Secondary Syphilis in the Second Trimester Pregnancy : Case Report

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Abstract

Background: Syphilis is a sexually transmitted disease caused by *Treponema pallidum*, which is transmitted through sexual contact, blood transfusion and transplacental from an infected mother to the fetus. Syphilis in pregnancy can cause complications including abortion, low birth weight, premature birth, neonatal death or congenital syphilis infection.

Case: A 39-year-old woman, 16 weeks pregnant, presented with a complaint of a small lump on the genitals accompanied by red patches on the palms of the hands and feet. Serological tests showed a reactive VDRL of 1:512 and a reactive TPHA of 1:640. Based on the history, physical examination and serological tests the patient was diagnosed with secondary syphilis in pregnancy. The management of this patient was given a single dose of Benzathine Penicillin G injection of 2.4 million units intramuscularly.

Conclusion: Early screening for syphilis in pregnancy isvery important to prevent complications in the fetus. VDRL serological test examination 3 months after therapy was carried out to determine the success of therapy. In this case, there was a decrease in the VDRL titer to 1:4 in the absence of skin lesions 3 months after therapy with benzathine penicillin G 2.4 million units intramuscularly single dose.

Key words: *Syphilis in Pregnancy, Serological tests, Treponema pallidum*

Introduction

Syphilis is a sexually transmitted disease with varied clinical manifestations caused by *Treponema pallidum* thatonsisting of late latent syphilis and tertiary syphilis. Syphilis is transmitted through direct sexual contact in individuals who have active primary or secondary syphilis lesions, blood transfusion and vertical transmission from the infected mother to the fetus transplacental.[1,2] The most common complications of syphilis are neurosyphilis, involvement of the aortic valve or cardiosyphilis and if it affects pregnant women it can cause congenital syphilis in the fetus[3]

In 1956, penicillin was first introduced for the treatment of syphilis and reduced the incidence of primary and secondary syphilis from 66.4 cases to 3.9

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cases per 100,000 people.[3] According to the World Health Organization (WHO) in 2012 there were 5.6 million cases. New syphilis occurs among adolescents and adults aged 15-49 years worldwide and is followed by 350,000 pregnant women with positive syphilis results, including 143,000 stillbirths, 44,000 premature babies and 102,000 infected babies.[4,5] The incidence of syphilis in Indonesia based on the report of the Ministry of Health of the Republic of Indonesia an increase of 16.7% in 2011.[6]The Sanglah Central General Hospital (RSUP) in 2014, reported 20 new cases, namely 3 cases of primary syphilis, 11 cases of secondary syphilis and 6 cases of early latent syphilis.[7]

Syphilis diagnosed made based on the history, physical examination, serological examination (treponemal and non-treponemal) and radiology.[8] The treponemal test is a test that identifies immunoglobulin M (IgM) or IgG antibodies to the number of *T. pallidum* infections. Some of the tests included in the treponemal examination include *Treponema pallidum* haemagglutination assay (TPHA), *Treponema pallidum* particle agglutination assay (TPPA), fluorescent treponemal antibody absorbed (FTA-ABS). The non-treponemal test is a measurement of the levels of IgM and IgG antibodies produced by the host in response to lipoid material (mostly cardiolipin) released by spirochetes from damaged host cells, include Rapid Plasma Reagents (RPR), Venereal Diseases Research Laboratory (VDRL), Toluidine Red Unheated Serum Test (TRUST).[9]

Primary and secondary syphilis infections in untreated pregnancies result in stillbirth, abortion, low birth weight, premature birth, neonatal death or infection and disease in the newborn.[5] Pregnancy with syphilis infection can be treated by monitoring early in pregnancyor the first trimester, thereby reducing the rate of defects in the fetus or newborn.[4] The purpose of this paper is to increase knowledge and better understand the diagnosis and appropriate management of secondary syphilis that occurs in women with pregnancy.

Case

A 39-year-old woman is a housewife, 16 weeks pregnant who comes to the skin and genital polyclinic of the Regional General Hospital (RSUD) Dr. Moewardi with complaints of reddish spots appearing on the palms of the hands and feet accompanied by lumps in the pubic area since 1 month ago which has been increasing and sometimes feels itchy.

The patient is currently 16 weeks pregnant with a history of having her first child born spontaneously assisted by a midwife with a birth weight of 2800 grams, her second and third pregnancies miscarried, then a curettage was performed. History of menarche at the age of 14 years and having sex for the first time at the age of 25 years with her husband after the patient married. The last sexual intercourse was 4 months ago with my husband without using a condom. The number of sexual partners up to now is 1, which is only with the husband. The patient did not know whether her husband had a history of previous penile injuries. My husband's job is as a delivery driver who returns home every 4 months. History of blood transfusion and previous tattoo use was denied. The patient denied having similar complaints before and the patient also denied having a history of allergies to certain drugs and foods, as well as other systemic diseases. The patient had never received treatment before.

