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Case Report

Streptococcus agalactiae caused a Secondary Infection in Sexually Transmitted Infections: Case Report

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ABSTRACT

Streptococcus agalactiae is a gram-positive coccus bacterium that is rarely reported to cause genital infections in males. This study discusses the case of a young man with lesions on the genital as a secondary infection caused by *Streprococcus agalactiae*. A 25-year-old man came to the dermatology and venereology clinic of Dr. Sardjito General Hospital, complaining of a wound on the penis that had not healed in the last 3 months ago, the patient has a history of having sex with men without using a condom and frequently changing partners. The patient was known to be infected with HIV (*Human Immunodeficiency Virus*) and the results of the IgG HSV-2 (*Herpes Simplex Virus*-2) serological examination were positive. The results of microbiological examination of the wound bed swab sample showed the growth of *Streptococcus agalactiae*. Previously the patient received antiretroviral therapy, clindamycin oral, and erythromycin cream. The wound on the penis got better, but before the wound completely recovered, the patient did not visit anymore. *Streptococcus agalactiae* secondary infection in cases of sexually transmitted infections is a rare case. In this case, the finding of *Streptococcus agalactiae* can be considered as a pathogen. In cases of sexually transmitted infections with sores on the genital, a microbiological examination is recommended to determine the causative microorganism, and an antibiotic sensitivity test to determine the therapy.

INTRODUCTION

Sexually transmitted infections (STIs) are a major public health problem worldwide, affecting quality of life and causing serious morbidity and mortality. *World Health Organisation* (WHO) published estimates of new cases of infections caused by *Chlamydia trachomatis*, *Neisseria gonorrhoeae, Treponema pallidum* and *Trichomonas vaginalis*, showing an estimated total incident

case of 376.4 million among the population aged 15–49 years, with 127.2 million new cases of chlamydiasis, 86.9 million cases new gonorrhea, 156 million new cases of trichomoniasis, and 6.3 million new cases of syphilis[1].

Streptococcus agalactiae known as Group B *Streptococcus* (GBS) frequently colonizes the gastrointestinal tract of humans and the urogenital tract of women. *Streptococcus agalactiae* colonization of the vagina is a major risk factor for perinatal infection.[2] *Streptococcus agalactiae* has been reported to cause meningitis, pneumonia, cellulitis, arthritis, osteomyelitis, and endocarditis in adults but has rarely been reported to cause genital infections in male subjects[3]. There is no similar study related to *Streptococcus agalactiae* caused a secondary infection in sexually transmitted infection. This study will discuss the case of a young man with lesions on the genitals as a secondary infection caused by *Streprococcus agalactiae*.

CASE PRESENTATION

A 25-year-old man came to the dermatology and venereology clinic of RSUP Dr. Sardjito, and complained of a small lump (elastic) appearing on the penis and a lump in the anus 3 months ago, then the lump on the penis broke and became a sore that broad and purulent, he denied pain and itching, no complaints when urinating. During this time the wound is only cleaned with warm water.

One month after the complaint persisted, the patient went to the doctor, the results showed a CD4 value of 18 and the patient tested positive for *Human Immunodeficiency Virus* (HIV), then the patient received anti-retroviral therapy (ARV), namely tenofovir, lamivudine, dolutegravir (TLD) and antibiotics cotrimoxazole. But complaints of injuries to the penis have not improved. The patient had a history of having sex with men since he was 18 years old, without using a condom, and frequently changing sex partners. History of diabetes was denied.

Local examination of the perianal region in all clockwise directions revealed skin-colored verrucous papules, multiple, varying in size. Local examination of the external genital region of the coronary sulcus and corpus penis revealed a partially erythematous patch with multiple erosions covered with brownish crusts (Figure 1).

Figure 1. Wound on the corpus penis and coronary sulcus

Routine blood investigations were within normal limits. Serological tests were performed as routine checks (Table 1).

