

## CIRCINATE BALANOPOSTHITIS AS A POSSIBLE CLINICAL MANIFESTATION OF GONOCOCCAL INFECTION

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**Abstract.** Balanitis is defined as inflammation of the glans penis, while balanoposthitis is an inflammation of the glans penis and prepuce. Balanitis/balanoposthitis due to *Neisseria gonorrhoeae* (*N. gonorrhoeae*) is rarely reported. A case of balanoposthitis in a man clinically manifested as circinate balanoposthitis was reported to show the possibility of gonococcal infection manifested as circinate balanoposthitis. Bacterial examination with Gram staining and polymerase chain reaction (PCR) examinations from the lesions denoted the appearance of intracellular and extracellular Gram negative diplococcus bacteria and positive for *Chlamydia trachomatis* (*C. trachomatis*). Serological examination showed the reactive results for syphilis. The patient received oral medications of 400 mg cefixime single dose and 1-gram azithromycin single dose, also 2.4 million international unit (IU) intramuscular per week for 3 weeks. The gonococcal infection as the cause of balanoposthitis should be put in the differential diagnosis and any possible examination should be done to establish the most plausible etiology.

**Key words:** balanitis, balanoposthitis, gonococcal balanoposthitis, circinate balanoposthitis

### Introduction

Balanitis, also balanoposthitis could be caused by several etiologies that can be further categorized as infection and non-infection.<sup>1</sup> Non-infection etiologies are trauma, irritative substances, and malignancies.<sup>2</sup> Infectious balanoposthitis are caused by fungal (*Candida sp.*) and bacteria such as *Gardnerella vaginalis*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Eschereria coli*, *N. gonorrhoeae*, *C. trachomatis*, *Treponema pallidum* (*T. pallidum*).<sup>1,2</sup> Almost every case of balanoposthitis is due to sexually transmitted infection (STI).<sup>1,3</sup> Those etiologies can give varying clinical manifestations but never pathognomonic, therefore, obtaining the diagnosis is not easy to be done.<sup>1</sup>

Gonococcal balanoposthitis is very rarely reported.<sup>4,5</sup> Balanitis/balanoposthitis due to *C. trachomatis* almost always occurs as a complication of gonococcal urethritis. Confirming the diagnosis should be done not only by history taking and careful observation on clinical manifestations, but also obtaining further examinations such as direct bacteriological examinations from the lesions, bacterial culture, serological, and PCR examinations.<sup>5,6</sup>

The current study is a case report of a 28-year-old male that presented with multiple painful erosions on his glans penis and prepuce. This case proves that gonococcal infection is feasible to manifest clinically as balanoposthitis. This report will be helpful for the clinicians to consider the gonococcal infection on every case of balanitis/balanoposthitis regarding to successfully prompt the possible examinations toward establishing the etiology and finally giving the accurate treatment for the patients.

### Case history

A 28-year-old male presented with 2 months of painful multiple, well demarcated, shiny appearance, erosions on the dorsal surface of glans penis with edematous surrounding skin. The patient denied any lymph node enlargement, painful urination, and fever. On history taking, urethral discharge was not found. The promiscuity was revealed and he did not have any circumcision. This was the first experience and he never undergo any treatment. The patient also denied any painless skin ulcer on his genitalia, non-pruritic skin rashes prominently on his palms and soles, and applying any substance before the

skin lesions appeared. The patient admitted that he had sex with multiple heterosexual partners, including sexual workers, by genital-genital and genital-oral. He did not notice any lesions or vaginal discharge in his partners. He denied that his partners had any sexual transmitted infections (STI). The patient had never undergone any screening for STI before. The patient in this case report works as a business owner who travels a lot. He admitted alcoholic beverages consumption but denied using any narcotics.

Physical examinations showed multiple erosions on glans penis and prepuce (Figure 1), other within normal limit. Bacteriological examinations from urethral and erosions showed intracellular and extracellular Gram negative diplococcus bacteria (Figure 2) while from the erosions revealed no bacteria. PCR examination from the urethra revealed negative result, whilst the PCR examination from the erosions revealed positive result for *C. trachomatis*. Further examinations were done, such as quantitative venereal disease research laboratory (VDRL), quantitative *Treponema pallidum* haemagglutination assay (TPHA), antihuman immunodeficiency virus (HIV), immunoglobulin (Ig) M for herpes simplex virus 2 (HSV-2), IgG HSV-2, bacterial culture from the skin lesions, fungal culture, and PCR for *C. trachomatis*. VDRL and TPHA examination results were 1/1280 and 1/64. According to these examinations, the patient was diagnosed as balanoposthitis *et causa C. trachomatis* and gonococcal urethritis and syphilis of unknown duration. The patient then got treatments of 400 mg single dose cefixime per oral, 1-gram single dose of azithromycin per oral, and 2.4 million IU single dose benzathine penicillin intramuscular per week for 3 weeks. Improvement was seen on the day 33 of observation as the erosions were no longer present.

