



## Case report

## Streptococcus pyogenes balanoposthitis

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## ABSTRACT

The main causative organism of balanoposthitis in sexually active adolescents is reportedly the group B hemolytic streptococcus. While cases of balanoposthitis caused by group A streptococcal infection in children have been reported, their occurrence in the adolescent age group is relatively rare.

We describe a case of balanoposthitis caused by *Streptococcus pyogenes* (group A streptococcus) in a 31-year-old man who presented to the hospital with complaints of pain and swelling in his penile foreskin for the past 6 days. The patient was treated successfully by performing a ventral incision on the foreskin and administering effective antimicrobial therapy involving amoxicillin 750 mg/day. Group A beta-hemolytic *Streptococcus pyogenes* should also be considered a causative organism in the differential diagnosis, while managing a patient with balanoposthitis.

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## Introduction

Balanoposthitis is a disease characterized by redness, swelling, pruritus, and erosion of the penile glans and foreskin. It is caused by an infection of the penis by various pathogens (e.g., *Candida*, *Streptococcus*, *Staphylococcus aureus*) and may also occur secondary to contact dermatitis [1]. The main causative organism of balanoposthitis in sexually active adolescents is reportedly the group B hemolytic streptococcus [2]. While cases of balanoposthitis caused by group A streptococcal infection in children have been reported [3,4], its occurrence in the adolescent age group is relatively rare.

Here, we report a case of balanoposthitis caused by *Streptococcus pyogenes* (Group A streptococcus) in a 31-year-old man, with no previous medical history. We managed the patient successfully by performing a ventral incision on the foreskin for drainage, along with administering effective antimicrobial therapy.

## Case report

A 31-year-old Japanese man presented to the Dermatology Department of JR Tokyo General Hospital, Japan, with a 6-day history of pain and swelling of his penile foreskin. There was no significant medical history. The patient disclosed that he had received oral sex from a commercial sex worker 10 days ago. He

consulted another doctor before and had been administered a course of azithromycin (500 mg/day) for 3 days. As his symptoms did not subside, he again visited the same doctor 1 day ago, and as per his advice, he had taken levofloxacin (500 mg/day) and applied gentamicin ointment locally at the site of the swelling. The DNA amplification assays performed by the previous doctor to test for *Neisseria gonorrhoeae* and *Chlamydia trachomatis* infections had yielded negative results.

On initial physical examination, he had a temperature of 36.3°C, a blood pressure of 96/75 mm Hg, with a heart rate of 75 beats per minute. His height was 173 cm and weight 64 kg. On local examination, the penile foreskin was found to be markedly swollen. The tip of the glans was observed to be inflamed [Figs. 1 and 2]. The initial laboratory workup done on the day of admission showed an elevated serum C-reactive protein level of 227.61 nmol/L. The rapid plasma reagin and *Treponema pallidum* hemagglutination test results were negative for syphilis. The human immunodeficiency virus antibody test was also negative. The patient's anti-streptolysin O antibody titer was 432 U/mL (normal value: ≤239 U/mL). A penis wash was performed, and the collected purulence was cultured. In the meantime, oral administration of potassium clavulanate combined with amoxicillin hydrate at a dose of 750 mg/day was started empirically. When he visited us again after 2 days, he reported no symptomatic relief from the treatment. *Streptococcus pyogenes* group A was then identified as the causative organism on the pus culture. The subsequent sensitivity test results of the isolated bacteria are shown in Table 1. An urgent opinion was taken from a specialist urologist, and to relieve the pressure, a ventral incision on the foreskin was

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**Fig. 1.** Clinical picture at first visit. Local examination revealed a markedly swollen penile foreskin with exudation.



**Fig. 2.** Clinical picture at first visit (after peeling the foreskin). The inflamed penile foreskin was peeled off, and the collected purulence was sent for culture and sensitivity testing.

performed on the same day. As the patient was showing clinical improvement, the administration of amoxicillin (750 mg/day) was continued for 16 more days. The patient's symptoms gradually improved, and he recovered within a month of his initial visit.

## Discussion

We encountered a case of balanoposthitis caused by *Streptococcus pyogenes* group A. Cases of infection caused by *Streptococcus pyogenes* have been reported previously [5,6]. Balanoposthitis caused by *Streptococcus pyogenes* group A was observed in patients who had received fellatio [7,8]. An examination of 47 cases of balanoposthitis caused by *Streptococcus pyogenes* revealed that the proportion of affected patients with a recent history of having

**Table 1**

Antibacterial sensitivity test report of the group A streptococci cultured from the exudate collected from the patient's lesion.

Drug	MIC	Interpretation
Ampicillin	≤0.06	S
Penicillin G	≤0.03	S
Amoxicillin/Clavulanate	≤0.25	NA
Cefotiam	≤0.5	NA
Cefotaxime	≤0.12	S
Ceftriaxone	≤0.12	S
Cefepime	≤0.5	S
Cefditoren Pivoxil	≤0.06	NA
Cefozopran	≤0.12	S
Meropenem	≤0.12	S
Erythromycin	1	R
Clindamycin	≤0.12	S
Minocycline	>4	R
Vancomycin	0.5	S
Chloramphenicol	≤4	S
Rifampicin	≤1	NA
Sulfamethoxazole-Trimethoprim	≤0.5	NA
Levofloxacin	>8	R
Azithromycin	4	R

MIC: minimum inhibitory concentration; S: sensitive; R: resistant; NA: not assessed.

received oral sex was significantly higher than that of patients with balanoposthitis caused by other pathogens [9]. Our patient also presented with glans preputitis caused by group A beta-hemolytic *Streptococcus pyogenes* that also occurred after he had been recently received fellatio, suggesting that oral sex is an important causative factor.

While azithromycin and levofloxacin had been orally administered to our patient prior to his visit to us, the treatment had been ineffective. The culture performed subsequently revealed that the streptococci were poorly susceptible to both azithromycin and levofloxacin in this case [Table 1]. Levofloxacin and azithromycin are frequently utilized for the treatment of balanoposthitis in Japan. However, when the causative bacterium is *Streptococcus pyogenes*, which often has a low sensitivity to these drugs, it is advisable to select alternative antimicrobials that are known to have an effective antimicrobial activity against this particular group [10]. In addition, discharge or pus from an inflamed lesion should be cultured not only with an aim to isolate the commoner *Chlamydia trachomatis* and *Neisseria gonorrhoeae*, but also considering the possibility of group A beta-hemolytic *Streptococcus pyogenes* infection. In conclusion, we suggest that group A beta-hemolytic *Streptococcus pyogenes* might also be considered as a causative organism in the differential diagnosis, while managing a patient with balanoposthitis. It may also be necessary to perform pus culture during an evaluation of glans preputitis to ensure that effective antimicrobial therapy is instituted earlier in the disease course. We suggest this approach based on our case report; however, a further study of more cases is required to validate the same.

## Authorship statement

All authors meet the International Committee of Medical Journal Editors authorship criteria (ICMJE criteria).

## Informed consent

We obtained written signed consent from the patient to publish his clinical details.

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## Declaration of Competing Interest

None.

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