardjito General Hospital's Dermatovenereology polyclinic, with a complaint of scaly red plaques on the arms, legs, hands, feet, and scrotum and accompanied by nail abnormalities that mimicking skin and nail abnormalities in psoriasis. Histopathology examination appropriate with secondary syphilis with psoriasiform acanthosis, neither hypergranulosis nor Monroe abscess, and many lymphocytes and plasma cells infiltration in the upper dermis, perivascular, and periadnexa. The serological test showed a positive result of Treponema Pallidum Haemagglutination (TPHA) and Venereal Disease Research Laboratory (VDRL) 1/32. The patient was treated with injections of benzathine penicillin G 2.4 million units single dose. Skin and nail lesions improvement occurred three months after therapy. Variable clinical presentations of secondary syphilis in HIV disease may lead to wrong diagnosis and improper treatment. The biopsy can be used to make a diagnosis of atypical syphilis lesions. Syphilis patients with HIV infection more likely to experience serological decline failure, recurrent infections, and slower treatment response than patients who are not infected with HIV.

1 INTRODUCTION

Syphilis is a chronic sexually transmitted disease caused by *Treponema pallidum* subspecies *pallidum*. Syphilis can affect almost all of the internal organs, including cardiovascular and nervous systems. Transmission most often occurs through direct contact with lesions in mucosa or skin during sexual intercourse through vagina, anus, or genital. The clinical manifestations of syphilis may resemble a variety of diseases so often called "the great imitator". (Zetola et al., 2002)

Syphilis prevalence in HIV patients is higher than Human Immunodeficiency Virus (HIV) negative patients. The coincidence between syphilis and HIV often occurs because both are transmitted primarily through sexual intercourse. (Karp et al., 2009) Syphilis patients with ulcer lesions are at

higher risk of HIV infection than other syphilis lesions. The high rates of coincidence of syphilis and HIV make all patients with syphilis should be offered HIV testing, and all HIV patients must regularly undergo syphilis examinations, especially for high-risk populations. (Pastuszczak et al., 2011)

According to World Health Organization (WHO) data, there are around 900,000 new cases of syphilis every year so the clinician must be aware of the disease (Karp et al., 2009). Since 2014-2018, Dr. Sardjito General Hospital has found 114 cases of syphilis with 53 cases of syphilis coincidence with HIV. This paper reports a case of psoriasis-mimicking lesions of secondary syphilis in homosexual patients with HIV.

2 CASE

A 28-year-old man came to the Dermatology and Venereology Polyclinic of Dr. Sardjito General Hospital Yogyakarta on May 2nd, 2018 complained red and scaly plaques, felt itchy on the palms and feet soles since nine months ago. Plaques also appeared on the back of the hands, instep, forearms, legs, and scrotum. Two months before, the patient said that there had been a painless ulcer and untreated, but improved by itself. The skin around the nails began reddishly, and there were pitting nails. The patient did not have a previous similar skin disease, and atopy history was denied. The patient does not have serious illnesses or take routine medication. The same complaint from the family is also denied. The patient was diagnosed with HIV since December 2015 and started taking

antiretroviral therapy (ARV) since January 2018 using fixed drug combination (FDC) tenofovir, zidovudine, and efavirenz with 162/ml CD4 count. The patient had unsafe sexual intercourse with ten men, insertive, and receptively.

On the physical examination, it was found that the patient's condition was moderate, composed of all vital signs within standard limits and no lymph node enlargement. Dermatological and venereological status of palmar manus and plantar pedis appeared diffuse erythematous plaques with thick scales, on the arms, lower limbs, dorsum manus, and dorsum pedis appeared erythematous plaques with thick scales, multiple and scattered, on the scrotum appeared scales with excoriation, and on nails appeared periungual erythema, discoloration, onychodystrophy and pitting nails were obtained (Figure 1 and 2).



Figure 1: Dorsum manus: erythematous plaques with a thick scale on it, multiple, discrete

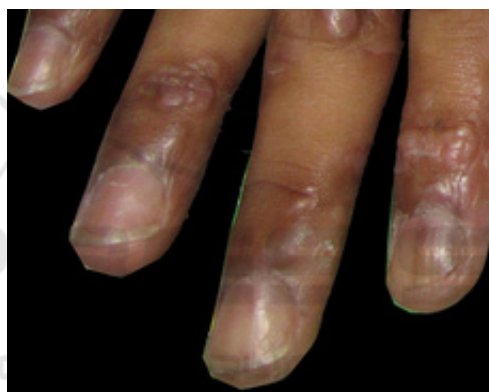


Figure 2: Dorsum manus (high magnification): periungual erythema, nail discoloration, onychodystrophy and pitting nails

Syphilis serological examination was performed with a positive result of Haemagglutination Treponema Pallidum (TPHA) and Venereal Disease Research Laboratory (VDRL) 1/32 and patient was HIV patient thus confirming the diagnosis of secondary syphilis and coincidence with HIV. The result of routine blood, liver function, kidney function, and an electrolyte within reasonable limits. Histopathological features of skin biopsy in the right arm and right leg with hematoxylin-eosin (HE) staining showed *basket weave's* type orthokeratosis, psoriasiform acanthosis, spongiosis, minimal basal cell vacuolar degeneration, and none of hypergranulosis. For the dermis, patchy type of inflammatory cell infiltration was obtained, mainly lymphocytes and plasma cells in the upper dermis, perivascular, and peridnexa (Figure 3A and 3B).