## Discussion

In general, the occurrence of balanoposthitis is higher in males who has no circumcision<sup>7</sup>, poor hygiene, risky sexual behaviours, and those with diabetes mellitus (DM).<sup>5</sup> Balanoposthitis that caused by STI has similar port of the entry as the other sexually transmitted diseases, that is micro trauma from the sexual intercourse.<sup>1,5</sup> The patient in this report has never been circumcised and has

risky sexual behaviors. Clinical manifestations of balanoposthitis are not specific to any etiology, therefore it is vital to carefully examine the possible cause of the disease.<sup>5</sup>

There were only few literatures have ever mentioned balanoposthitis as a clinical manifestation of gonococcal infection.<sup>1</sup> Until this case report is written, author have never found any case report that specifically denounced gonococcal balanoposthitis. Another literature divides the clinical manifestations of balanitis/balanoposthitis by the appearance of the penile foreskin as retractible and irretractible. Gonococcal balanitis/balanoposthitis is usually associated with the retractible penile foreskin.<sup>8</sup> The gonococcal invasion on the glans penis and the prepuce occurs as the invasion of pus from the urethra that finally cause the irritation and produces characteristic inflammation.<sup>1,8</sup> Trauma is causing loss of epithelium is an important predisposing cause, such as arises during excessive coitus, masturbation, and the friction of warts within the foreskin. According to the variety of organisms gaining access the type of disease is recognized.<sup>8</sup> *N. gonorrhoeae* is an aerobic negative Gram bacteria that can cause nonspecific forms of balanoposthitis, such as erythematous, edematous, even fissures lesions.<sup>1,5</sup> The local subjective symptoms in gonococcal balanitis/balanoposthitis than the simple suppurative form. The sensations are varying among itching, pain, burning, feeling of foreign body under the foreskin, and desire to rub or pull the foreskin. These symptoms are usually known by the intelligent patient not to be in the urethra because they continue after the urethra has been cleansed by the act of urination.<sup>8</sup>

*C. trachomatis* can cause balanoposthitis in two clinical forms, erosive form and psoriasiform,<sup>4,6</sup> The erosive form occurs as the islands of erosions on the glans penis and prepuce with the edge that could be easily peeled off, that is called as circinate balanoposthitis.<sup>4,5</sup> Similiar clinical appearance can also be found in balanoposthitis due to *T. pallidum*.<sup>9</sup> Some case reports showed six case of balanitis caused by *C. trachomatis* with three psoriasiform cases, two erosive forms, and one case with both clinical manifestations.<sup>6</sup>

This patient presented with the erosive balanoposthitis accompanied with the edematous skin surroundings but lack in typical clinical manifestations of gonococcal urethritis. The patient also complained the symptoms of pain and burning sensations on the glans penis and the prepuce.

Based on the European Guideline for the Management of Balanoposthitis 2013, every possible examination is needed to be done.<sup>5</sup> The diagnosis of balanoposthitis should be established after ruling out all possible etiologies suspected. In establishing the cause of the balanoposthitis, direct bacterial examination and PCR examination should be performed if possible. The enzyme immunoassay (EIA) examination can be served as an alternative yet specific modality in obtaining *C. trachomatis*.<sup>1,5</sup> In spite of the fact that the PCR examination giving the positive result of *C. trachomatis*, it is almost impossible to rule out the gonococcal involvement.<sup>1,5</sup> Brooks et al.<sup>6</sup> in their study of 6 balanitis cases, *C. trachomatis* was conducted as a single etiology based on direct bacterial staining and EIA. In this patient, the direct bacterial smear from the urethral orifice was done and intracellular as well as extracellular Gram negative bacteria were seen. Therefore, the gonococcal infection as the etiology of the balanoposthitis of this case report is plausible along with the chlamydial infection.

Primary syphilis may show balanitis/balanoposthitis as clinical manifestation<sup>9,10</sup>, some of the cases appear as similar as circinate balanoposthitis.<sup>1,3,10</sup> VDRL examination is less sensitive for diagnosing primary syphilis. The VDRL titer in general is  $\leq 1/8$  that usually reactive in 1-4 weeks after the appearance of the skin lesions or 6 weeks after exposure.<sup>11</sup> Circinate balanoposthitis can also be found in early phase of secondary syphilis,<sup>12</sup> but generally accompanied with other clinical features of secondary syphilis such as generalized lymphadenopathy, hepatitis, fever, malaise, arthritis, and alopecia. VDRL titer in secondary syphilis is at least 1/32.<sup>13</sup> Latent syphilis is defined as a condition when serological examination shows reactivity without clinical manifestations.<sup>12,13</sup> Based on the duration, it is further be divided as early latent and late latent

syphilis. Early latent syphilis is when the disease established within 1-year duration since primary syphilis was concluded or suspected coitus, whilst late latent syphilis is more than 1-year duration.<sup>13,14</sup> Another term was mentioned as syphilis of unknown duration which defined when the duration could not be determined.<sup>14</sup> Syphilis of unknown duration was also taken into the diagnosis of this patient because of the reactive result of VDRL examination is 1/1280 with unknown primary syphilis infection. The patient in this case report was diagnosed as balanoposthitis *et causa* *C. trachomatis* and gonococcal urethritis and syphilis of unknown duration according to the examinations that were done. It is possible to conclude that the clinical manifestation of circinate balanoposthitis could be seen in a patient with chlamydial infection, syphilis infection, or as a complication of gonococcal infection of the urethra.