Based on the results of the physical examination, the general condition was good, the nutritional status was adequate with a body mass index (BMI) in pregnancy of 33.01 including obesity category (TB 152 cm, weight 76 kg), vital signs within normal limits. Dermatovenereological status in the palmar manus and plantar pedis regions bilaterally showed multiple erythematous macules and plaques with overlying scales. Bilateral femur regions showed macules and multiple partially hyperpigmented erythematous patches. In the genital and perineal regions, condyloma lata appears with multiple skin-colored papules and plaques, round and oval in shape,

flat surface with erosions on it (Figure 1). There was no alopecia and regional lymph node enlargement.

Based on the results of autoanamnesis and physical examination, our patient was diagnosed with secondary syphilis, pompholyx and erythema multiforme (EM). Venereal disease research laboratory (VDRL) serology was reactive 1: 512, Treponema pallidum hemagglutination assay (TPHA) was reactive 1: 640 and HIV test was non-reactive.

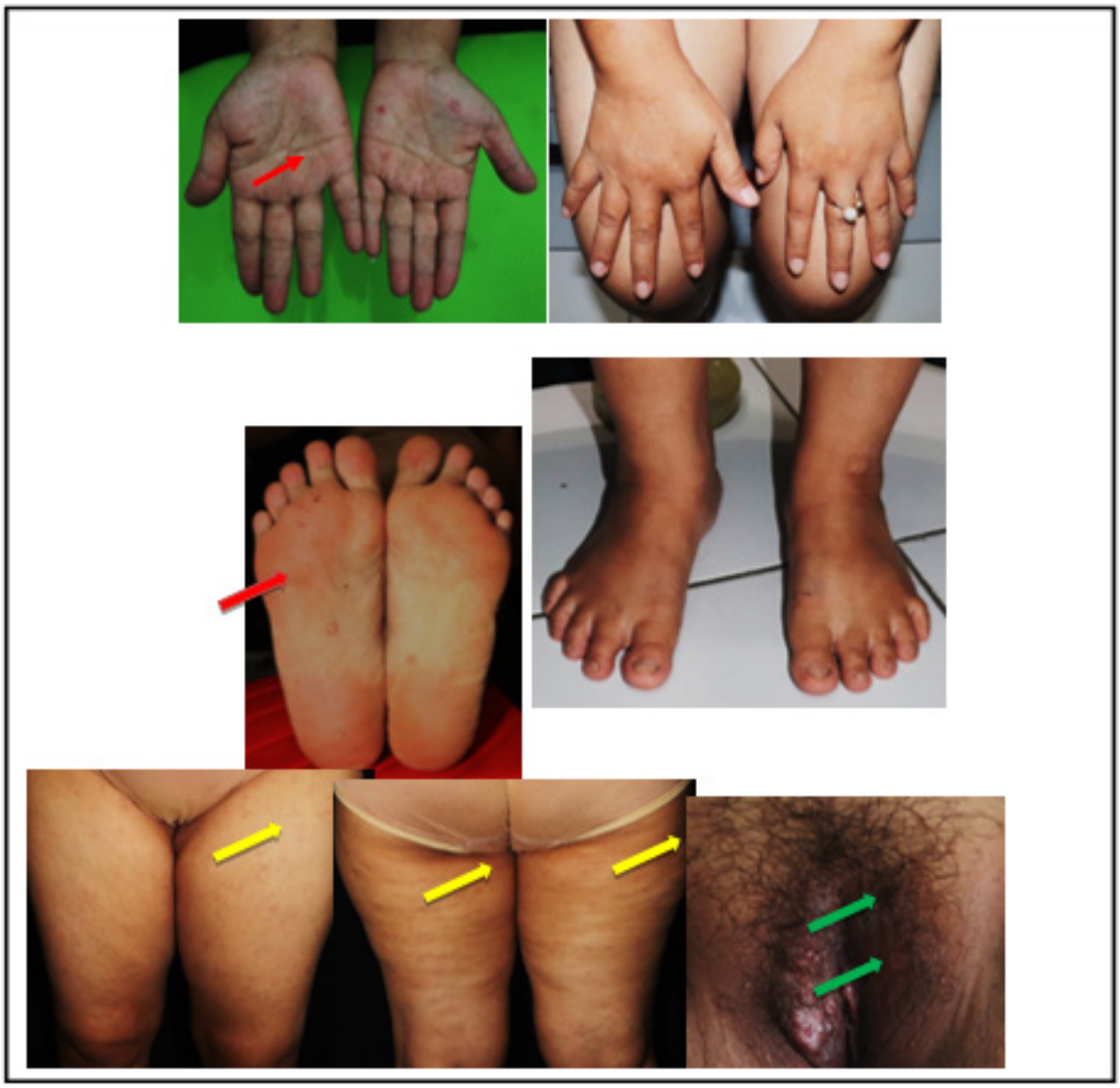

Figure 1. Dermatovenereological status. (AD) The palmar and plantar pedis regions show macules and multiple erythematous plaques with overlying scaling. (red arrows) (EF) Bilateral femur regions show macules and partially hyperpigmented multiple erythematous patches (yellow arrows) (G).) The genital area shows condyloma lata with multiple skin-colored papules and plaques, oval round shape, flat and soft surface accompanied by erosions (green arrows).

Based on autoanamnesis, physical examination and serological tests, the diagnosis in this case was secondary syphilis in pregnancy. The patient received a single dose of intramuscular injection of benzathine penicillin G 2.4 million IU and was followed up at the 1st and 3rd months after therapy at the Dermatology and Venereology Polyclinic, RSUD Dr. Moewardi Surakarta. The 3rd month evaluation showed no skin lesions (appendix) with a decrease in the number of VDRL titers, the results were 1:4 and TPHA 1:160.

