Self-Medication-Induced Exanthematous Drug Eruption in A 19-Year-Old Male with Uncomplicated Gonococcal Urethritis

Ersi Dwi Utami Siregar[1], Redha Cipta Utama[2]
[1,2]Regional General Hospital of Gunung Tua, North Sumatera, Indonesia
Email: ersidwi94@gmail.com

Abstract

Improper self-medication, especially with antibiotics, continues to be a major cause of skin reactions to drugs. Unprotected sexual activity in young adults elevates the risk of sexually transmitted infections, including gonococcal urethritis, which may be exacerbated by inappropriate antibiotic usage. A 19-year-old male presented with a two-day history of pruritic erythematous eruptions involving the trunk. The patient had self-administered cotrimoxazole 480 mg for purulent urethral discharge and dysuria prior to presentation. He reported his first sexual encounter with a commercial sex worker following peer influence, without condom, and disclosed a background of family instability. Dermatological examination revealed multiple erythematous macules on the chest, abdomen, and back. Venereological examination demonstrated mild erythema of the external urethral meatus with mucopurulent discharge. Microscopic examination of urethral secretions identified intracellular gram-negative diplococci. A diagnosis of exanthematous-type allergic drug eruption secondary to cotrimoxazole and non-complicated gonococcal urethritis was established. The patient was treated with a single intramuscular dose of ceftriaxone 250 mg, a single oral dose of azithromycin 1 g, and intravenous dexamethasone 5 mg three times daily for three days. Marked clinical improvement was observed after four days of hospitalization, with resolution of cutaneous lesions and negative follow-up urethral smear. This case underscores the dermatological and venereological consequences of antibiotic misuse in young adults and highlights the importance of early recognition of drug eruptions, appropriate antimicrobial therapy, and comprehensive sexual history assessment.

Keywords: *Antibiotic Misuse, Exanthematous Drug Eruption, Gonococcal Urethritis, Self-Medication.*

– – – – – – – – – –◆– – – – – – – – – –

A. INTRODUCTION

Self-medication with antibiotics is a significant worldwide health issue, closely linked to severe drug responses and antimicrobial resistance (Ahmed et al., 2023; WHO Global Antimicrobial Resistance and Use Surveillance System (GLASS)., 2024). Teenagers and young adults are a vulnerable group because they can easily get antibiotics without a prescription, are influenced by their peers, and don't know much about the risks (Limwado et al., 2024). Using antibiotics incorrectly not only makes it harder to get the right diagnosis and treatment, but it also makes it more likely that you will have an allergic reaction to the drug.

A report from Hasan Sadikin General Hospital in Bandung shows that maculopapular eruptions are the most common form of drug allergy, accounting for around 45% of all cases (Rohmawaty et al., 2025). Beta-lactams and sulfonamides are the most common types of antibiotics that cause this. Trimethoprim–

sulfamethoxazole (cotrimoxazole) is well known for causing delayed-type hypersensitivity responses, which can range from moderate rashes to serious skin reactions (Rosali et al., 2023). The pathogenesis entails T-cell–mediated immune responses and may be affected by concurrent infections and host-related variables (Mori et al., 2024).

At the same time, gonococcal urethritis is still one of the most common STIs among sexually active young adults (Unemo et al., 2019). Risky sexual behaviors, such as unprotected intercourse and initial sexual exposure influenced by peers, significantly contribute to disease transmission (Widman et al., 2016). Current worldwide guidelines stress the need for quick diagnosis, the right kind of antimicrobial treatment, and not using antibiotics without supervision or for no good reason because Neisseria gonorrhoeae is becoming more resistant to them (Cohen et al., 2024; Quilter et al., 2024).

The simultaneous occurrence of antibiotic self-medication, sexually transmitted infections, and cutaneous drug eruptions presents significant diagnostic and therapeutic challenges in clinical practice. This case report underscores the correlation among irrational antibiotic usage, maculopapular drug eruption, and uncomplicated gonococcal urethritis in a young adult, highlighting the necessity for thorough history-taking and antimicrobial stewardship in dermatological and venereological treatment.

