CASE REPORT

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Secondary syphilis with stage III HIV in an adolescent deaf male with a history of sexual relationship with men: a case report

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ABSTRACT

Introduction: Syphilis is an infection caused by *Treponema pallidum* of the spirochaete family.
Case: A 19-year-old Balinese came with a complaint of red spots on the palms of the hands and feet one month ago. The patient has a hearing disability and is currently enrolled in a special-needs school in Denpasar. VDRL examination with reactive results with titer 1:256 and TPHA reactive with TPHA titer 1:5120. The patient received benzathine penicillin G 2.4 million units intramuscularly. Significant improvement was obtained, and the serological test was decreased.
Discussion: Syphilis transmits through sexual contact, vertically from pregnant women to their fetuses, through needle sharing. People with hearing disabilities and adolescents are considered vulnerable as objects of harassment and sexual violence.
Conclusion: People with disabilities and adolescents are vulnerable to sexually transmitted diseases. Information on reproductive health and sexually transmitted diseases need to be more readily available for people with disabilities. Secondary syphilis therapy with a single dose of benzathine penicillin is effective from clinical or serological observations.

Keywords: syphilis, treponema pallidum, disability, deaf
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INTRODUCTION

Syphilis is an infection caused by *Treponema pallidum* of the spirochaete family. Syphilis has a varied clinical picture and can resemble other skin diseases, also known as the great imitator.[1,2] A 2018 study in the United States by the Center for Disease Control and Preventions (CDC) stated that the incidence of primary and secondary syphilis in adolescent girls aged 15-24 years is 7.2 cases per 100,000 women.[3] Deaf and hard of hearing individuals are a population that is vulnerable to sexually transmitted diseases, this is due to hearing and speech impairments make it difficult for the deaf and hard of hearing individuals express their feelings and thoughts thus these vulnerable populations are easier to be taken advantage of and become victims of sexual harassment. The risk of being exposed to sexually transmitted diseases increases in adolescents.[3,4]

CASE

A 19-year-old Balinese male patient came to the STD division of Dermatology and Venereology outpatient, Sanglah General Hospital, with his father, with a complaint of red spots on the palms of the hands and feet since one month ago. The spots were initially unnoticed by the patient, but it gradually spreads. The patient did not complain of itching nor pain. The patient also did not complain of a loss of sensation in the lesional area. A previous boil or blister does not precede the spots. The patient previously denied a history of similar complaints. The prior history of genital sores is denied. There were no hair loss complaints, baldness, nail abnormalities, nor abnormalities in the patient's oral cavity. The patient lost 12 kg in the last nine months. The patient complains of occasional fever and diarrhea.

The patient is not married. The patient has a hearing disability and is currently enrolled in a special-needs school in Denpasar. The patient admitted to having sex for the first time when he was fifteen with a male friend without using a condom. Sexual activity is anogenital, and the patient always acts as receptive when engaging in sexual intercourse. The patient never had sex with sex workers. The patient denied a history of alcohol consumption, smoking, use of narcotics and illegal drugs. The patient also has no tattoos.

On physical examination, the vital signs were within normal limits. The dermatology status of the right and left palmar and plantar locations showed erythematous macules, multiple, spherical to geographic shape with a diameter of 0.5 cm - 1 cm and 0.5 cm x 0.7 cm - 0.7 cm x 1 cm, distributed discretely with localized bilateral distribution (**Figured 1A**, **B**). VDRL examination with reactive results with titer 1: 256 and TPHA reactive with TPHA titer 1: 5120.

We diagnosed the patient with secondary syphilis (*roseola syphilitica*). The patient received benzathine penicillin G 2.4 million units, administered intramuscularly. We also consult patients to voluntary counseling and testing (VCT) division, and the HIV test result is reactive. After one month of therapy, the lesion on the palms and soles disappeared, and VDRL (Venereal Disease Research Laboratory) titer decreased to 1:64.

Figure 1. Right and left palmar and plantar: erythematous macules, multiple, spherical to geographic shape, distributed discretely with localized bilateral distribution (before therapy)

Figure 2. The lesion was cleared after one month of therapy of benzathine penicillin G 2.4 million units

DISCUSSION

Syphilis transmits through sexual contact (genito-genital, anogenital and oro-genital), vertically from pregnant women to their fetuses through the placenta or during delivery through direct contact with the lesions and blood needle sharing. The risk of transmitting syphilis through sexual contact is up to 30%.[4,5] After skin contact in a patient with active syphilis lesions, penetration of *T. pallidum* through microlesions occurs primarily after sexual intercourse. *T. pallidum* will move to the regional lymphatic glands and then spreads hematogenously and deposited in other organs. Local manifestations of primary syphilis occur due to a local immune response at the site of *T. pallidum* penetration and may cause ulcers. Systemic manifestations can occur due to the formation of immune complexes that are deposited in various organs. Systemic manifestations mainly result from the inability of the humoral and cellular immune systems to cope with *T. pallidum*.[4,6]

