JMH
Jurnal Medika Hutama
Vol 06 No 02, Januari 2025
www.jurnalmedikahutama.com

e-ISSN. 2715-9728
p-ISSN. 2715-8039

Open Acces

A CASE REPORT: SCABIES WITH SECONDARY INFECTION IN AN ADOLESCENT PATIENT

Gede Agus Indra Pramana[1], I Wayan Dediyana[2]

[1] Internship General Practitioner, Primary Health Care Center 1 South Denpasar, Bali, Indonesia
[2]General Practitioner, Primary Health Care Center 1 South Denpasar, Bali, Indonesia

Corresponding Author: Gede Agus Indra Pramana, Primary Health Care Center 1 South Denpasar, Bali
E-Mail: igus696@gmail.com

Received 19 Desember 2024; **Accepted** 28 Desember 2024; **Online Published** 30 Januari 2025

Abstrak

Introduction: Scabies is a skin disease caused by infection and sensitization to *Sarcoptes scabiei var. hominis* and its by-products. This disease is highly contagious and spreads easily through direct skin contact or shared items used by the patient. The cardinal signs of scabies include nocturnal pruritus, clustered outbreaks in human populations, burrow tracks (cuniculi) at predilection sites, and intense itching, especially at night. Case report: We reported a 15-year-old male patient a one-week history of pruritic erythematous papules located primarily between the fingers of both hands and on the right foot. Family members in the same household reported similar symptoms. The diagnosis of scabies with secondary infection was made. The patient then received topical and systemic therapy followed by hygiene education, and reported improvement. Conclusion: Early recognition and appropriate treatment of scabies, prevent further transmission and complications. This also ensures a favorable outcome and reduction in scabies' impact on affected individuals' quality of life.

Keywords: *Scabies, Secondary Infection, Adolescent, Management*

INTRODUCTION

Scabies is a highly contagious skin condition caused by the infestation of the mite *Sarcoptes scabiei* var hominis. While it can affect individuals of all ages, it is most commonly found in children and adolescents. The hallmark symptom of scabies is intense itching, especially at night, which can significantly impair the quality of life of the affected individuals. [1-3]

In developing countries, the prevalence of scabies remains notably high, reaching 9,3% among school-age children.[4] Contributing factors to the transmission of scabies include direct physical contact with an infected individual, living in close proximity with someone exhibiting symptoms, poor personal hygiene such as infrequent bathing, and the use of water without soap for handwashing.[1,5] Common complications of scabies include secondary bacterial infections, particularly from *Staphylococcus aureus* and *Streptococcus pyogenes* group A, which can progress to more severe conditions such as bacteremia, post-streptococcal glomerulonephritis, and acute rheumatic fever if not properly managed.[6] Beyond the physical effects, scabies also carries significant psychosocial consequences, particularly for adolescents. Sleep disturbances due to itching, social stigma, and school absenteeism can adversely affect academic performance and social interactions.[3]

Early diagnosis and treatment are crucial to prevent further transmission within communities and reduce the risk of complications. Successful treatment

requires a comprehensive approach, including pharmacological management and environmental control, with family involvement playing a key role in eradicating scabies due to the high risk of transmission within households.[1-3] In this case report, we reported an adolescent patient with scabies accompanied by secondary infection.

CASE ILLUSTRATION

A 15-year-old male patient presented to the general outpatient policlinic, accompanied by his mother, with chief complaint of presence of reddish, watery spots accompanied by intense itching, which had been present for approximately one week. The erythematous papules initially appeared separately between the fingers of both hands and subsequently spread to the right foot over several days. The pruritus was generalized but most intense in the interdigital areas of the hands and feet. The itching was persistent, particularly worsening at night, and was severe enough to disrupt his sleep. The patient denied additional symptoms, including pain, fever, cough, rhinorrhea, nausea, and vomiting.