Histopathological results were in accordance with secondary syphilis.

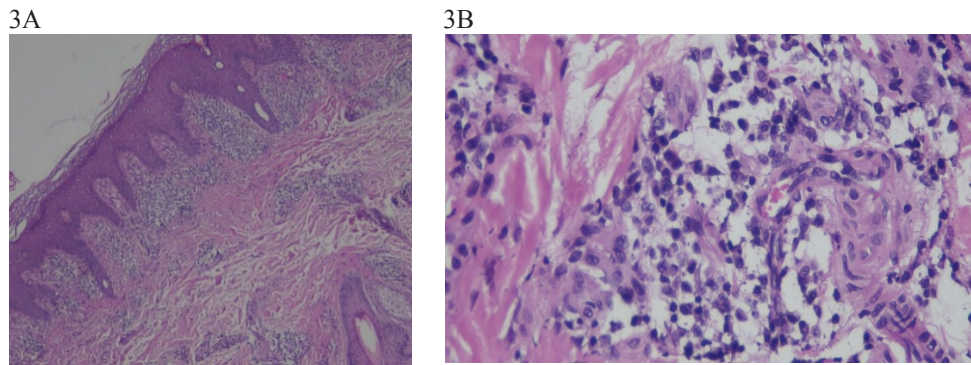


Figure 3: Histopathologic figures of secondary syphilis. A. *basket weave's* type orthokeratosis, psoriasiform acanthosis, spongiosis, minimal basal cell vacuolar degeneration, and none hypergranulosis B. Highest magnification: many plasma cells in the upper dermis

Diagnosis of psoriasiform type secondary syphilis confirmed based on patient medical history, physical examination, and histopathological examination. Treatment was started with a single dose of 2.4 million unit benzathine penicillin G. One month after therapy, skin lesions and nails also

VDRL serological examination did not decline. Skin and nail lesions improvement occurred in the 3rd month after treatment, but VDRL was still 1/32 until six months after treatment. In the 9th month after treatment, there was a decrease in VDRL into 1/16.



Figure 4: after being given standard therapy, skin lesions improved, subungual erythema, discoloration, and onychodystrophy improved, there were still a few pitting nails in digit II and III manus dextra



Figure 5: after being given standard therapy, skin lesions improved, subungual erythema, discoloration, and onychodystrophy improved, there were still a few pitting nails in digit II and III manus dextra

3 DISCUSSION

Syphilis is a chronic infectious disease caused by spirochete *Treponema pallidum*, a spiral-shaped bacterium with two until three flagella at each end. Syphilis spreads through direct contact with the lesion, although a small part of infections spread by blood transfer, for example, during blood transfusions or sharing needles to inject the drug. The growth of syphilis organisms is slow so that syphilis has a long incubation period for about three weeks from the appearance of initial (primary) lesions. This

disease is sexually transmitted only in the primary and secondary stages. (Avelleira et al., 2006) There is some evidence in the literature that shows humoral and cellular immunity plays a role in syphilis infection. CD4⁺ T cells, helper T cells or Th1 cell, play a role in cellular immunity and produce cytokines that recruit lymphocytes and other macrophages. CD8⁺ T cell, cytotoxic cell or Th2, play a role in humoral immunity and to activate B cell. There is a hypothesis that helper T cells help clear the *chancre* in early syphilis, so that for people with weak cellular immunity, like HIV patients,

syphilis tends to develop to the secondary and tertiary stages. (Avelleira et al., 2006)

Syphilis is divided into three distinct stages: primary, secondary, and tertiary stages according to clinical examination, patient medical history, and time of infection. Primary syphilis lesion is solitary red papule that forms a painless ulcer or *chancre* within three weeks after exposure. (Lautenschlager, 2006) HIV coinfection can be associated with several *chancres* (up to 70% of patients) that are larger and deeper than people who are not infected with HIV. (Zetola et al., 2002)

Secondary syphilis lesions usually appear 6-10 weeks after healing of primary syphilis. (Lautenschlager, 2006) Genital ulcer, in this case, appeared two months before plaques on palms and feet soles, possibly primary syphilis because lesion's base was clean, painless, cured without treatment, and period of lesions appeared suitable to the period of *chancre* before secondary syphilis lesions appeared.