Table 1. Serological test

No.	Type of test	Results
1	IgM anti-HSV-1	NEGATIVE
2	IgG anti-HSV-1	NEGATIVE
3	IgM anti-HSV-2	NEGATIVE
4	IgG anti-HSV-2	POSITIVE
5	HBsAg	NEGATIVE
6	TPHA	NEGATIVE
7	VDRL	NEGATIVE
8	HIV	REACTIVE

Microbiological examination includes examination of the wound bed swab culture, microscopic examination, semi-automatic identification of microorganisms, and antibiotic sensitivity test. Culture examination was carried out by inoculating a wound bed swab sample on Blood agar media, Mac Conkey agar, and Sabaraud dextrose agar (SDA). There was no growth in SDA medium. On Mac Conkey's medium, round colony, convex surface, pink color, and non-lactose fermented (Figure 2). Whereas on Blood agar media, round colony, white in color and beta-hemolytic (Figure 2). Microscopic examination, colonies originating from Blood agar media and Mac Conkey had the same characteristics as Gram staining, namely gram-positive coccus (Figure 3). Colonies from Blood agar media continued with catalase test, the results were negative.

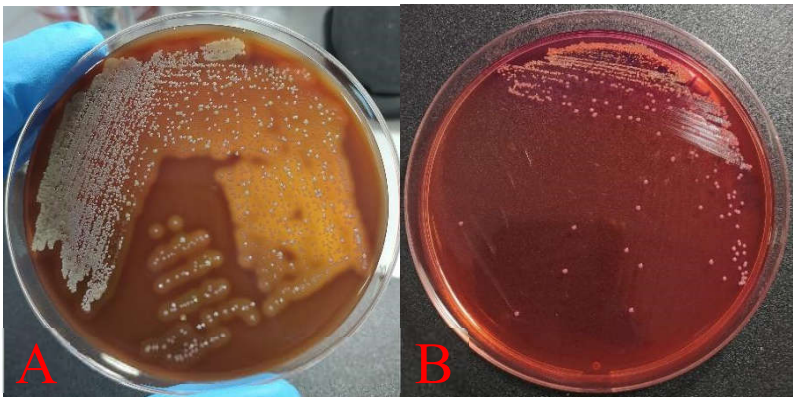

Figure 2. Culture in Blood Agar (A) and Mac Conkey Agar (B)

Then the identification of microorganisms with the semi-automatic BBL crystal test (BD BBL™ Crystal™) and obtained *Streptoccus agalactiae* results of 99%. Antibiotic sensitivity test found the growth of *Streptococcus agalactiae* sensitive to the antibiotic's penicillin, ampicillin, cefepime, ceftriaxone, cefotaxime, erythromycin, clindamycin, and levofloxacin.

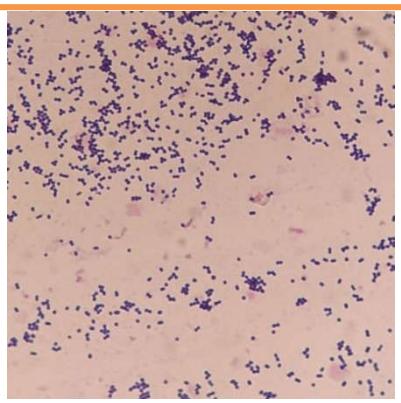

Figure 3. Gram stain of Streptococcus agalactiae

The patient was diagnosed with perianal condyloma acuminata and recurrent herpes simplex with a secondary infection of *Streprococcus agalactiae*. Patients received therapy trichloroacetic acid six times, then electrofulguration for condyloma acuminata and acyclovir 400 mg three times a day, clindamycin oral 300 mg three times a day, erythromycin cream twice a day after compressing NaCl 0.9% for 15 minutes. After receiving therapy, the wound on the penis got better, but before the wound completely recovered, the patient did not visit anymore (Figure 4).