B. CASE PRESENTATION

A 19-year-old male presented with a two-day history of pruritic erythematous lesions involving the chest, abdomen, and back. Three days prior to presentation, the patient had self-administered one tablet of cotrimoxazole (trimethoprim–sulfamethoxazole) 480 mg, which he purchased without prescription, to treat purulent urethral discharge. Approximately eight hours after drug consumption, erythematous lesions accompanied by pruritus and a burning sensation initially appeared on the abdomen. Within several hours, the lesions progressively increased in number and extended to the chest and back. The patient reported intense pruritus and a burning sensation over the affected areas. There were no associated ocular symptoms or oral mucosal involvement.

Nine days prior to presentation, the patient had his first sexual encounter with a female commercial sex worker involving oro-genital and genito-genital contact without condom use. Approximately three days after the encounter, he noticed thick yellow urethral discharge adhering to his underwear. Over time, the discharge increased in volume and was accompanied by dysuria, penile pain, and urinary urgency. These symptoms were not associated with fever, odynophagia, lower abdominal pain, or scrotal pain. The patient denied any prior sexual activity.

Regarding social history, the patient identified as a heterosexual male. His parents divorced and abandoned him at the age of one year, after which he was raised by his grandmother. He was currently a senior high school student. The patient denied alcohol consumption, substance abuse, or pornography addiction.

The sexual encounter occurred following peer encouragement, with expenses covered by a friend.

Physical examination revealed a normoweight individual with vital signs within normal limits. Dermatological examination of the chest, abdomen, and back demonstrated multiple diffuse erythematous macules and patches, round to irregular in shape, with warmth on palpation.

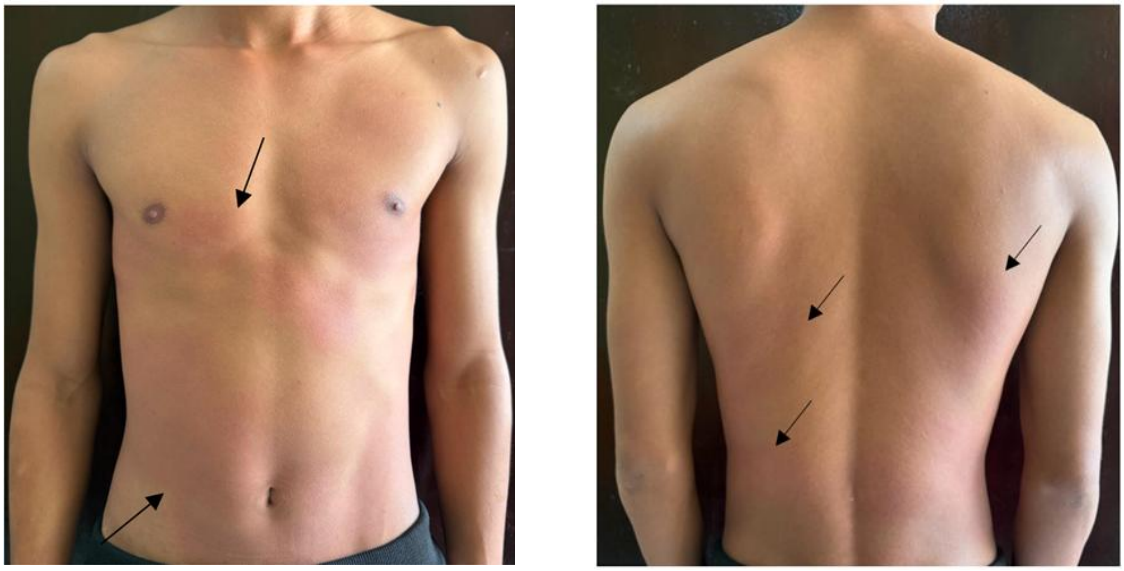

Figure 1. Multiple Diffuse Erythematous Macules and Patches on Chest, Abdomen and Back (Black Arrow)

Venereological examination revealed mild erythematous of the external urethral orifice and the presence of mucopurulent urethral discharge. No vesicles, erosions, ulcers, or vegetative lesions were observed on genital examination. Palpation of the inguinal lymph nodes showed no lymphadenopathy.