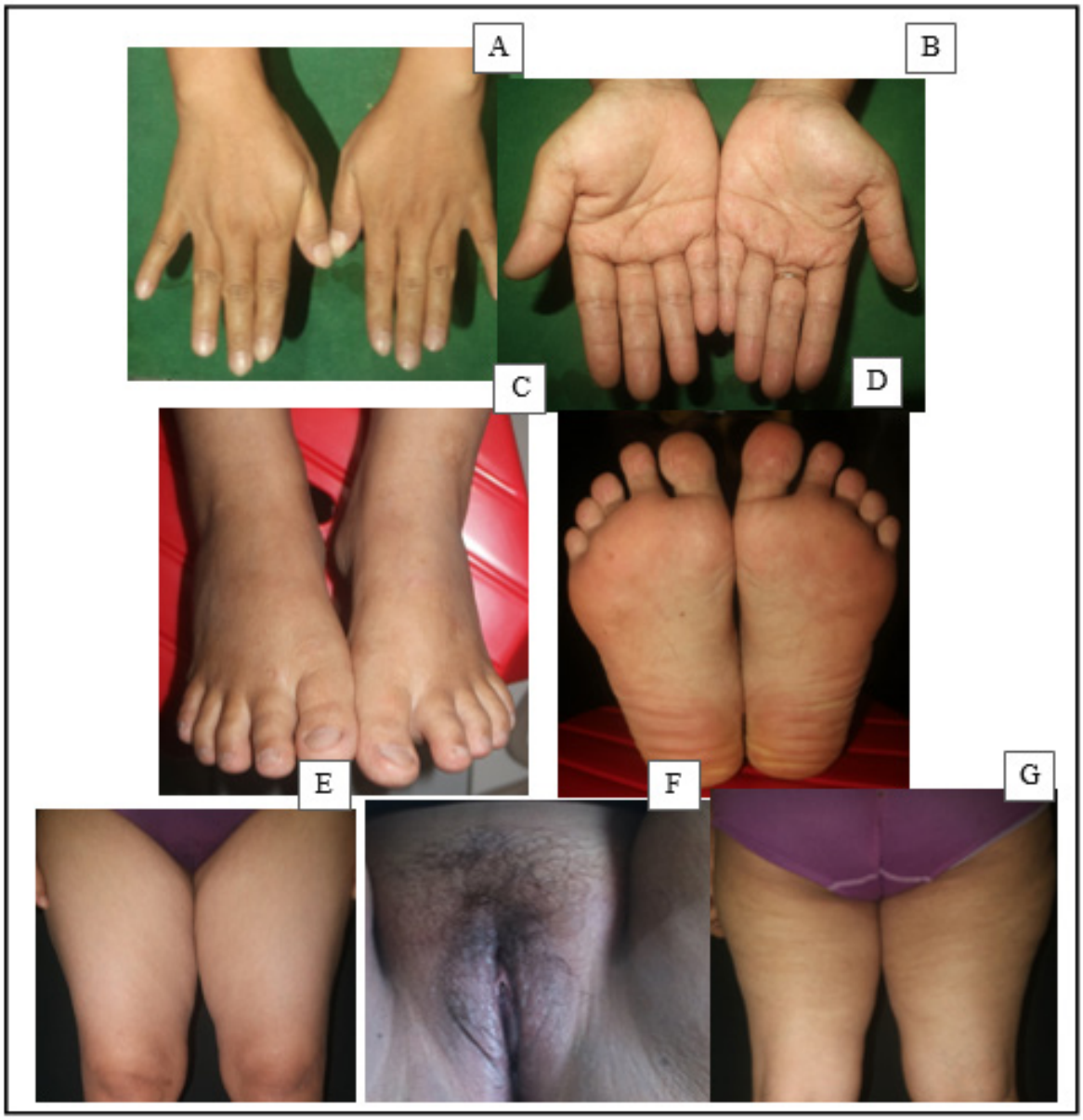

Figure 2. Follow up after 3 moths

Discussion

Syphilis is a sexually transmitted infection disease caused by *Treponema pallidum*.[10,11] Infection is transmitted through sexual intercourse (oral, anal and genital), the utero-maternal route, during delivery of a newborn and transmission through blood if the donor suffers from syphilis.[3]

Risk factors for syphilis in pregnant women include young women, history of sexually transmitted diseases, having more than 1 sexual partner in the past year, low economic status, lack of knowledge about sexually transmitted diseases and drug use.[10,12] Syphilis in pregnancy is frequent associated with the incidence of low birth weight, premature birth and miscarriage.[13] In this case, the patient was a 39-year-old pregnant woman with a history of two miscarriages, and in the family history it was found that the patient's husband had a job as a delivery driver outside Java and had a history of urinary complaints. Pregnancy and husband's history of working outside the city are risk factors associated with syphilis.[13]

Clinical manifestations of syphilis depend on the stage experienced. In primary syphilis, it is characterized by the appearance of chancre lesions in the form of solitary or multiple papules which then form ulcers, painless, there is induration with a clean wound bed and wound sizes ranging from 0.5 to 2 cm where these wounds can heal on their own (3- 6 weeks).[3]

Secondary syphilis or also known as spirochetemiaoccurs within 4 to 10 weeks after the chancre appears. Clinical manifestations of secondary syphilis include a non-pruritic maculopapular rash that appears on the body and then spreads to the extremities to the palms of the hands and feet, grayish-colored superficial mucous patches or erosions on the genital, anal and oral mucosa, and condyloma lata. Condyloma lata is one of the most infectious clinical signs of secondary syphilis with a grayish-white, elevated, and usually found in warm and moist areas such as the axilla, inguinal, perianal and perivaginal. The latent syphilis stage appears 2 to 6 weeks after the symptoms of secondary syphilis is characterized by reduced clinical signs and symptoms and is divided into early latent phase (<12 months) and late latent phase (>12 months).