Balanoposthitis is a condition that needs a proper therapy to prevent sexual function disturbance, minimalizing urinary tract dysfunction, and to treat the STI infection itself.<sup>5</sup> Non-occlusive dressing with saline solution could be used to treat the skin lesions, while it is not suggested to clean the lesion aggressively if the inflammation is still cannot be overcome.<sup>5,8</sup> It should be put on the primary thought that the patient needs to be well informed about the disease, notably if the balanoposthitis was related to STI.<sup>5</sup> Balanoposthitis is treated specifically according to the etiologic agents.<sup>1,5</sup> According to British Association for Sexual Health and HIV in Adults 2005, gonococcal balanoposthitis is should be treated with the same regimen with gonococcal urethritis, 400 mg single dose cefixime per oral as the first line drug choice. The chlamydial balanoposthitis is 1 gram single dose azithromycin or 100 mg doxycycline two times per day for 7 days.<sup>7,15</sup> The sexual partners of the patients with STI-related balanoposthitis should be treated similar to sexual partners of other patients with STI; they should be undergone some screenings to find the possibilities of having STI.<sup>5,7</sup> Generally, balanoposthitis cases when treated properly, denote marked improvement in 1-3 months.<sup>6</sup> The patient was treated as balanoposthitis due to gonococcal and chlamydial infection and marked therapeutic response was seen after 3 weeks of observation as

the erosions became dry, non-edematous surrounding skin.

### Conclusion

We report this case considering the rare occurrence and the scarce report of gonococcal balanoposthitis. On the account of the difficulty of determining the specific etiologic agent of balanoposthitis, it is vital for the clinicians to put STI as one of the possible etiologies and all attainable examinations should be promptly done.

### Conflicts of interest

There are no conflicts of interest

### References

1. Edwards S. Balanitis and balanoposthitis: a review. *Genitourin Med.* 1996;72:155-159.
2. Vora MP. Balanoposthitis. *J Pub Health.* 1968;3:35-38.
3. Lisboa C, Ferreira A, Resende C, Rodrigues AG. Infectious balanoposthitis: management, clinical and laboratory features. *Int Soc Dermatol.* 2006;48:121-124.
4. Carney R, Buhary T, Teh LS, Gayed S. Circinate balanitis as the presenting symptom of sexually-acquired reactive arthritis: a case report. *Brit J Gen Pract.* 2015;
5. Edwards SK, Bunker CB, Ziller F, Meijden W. 2013 Guideline for the management of the balanoposthitis. *Int J STD AIDS.* 2014:1-12.
6. Brook MG, Dell PD, Atia WA. Lone circinate balanitis and genital keratoderma: underdiagnosed presentations of chlamydia infection in men? *J Eur Acad Dermatol Venereol.* 1997;8:34-37.
7. British Association for Sexual Health and HIV. National guideline on the diagnosis and treatment of gonorrhoeae in adults 2005. 2005:1-9.
8. Pedersen VC. Balanitis, posthitis, and balanoposthitis. Dalam: *A text-book of urology in men, women, and children.* Philadelphia: Lea and Febiger; 1919:89-96.
9. Babu CS, Vitharana S, Higgins SP. Primary syphilis presenting as balanitis. *Int J STD AIDS.* 2007;18:497-498.
10. Katz K. Syphilis. Dalam: Goldsmith LA, Katz SI, Gilchrist BA, Paller AS, Leffell DJ, Wolff K, penyunting. *Fitzpatrick's dermatology in general medicine.* Edisi ke-8. New York: McGraw-Hill; 2012. hlm. 2471-2492.
11. Ratnam S. The laboratory diagnosis of syphilis. *Can J Infect Dis Med Microbiol.* 2005;16(1):45-51.
12. Rajiah K, Veetil SK, Kumar S, Mathew EW. Study on various types of infections related to balanitis in circumcised or uncircumcised male and its causes, symptoms and management. *Afr J Pharm Pharmacol.* 2012;6(2):74-83.
13. Baugn RE, Musher DM. Secondary syphilitic lesions. *Clin Microbiol Rev.* 2005;18(1):205-216.
14. Sparling PF, Swartz MN, Musher DM, Healy BP. Clinical manifestations of syphilis. Dalam: Holmes KK, Sparling PF, Stamm WE, Piot P, Wasserheit JN, Corey L, penyunting. *Sexually transmitted diseases.* Edisi ke-4. New York: McGraw Hill; 2008. hlm. 661-84.
15. Kementrian Kesehatan Republik Indonesia. Pedoman nasional penanganan infeksi menular seksual 2015. Jakarta:2015.