Figure 2. Mild Erythematous of the External Urethral Orifice and the Presence of Mucopurulent Urethral Discharge

Gram staining of the urethral secretion revealed intracellular and extracellular gram-negative diplococci within polymorphonuclear leukocytes. Complete blood count showed mild leukocytosis (11,700/mm³). Serological tests for human immunodeficiency virus (HIV), syphilis, and hepatitis B were non-reactive.

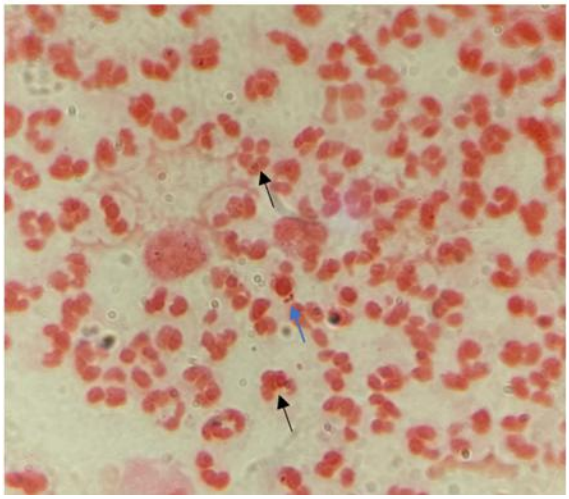

Figure 3. Gram Staining Revealed Intracellular (Black Arrow) and Extracellular (Blue Arrow) Gram-Negative Diplococci within Polymorphonuclear Leukocytes

The diagnosis was established as an exanthematous-type allergic drug eruption secondary to cotrimoxazole, accompanied by an acute episode of non-complicated gonococcal urethritis. The patient was hospitalized and treated with intravenous dexamethasone 5 mg every 8 hours, oral cetirizine 10 mg twice daily, and topical dexamethasone cream 0.25% applied twice daily for four days. For the sexually transmitted infection, the patient received a single intramuscular injection of ceftriaxone 250 mg and a single oral dose of azithromycin 1 g. By the fourth day of hospitalization, the erythematous lesions had resolved, pruritus markedly improved, and urethral discharge with dysuria had completely subsided.

Figure 4. No Skin Lesions Were Observed on the Chest, Abdomen, and Back (Fourth Day Hospitalization)

C. RESULTS AND DISCUSSION

This case highlights the close interplay between antibiotic self-medication, exanthematous drug eruption, and non-complicated gonococcal urethritis in a young adult. The close temporal association between cotrimoxazole ingestion and the onset of pruritic erythematous macules within hours strongly supports the diagnosis of an exanthematous-type allergic drug eruption. Such eruptions represent the most common form of cutaneous adverse drug reactions and are frequently associated with antibiotic exposure, particularly sulfonamides and beta-lactams (Peter et al., 2017).

Trimethoprim-sulfamethoxazole is a recognized inducer of delayed-type, T-cell-mediated hypersensitivity reactions, presenting clinically from moderate maculopapular eruptions to severe cutaneous adverse reactions (Mori et al., 2024; Rosali et al., 2023; Schrijvers et al., 2015). The lack of mucosal involvement, target lesions, systemic symptoms, or epidermal separation in this patient indicated a benign exanthematous eruption rather than Stevens–Johnson syndrome or toxic epidermal necrolysis (Lerch et al., 2018; Peter et al., 2017). Prior cohort studies have shown that the prompt cessation of the offending drug, along with a brief course of systemic corticosteroids and antihistamines, results in swift symptom relief in simple instances, as seen in this patient (Ramirez et al., 2023; Schrijvers et al., 2015).