[10,12] Bilateral palmar manus and plantar pedis showed multiple erythematous macules with scaling overlying them, and the genital and perineal regions showed condyloma lata in the form of papules and multiple plaques of skin color, round oval shape, flat and moist surface accompanied by slight erosions (**Figure 1**). These clinical manifestations show the picture of secondary syphilis.

Treponema pallidum enters through the placenta (vertical transmission) can cause infection in the fetus. Syphilis in pregnancy can cause intrauterine growth retardation, spontaneous abortion, premature birth, stillbirth and hydrops fetalis.[14] In this case, the patient complained of small lumps in the pubic area and reddish patches on the palms of the hands and feet, so an initial screening was performed. The results initial screening VDRL/TPHAwere reactive so the patient was referred to the skin and genital polyclinic of RSUD Dr. Moewardi for further examination and appropriate treatment.

Maternal syphilis can be established through 2 examination principles, namely identification of *T.pallidum* in lesions or infected lymph nodes and serological tests. Identification of *T.pallidum* can be done by dark field microscopy and polymerase chain reaction (PCR).[15,16] Serological tests for syphilis can be classified into non-treponemal and treponemal tests. Non-treponemal examination such as VDRL and RPR. The results of the examination were reactive in 75% of cases of primary syphilis, whereas in secondary syphilis always a reactive VDRL result with a titer greater than 1/16 that indicates the disease is active, then if there is a fourfold decrease in the titer from the initial titer, it indicates the therapy is successful. Treponemal examination serves to detect interactions between serum immunoglobulins and antigens on the surface of *T.pallidum*. This examination consists of TPHA, TPPA, FTA-abs. Positive treponemal

examination indicates that a person currently has an active infection. [17] In this case, dark field microscopy and PCR were not performed because of limited equipment, but VDRL and TPHA were still examined. The results of the VDRL examination were reactive with a titer of 1:512 and reactive TPHA with a titer of 1:640, so it was concluded that this patient was in the stage of secondary syphilis with an active infection.