The manifestation of secondary syphilis is generally a maculopapular exanthema or papulosquamous with constitutional symptoms, diffuse lymphadenopathy, and highly infectious skin lesions. In the early stages of secondary syphilis, the manifestations resolution of skin and lymph nodes can occur without treatment. (Peeling et al., 2005) Secondary syphilis lesions generally affect the palms and feet soles, but about 75% of patients have diffuse and symmetrical lesions. (Lautenschlager et al., 2006) Sometimes there are a lot of thick scales that give a form of psoriasis lesions. HIV-positive patients present with more aggressive secondary syphilis, accompanied by constitutional symptoms, organ involvement, and atypical rash (karp et al 2009) Other typical clinical manifestations include lichenoid, papulopustular, psoriasiform, vesicular or corymbiform lesions (Gianfaldoni et a., 2017) Nail involvement and periungual tissue changes are reported can occur in syphilis secondary like periungual edema, subungual hyperkeratosis, discolorization, and onychodystroph (Liotta et al., 2000) but no reports of pitting nails. Skin lesions in this patient with periungual erythema, discolorization, onychodystrophy, and pitting nails mimicking psoriasis, but skin and nail lesions improve with syphilis treatment so that differential diagnosis of psoriasis can be ruled out.

Untreated secondary syphilis may get into a latent stage where there are no clinical manifestations, and the infection is only detected through the serological examination. Individuals with untreated latent syphilis, 15-40% develop into

tertiary syphilis and manifest cardiac or neurological damage, severe skin or visceral lesions (gumma) or bone involvement (Peeling et al., 2005) HIV infection predisposes to neuro-ophthalmological complications in syphilis patients with HIV coinfection. Most patients with early syphilis who have cerebrospinal fluid (CSF) abnormalities do not show symptoms of the central nervous system, so CSF analysis can help to confirm abnormalities. Lumbar puncture and CSF analysis are currently only recommended for the diagnosis of neurosyphilis in individuals with appropriate clinical syndromes, evaluating the possibility of treatment failure, and for some patients with latent syphilis. (Zetola et al., 2007; Pastuszcak et al., 2011) In this case, we did not perform CSF examination because there was no neurological abnormalities and symptoms of ophthalmic, auditory, cognitive, motor, or sensory deficits.

Patients had plaque-shaped lesions, and no ulcer lesions that *Treponema pallidum* was not examined under a dark-field microscope. Plaque lesions were in accordance with the form of secondary syphilis lesions so that syphilis serological examination was performed. Serological examination in most people infected with HIV is similar to patients who are not infected with HIV. However, titers are too high or too low, and false negatives can occur in some cases. Several studies have shown that syphilis can cause a transient increase in viral load, induce lymphocyte and CD4 apoptosis, and a reduction in CD4 cell count, which improves after the infection is treated. Syphilis is estimated to increase 2 to 9-fold HIV transmission. (Oh Y Kim et al., 2012)

Syphilis has diverse clinical and histopathological presentations. The biopsy can be used to make a diagnosis with atypical syphilis lesions as the case above. The varied clinical presentation of secondary syphilis, especially in HIV disease, can lead to incorrect diagnosis and improper treatment. Histology of secondary syphilis lesions is generally obtained plasma cells infiltrates in perivascular or diffuse with endothelial swelling and vascular proliferation. Sometimes non-caseous granulomas are found, basal cell vacuolar degeneration, acanthosis, spongiosis or exocytosis of lymphocytes. In addition, other features include lichenoid inflammatory reactions (in lichen planus) and/or psoriasiform patterns (a type of psoriasis). (Palacios et al., 2007) Biopsy, in this case, is obtained by plasma cells in the upper dermis, perivascular, and periadnexa, with psoriasiform acanthosis, so that they are appropriate with secondary syphilis with psoriasiform patterns.

Psoriasis is excluded because there is no Monroe abscess, no hypergranulosis, and many plasma cells in the dermis.

Syphilis treatment in HIV positive patients and HIV negative patients is not different. Benzathine penicillin G 2.4 million intramuscular single-dose units became first-line therapy for primary syphilis, secondary syphilis, and early latent syphilis. For the advanced latent syphilis, the patient will be given a single dose of 2.4 million units of benzathine penicillin G in 3 doses of 1-week interval. The potential rate of failure and development of neurosyphilis increases in HIV patients with syphilis so nontreponemal titers should be examined at 1, 3, 6, 9, 12, and 24 months after treatment. If the nontreponemal titer does not decrease 4-fold, there is a 4-fold increase, or there are persistent signs or symptoms or relapses, treatment is considered a failure and can be repeated. (Pastuszczak et al., 2011; Oh Y Kim et al., 2012)

Treatment, in this case, is in accordance with standard treatment. Skin and nails lesions improvement, such as discoloration and onychodystrophy occurred in the 3rd month after therapy. Secondary syphilis lesions persist longer in syphilis patients with HIV, which may be due to more aggressive syphilis lesions and slower response to syphilis treatment in HIV coinfecting patients. Syphilis patients with HIV are also more likely to fail or slow down decline serological titers and recurrent infections than HIV-uninfected patients. (Karp et al., 2009; Oh Y Kim et al., 2012) This is in accordance with this case where the decline of titers occurs in the 9th month after treatment. Evaluation needs to be done at the 12th and 24th month after the initial treatment to ensure there is no infection or failure of therapy in patients.

4 CONCLUSION

One case of secondary syphilis reported with psoriasis-like lesions in 28 years old homosexual men with HIV. Diagnosis confirms with serological and histopathological examination. Clinical improvement occurred at the 3rd month after treatment, and serological decline occurred at 9th months after treatment.

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