Self-medication with antibiotics is still very common among teens and young adults, especially in places where medicines are simple to get over the counter (Ahmed et al., 2023; WHO Global Antimicrobial Resistance and Use Surveillance System (GLASS)., 2024; Limwado et al., 2024). Social determinants, including peer influence, inadequate supervision, and familial instability, have been demonstrated to elevate participation in hazardous behaviors, such as unsafe sexual practices and irrational antibiotic consumption (Limwado et al., 2024; Widman et al., 2016). These factors probably played a role in both the wrong choice of cotrimoxazole and the late start of therapy for gonococcal infection that was suggested by the guidelines in this case.

Gonococcal urethritis is a serious public health issue, as rising antibiotic resistance presents considerable obstacles to disease management (Quilter et al., 2024; Unemo et al., 2019; WHO Guidelines for the Treatment of Neisseria Gonorrhoeae, 2023). Current worldwide guidelines uniformly endorse ceftriaxone-based regimens as the primary treatment, with the option of supplemental azithromycin contingent upon regional resistance patterns (Cohen et al., 2024; Quilter et al., 2024). The quick clinical and microbiological response in this patient after the right treatment is in accordance with what has been seen in recent studies based on guidelines (Quilter et al., 2024).

In general, this example shows how important it is to combine dermatological and venereological points of view when treating patients with both skin rashes and sexually transmitted illnesses. To get the best results and minimize problems that may have been avoided, it is important to take a full medical history, recognize drug-induced skin responses early, and strictly follow evidence-based antimicrobial

therapy. This research also emphasizes the need for focused education and antimicrobial stewardship programs to stop young adults from misusing antibiotics.

D. CONCLUSION

This case illustrates an exanthematous allergic drug eruption induced by unsupervised cotrimoxazole administration in a young adult with uncomplicated gonococcal urethritis. The temporal correlation between drug consumption and symptom manifestation, together with distinctive clinical observations, substantiated the diagnosis. Quickly recognizing the skin reaction to the medicine, stopping the drug right away, and giving the right systemic and topical treatments led to a quick improvement in the patient's health. Additionally, prompt and guideline-conformant treatment of the underlying sexually transmitted infection resulted in the total remission of urethral symptoms. This case emphasizes the necessity of thorough history taking, encompassing medicine usage and sexual conduct, while also illustrating the dangers linked to self-medication and imprudent antibiotic consumption among young individuals.

REFERENCES

1. Ahmed, I., King, R., Akter, S., Akter, R., & Aggarwal, V. R. (2023). Determinants of antibiotic self-medication: A systematic review and meta-analysis. *Research in Social and Administrative Pharmacy*, *19*(7), 1007–1017. https://doi.org/10.1016/j.sapharm.2023.03.009
2. Bachmann, L. H. (2024). CDC clinical guidelines on the use of doxycycline postexposure prophylaxis for bacterial sexually transmitted infection prevention, United States, 2024. *MMWR. Recommendations and Reports*, *73*.
3. Cohen, M. K., Kent, C. K., Yang, T., Gottardy, A. J., Leahy, M. A., Spriggs, S. R., Velarde, A., Doan, Q. M., King, P. H., Starr, T. M., Yang, M., Jones, T. F., Boulton, M. L., Brooks, C., Caine, V. A., Fielding, J. E., Fleming, D. W., Halperin, W. E., Mullen, J., … Johnson, L. (2024). *Morbidity and Mortality Weekly Report CDC Clinical Guidelines on the Use of Doxycycline Postexposure Prophylaxis for Bacterial Sexually Transmitted Infection Prevention, United States, 2024 Recommendations and Reports Centers for Disease Control and Prevention MMWR Editorial and Production Staff (Serials) MMWR Editorial Board*.
4. *Global antibiotic resistance surveillance report 2025 WHO Global Antimicrobial Resistance and Use Surveillance System (GLASS)*. (n.d.).
5. Lerch, M., Mainetti, C., Terziroli Beretta-Piccoli, B., & Harr, T. (2018). Current Perspectives on Stevens-Johnson Syndrome and Toxic Epidermal Necrolysis. *Clinical Reviews in Allergy & Immunology*, *54*(1), 147–176. https://doi.org/10.1007/s12016-017-8654-z
6. Limwado, G. D., Aron, M. B., Mpinga, K., Phiri, H., Chibvunde, S., Banda, C., ... & Connolly, E. (2024). Prevalence of antibiotic self-medication and knowledge of antimicrobial resistance among community members in Neno District rural