The incidence of syphilis in adolescents continues to increase. A study by the CDC found that syphilis in women aged 15-24 years in 2018 is 7.2 cases per 100,000 women, doubled compared to a previous 2014 study. People with disabilities, one of which is speech and hearing impairment, are considered vulnerable as harassment and sexual violence objects. Research in the UK says that 1,400 children with special needs UK are victims of sexual abuse every year. Likewise, cases of sexual violence against persons with disabilities in the United States are 1.5 times more prone to becoming victims of sexual harassment compared to the general public.[7] Accurate data on sexual harassment and violence against children with special needs in Indonesia are not yet available due to under-reporting and lack of access. Deaf and hard of hearing individuals are vulnerable to becoming victims of sexual harassment and violence due to communication limitations, making it difficult for them to express their thoughts and feelings, limited health information by sign language, relatively low income, and the inability to report sexual harassment and violence they may have suffered.[7,8] Other high-risk populations for syphilis are individuals with HIV infection, patients with hepatitis B or C infection, and patients with high-risk sexual behavior (MSM, commercial sex workers and their clients).[9]

Based on clinical symptoms, syphilis is divided into primary syphilis (S I), secondary syphilis (S II), early latency (<1 year), late latency (> 1 year), and tertiary syphilis (S III). After passing an incubation period of 2 - 6 weeks, primary lesions appear at the site of the first inoculation, a condition known as primary syphilis. Then, the germs spread

throughout the body, giving rise to broad clinical manifestations. Signs and symptoms in S II appear after two weeks to six months after primary syphilis ulcer and may be accompanied by constitutional symptoms such as low-grade fever, painful swallowing, headache, and weakness. The incubation period needs to be known to facilitate tracking of the patient's sexual partner. S II's most common clinical manifestation is a skin rash (80-95%) known as *roseola syphilitica*. A pale to copper-red discrete macular or maculopapular lesion distributed all over the body and extremities. Other clinical manifestations that can be found in S II include condyloma lata, superficial mucosal erosions/ mucous patches, and moth-eaten alopecia.[10,11] In our case, the patient had multiple erythema macules on palms and soles since one month ago.

The diagnosis of syphilis is made based on a careful history and physical examination, and laboratory investigations. Additional investigations include direct visualization of the organism *T. pallidum* or by serological analysis. Identification of *T. pallidum* by DFM or DFA is the gold standard for syphilis. Meanwhile, the serological examination for syphilis is divided into two, namely non-treponemal and treponemal. Inexpensive and widely used non-treponemal tests for screening are the venereal disease research laboratory (VDRL) and the rapid plasma reagent (RPR). Non-treponemal tests for a combination of cardiolipin, cholesterol and lecithin, which helps detect immunoglobulin G and M antibodies that react to lipoidal material (originating from damaged host cells and possibly from *Treponema pallidum*). Non-treponemal examinations cannot be used to confirm the diagnosis of early and latent, so the results of non-reactive non-treponemal tests need to be confirmed by the treponemal test. The treponemal test commonly used is the *treponema pallidum* hemagglutination assay (TPHA), which is very specific because it detects antibodies specific to treponemal antigens has better specificity than the nontreponemal tests.[11,12] In our case, from the serologic test, the VDRL is 1: 256 and TPHA is 1:5120; after four weeks of therapy, the VDRL decreased to 1:64.

The interaction between syphilis and HIV is complex. In many studies, it has been found that syphilis can increase HIV transmission by up to four times. A factor in syphilis that plays a role in HIV transmission is damage to the mucosa followed by the infiltration of large numbers of macrophages and CD4 T-cells, which helps transmit HIV virions. Several studies have also found that syphilis infection can increase the viral load and lower CD4 T-cells.[13]

Guidelines for syphilis therapy in patients in Indonesia according to the 2020 national guidelines for managing sexually transmitted infections in adults and adolescents are divided into two, namely patients with primary-secondary-early latent syphilis and patients with advanced latent syphilis. In the primary, secondary, and early latent syphilis patients, patients are treated with benzathine penicillin G 2.4 million units single dose intramuscularly with an alternative of doxycycline two times 100 mg PO for 14 days or ceftriaxone 1 gram intramuscular injection for 10-14 days or azithromycin two single gram intraoral dose. Patients with advanced latent syphilis are given benzathine benzylpenicillin G 2.4 million intramuscular units for three consecutive weeks and doxycycline alternatives two times 100 mg PO for at least 30 days or ceftriaxone 1000 mg intramuscularly for ten days or erythromycin four times 500 mg PO for a minimum. 30 days.[14] In our case, the patient received a single dose of benzathine penicillin G 2.4 million units, administered intramuscularly.

Counseling and education are paramount in the management of syphilis in adolescents. The United States Preventive Services Task Force provides recommendations for conducting behavior-based therapy in adolescent patients with sexually transmitted diseases to prevent unsafe sexual behavior. Approaches to people also need to be done to offer explanations to parents.[15] The availability of information for the hard of hearing is lacking, and thus this vulnerable population is prone to misinformation. Prevention can be done by providing comprehensive sexual education starting from the family supported by the school system and health services.[16,17]

CONCLUSION

People with disabilities and adolescents are vulnerable to sexually transmitted diseases. Information on reproductive health and sexually transmitted diseases need to be more readily available for people with disabilities. Secondary syphilis therapy with a single dose of benzathine penicillin is effective from clinical or serological observations.

CONFLICT OF INTEREST

The authors declared no conflict of interest regarding this article.

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AUTHORS CONTRIBUTIONS

All of the authors contributed to this article.

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