Differential diagnosis of patient is erythema multiforme (EM), pompholyx based on the history and physical examination. Erythema multiforme (EM) is an acute immune-mediated disease that affects the skin and/or mucosa that classificated into EM major (EMM) and EM minor (EMm). EM major has clinical manifestations involving the skin and at least 2 mucosal areas in different regions (lingual, buccal and labial) and may resolve in 1 to 6 weeks.[17] Clinical features of distributed typical or atypical cutaneous target lesions symmetrical,predilection for extensor surface areas of the extremities, multiple painful papules,vesicles, extensive ulcers and mucosal lesions, especially in the oral region.

Pompholyx or dyshidrotic eczema is an acute vesiculobullous disease that often affects the palms of the hands and feet, manifested by vesicles that spread on the palms of the hands to the tips of the fingers and sometimes can appear on the soles of the feet. Complaints usually accompanied by itching and discomfort. Usually acute lesions heal by themselves within 2 – 3 weeks, although they may recur.[18] Pompholyx has two clinical types, vesicular pompholyx commonly referred to as dyshidrotic eczema and bullous type pompholyx called cheiropodopompholyx.[19] In this case, a physical examination of the dermatological status of the region was obtained bilateral palmar manus et plantar pedis showed multiple erythematous macules and plaques with thin scales on top, no target lesions, vesicles, no tapioca appearance, painless lesions and no mucosal lesions. Based on the physical examination, the differential diagnosis of EM and pompholyx can be ruled out.

Based on the 2015 Center for Disease Control and Prevention (CDC) guidelines, it's recommended that therapy at the primary, secondary and early latent stages be given intramuscular injection (IM) of long-acting benzathine penicillin G in a single dose, while in late latent syphilis, guma syphilis and cardiovascular syphilis. According to WHO, the first-line treatment of syphilis in pregnant women, especially in the early stages (primary, secondary and early latent) is to give intramuscular injection of benzathine penicillin G2, 4 million units of a single dose or procaine penicillin 1.2 million units once a day for 10 days, if allergic to the penicillin group can be given erythromycin 500 mg four times a day orally for 14 days under close supervision or ceftriaxone 1 gram intramuscularly once a day for 10-14 days or azithromycin 2 g single dose orally. In late latent and tertiary syphilis, WHO recommends IM of benzathine penicillin G 2.4 million units once a week for 3 consecutive weeks or procaine penicillin 1.2 million units once daily for 20 days.[4] According to Kingston et al in the UK in 2015 explained that clinical examination and serological tests (RPR or VDRL) can be repeated 3 months, 6 months and 12 months after therapy (successful if there is a decrease in the RPR/VDRL titer four times the previous titer).[15] In this case, the patient was treated with a single dose of Benzathine Penicillin G injection, 3 months later, the patient was re-examined for a serological titer and the results of the VDRL titer were obtained. 1:4 and TPHA 1:160. These results indicate a therapeutic efficacy characterized by a more than four-fold decrease in the VDRL titer and a four-fold decrease in the TPHA titer.

Prognosis of syphilis in pregnancy depends on the administration of therapy that must be completed at least 30 days before delivery to prevent the occurrence of congenital syphilis. Infants born to mothers diagnosed and treated for syphilis during pregnancy required RPR/VDRL and IgM tests at birth and at three months of age, repeated every three months until negative. If this titer remains stable or increases, the child should be evaluated and treated for congenital

syphilis. Treatment for congenital syphilis is by administering benzyl penicillin sodium 60–90 mg/kg daily IV (in divided doses given 30 mg/kg every 12 hours for the first seven days after delivery and eight hours thereafter for ten days.[8,20]

Conclusion

A 39-year-old pregnant woman who is 16 weeks pregnant comes to the Dermatology and Venereology Polyclinic, RSUD Dr. Moewardi with complaints of small lumps appearing in the pubic area since 1 month ago accompanied by reddish spots on the palms of the hands and feet. Based on the results of autoanamnesis, physical examination and serological tests the patient was diagnosed with secondary syphilis in pregnancy. The patient was given Benzathine Penicillin G injection therapy 2.4 million IU intramuscularly in a single dose. Monitoring therapy after 3 months by repeating serological tests revealed a decrease in VDRL and TPHA titers more than four times which indicated the success of therapy.

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