Figure 4. Wounds on the penis after two weeks therapy (A) and after one month therapy (B)

DISCUSSION

Streptococcus agalactiae known as Group B *Streptococcus* (GBS), is a gram-positive coccus bacterium, arranged like a chain, facultative anaerobic, oxidase test and catalase test are negative[4]. *Streptococcus agalactiae* can be found as normal flora of the gastrointestinal and genital mucosa. *Streptococcus agalactiae* May also be a pathogen, particularly in obstetrics and neonatal care[5]. *Streptococcus agalactiae* infection can be a health problem in non-pregnant adult patients[6]. Disease caused by *Streptococcus agalactiae* in non-pregnant adults is increasing, especially in the elderly and people with comorbid diseases such as diabetes[7]. *Streptococcus agalactiae* is known to cause skin and soft tissue infections, as well as infections in pregnant women during childbirth and people with low immunity such as diabetes and malignant neoplasms[8].

In this case a young man complained of a lump on the penis which burst and became a purulent wound, the results of the investigation found IgG HSV-2 positive. The patient is also

known to be HIV positive, resulting in decreased immunity. The patient had a history of having sex with men, without using a condom, and frequently changing sex partners. The sexual behavior of men having sex with men is a risk factor for sexually transmitted infections and infections caused by *Streptococcus agalactiae*, because these microorganisms are often isolated from the rectum, perineum, cervix and urethra of sexually active people with multiple partners[4,8]. Between HIV and other sexually transmitted infections often occur due to the same route of sexual transmission[4]. Coinfection between HIV and HSV-2 increases HIV transmission and progression to AIDS. HSV-2 symptom severity has been shown to correlate with low CD4 cell counts[9]. HIV and HSV-2 coinfection also causes large, persistent genital ulcers, which often recurs and presents an atypical clinical picture[10]. Virulence of organisms, decreased individual immunity, diabetes, liver disease, cancer, neurological disorders and heart or kidney failure, can be risk factors for *Streptococcus agalactiae* infection from asymptomatic colonization to an invasive pathogen[3]. Information about genital ulcers and *Streptococcus agalactiae* are still very rare, limited to only a few clinical cases. James in 1984 described a very wet and painful bright red circular ulceration on the penis of a twenty-year-old man. The culture results at that time indicated Group B *Streptococcus*[3,11] .

In this case, an antibiotic sensitivity test found the growth of *Streptococcus agalactiae* sensitive to the antibiotic's penicillin, ampicillin, cefepime, ceftriaxone, cefotaxime, erythromycin, clindamycin, and levofloxacin. Patients received therapy clindamycin oral 300 mg three times a day, and erythromycin cream twice a day after compressing NaCl 0.9% for 15 minutes. Penicillin is a well-known drug in the treatment of infections caused by GBS. However, for people who have an allergic reaction to penicillin, erythromycin and clindamycin are prescribed for patients with GBS infections[12]. Clindamycin and erythromycin are two of the most important second-line antibiotics for the treatment of *Streptococcus agalactiae* infections, especially in penicillin-allergic patients[13]. Lower resistance rate to clindamycin than those to penicillin and erythromycin[12].

Cases of *Streptococcus agalactiae* infection in male genital organs are very rare. This study proves that the diagnosis must be made comprehensively so that patients receive appropriate therapy. The limitation of this study is CAMP test was not performed as an additional examination.

CONCLUSION

In this case, *Streptococcus agalactiae* was found as a secondary infection in sexually transmitted infections (STIs) caused by HSV-2, besides that the patient was also infected with HIV. Secondary infections caused by *Streptococcus agalactiae* in cases of STIs can occur in people who have risk factors such as unprotected sex, multiple partners, men like men or have comorbid diseases such as diabetes. In STI cases with sores on the genitals, microbiological examination is

recommended to determine the causative microorganism and an antibiotic sensitivity test to determine the therapy.

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