Malawi: A cross-sectional study. *IJID regions*, *13*, 100444. https://doi.org/10.1016/j.ijregi.2024.100444

7. Mori, F., Liccioli, G., Tomei, L., Barni, S., Giovannini, M., Sarti, L., Pessina, B., & Torres, M. J. (2024). How to manage drug-virus interplay underlying skin eruptions in children. *World Allergy Organization Journal*, *17*(3), 100877. https://doi.org/10.1016/j.waojou.2024.100877
8. Peter, J. G., Lehloenya, R., Dlamini, S., Risma, K., White, K. D., Konvinse, K. C., & Phillips, E. J. (2017). Severe delayed cutaneous and systemic reactions to drugs: a global perspective on the science and art of current practice. *The Journal of Allergy and Clinical Immunology: In Practice*, *5*(3), 547-563. https://doi.org/10.1016/j.jaip.2017.01.025
9. Quilter, L. A. S., St. Cyr, S. B., & Barbee, L. A. (2024). The Management of Gonorrhea in the Era of Emerging Antimicrobial Resistance. *Medical Clinics of North America*, *108*(2), 279–296. https://doi.org/10.1016/j.mcna.2023.08.015
10. Ramirez, G. A., Ripa, M., Burastero, S., Benanti, G., Bagnasco, D., Nannipieri, S., Monardo, R., Ponta, G., Asperti, C., Cilona, M. B., Castagna, A., Dagna, L., & Yacoub, M. R. (2023). Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS): Focus on the Pathophysiological and Diagnostic Role of Viruses. *Microorganisms*, *11*(2), 346. https://doi.org/10.3390/microorganisms11020346
11. Rohmawaty, E., Devani, M., & Pangastuti, M. (2025). Clinical Features of Drug Eruption in An Indonesian Tertiary Hospital. *Majalah Kedokteran Bandung*, *57*(1). https://doi.org/10.15395/mkb.v57.3839
12. Rosali, I., Virgayanti, P. S., Marta, D. S., Danudirgo, E. W., & Hadinata, S. (2023). Incidence of Allergic Drug Eruption due to Cotrimoxazole in HIV-Positive Individuals with CD4 ≤ 200 Cells/ul. *Journal of the International Association of Providers of AIDS Care*, *22*, 23259582221146944. https://doi.org/10.1177/23259582221146946
13. Schrijvers, R., Gilissen, L., Chiriac, A. M., & Demoly, P. (2015). Pathogenesis and diagnosis of delayed-type drug hypersensitivity reactions, from bedside to bench and back. *Clinical and Translational Allergy*, *5*, 31. https://doi.org/10.1186/s13601-015-0073-8
14. Unemo, M., Seifert, H. S., Hook, E. W., Hawkes, S., Ndowa, F., & Dillon, J.-A. R. (2019). Gonorrhoea. *Nature Reviews Disease Primers*, *5*(1), 79. https://doi.org/10.1038/s41572-019-0128-6
15. WHO. (2023). *WHO Guidelines for the Treatment of Neisseria gonorrhoeae*. Geneva: WHO.
16. Widman, L., Choukas-Bradley, S., Helms, S. W., & Prinstein, M. J. (2016). Adolescent Susceptibility to Peer Influence in Sexual Situations. *Journal of Adolescent Health*, *58*(3), 323–329. https://doi.org/10.1016/j.jadohealth.2015.10.253