The patient had no previous episodes of similar complaints and history of chronic or systemic diseases were denied. He denied any allergies to foods, medications, or dust. For self-treatment, the patient had attempted to relieve his symptoms by applying salicylic powder to the affected areas, but reported no improvement in pruritus. He denied the use of traditional oils or other medications. The patient reported that his mother and sibling, who live with him, also experienced similar complaints. As a ninth-grade junior high school student preparing for his final exams, the patient had recently been staying up late and had reduced his overall sleep. He reported bathing once daily and rarely changing clothes. He lives in a densely populated area with his parents and older sibling.

From physical examination, The patient was alert and well-oriented, with vital signs within normal limits: blood pressure 120/70 mmHg, heart rate 76 beats per minute, respiratory rate 20 breaths per minute, and axillary temperature 36.8°C. His general appearance and nutritional status were good, with a body mass index (BMI) of 16.94 kg/m² (height 163 cm, weight 45 kg). Systemic examination findings were unremarkable, with normocephalic head, normal eye findings, no cervical lymphadenopathy, and clear lung and heart sounds. Abdominal examination showed no distension or tenderness, and extremities were warm without edema.

The dermatological status of the lesion revealed multiple erythematous papules with a diameter of 0.5-1 cm in the interdigital areas of both hands. These lesions were well-demarcated, round, and merged into linear “burrows” up to 1 cm in length. The papules were symmetrically distributed, localized, and covered with fine white scales. Additional lesions were observed on the right lower leg (regio cruris dextra), presenting as multiple white papules, 0.5-1 cm in diameter, with well-demarcated borders on an erythematous macular base. These lesions were discrete and covered with a thick, white-brown crust. No laboratory investigations were conducted.

Figure 1. Lesions on the arm interdigital region

Figure 2. Lesions on the right cruris region

Based on the history taking and physical examinations, the working diagnosis of the patient was scabies accompanied by secondary infection, specifically ecthyma. With the differential diagnosis were pediculosis corporis, contact dermatitis, atopic dermatitis, ulcerative impetigo (ecthyma), and insect bites. Management consisted of both topical and systemic treatments. Topically, 2.5% hydrocortisone cream was applied twice daily to the pruritic areas on the hands and feet. Additionally, 5% permethrin cream was applied from the ears down to cover the entire body, left on for 8-10 hours, and then washed off; this application was to be repeated in one week. Systemic treatment included 4 mg chlorpheniramine maleate (CTM) tablets taken every 8 hours as needed for pruritus, along with 500 mg amoxicillin tablets every 8 hours for three days to address the secondary bacterial infection.

The patient was informed about the highly contagious nature of scabies, especially within close-contact family members, and advised that any family member with similar symptoms should seek treatment at a nearby healthcare facility. The patient received comprehensive education on scabies, including the definition, causes, symptoms, treatment, and preventive measures. Emphasis was placed on the importance of avoiding scratching the lesions to prevent secondary infections. Recommendations for personal and household hygiene were provided, including washing clothing and bedding in hot water (at 60°C) or sealing them in plastic bags for several days. Items such as carpets, mattresses, and cushions were advised to be cleaned and exposed to sunlight.

At the first follow-up, 10 days after treatment initiation, the patient showed clinical improvement. Vital signs remained stable, and dermatologic examination revealed hypopigmented macules with dry crusts in the affected areas. The patient reported reduced pruritus and a decrease in erythematous papules on his hands and feet. Overall, topical and systemic therapy was reported to give clinical improvement in patient's condition.

CASE DISCUSSION

Scabies is a skin disease caused by infection and sensitization to *Sarcoptes scabiei var. hominis* and its by-products. This disease is highly contagious and spreads easily through direct skin contact or shared items used by the patient. The cardinal signs of scabies include nocturnal pruritus, clustered outbreaks in human populations, burrow tracks (cuniculi) at predilection sites, and intense itching, especially at night. The prevalence of scabies is high in densely populated areas and is closely associated with poor hygiene. Common predilection sites for scabies include the axillae, areolae, periumbilical region, genital area, buttocks, volar aspects of the wrists, interdigital spaces of the fingers, flexor surfaces of the elbows, as well as the palms and soles.[1,7]

In this case, the patient is a 15-year-old male, identified by the initials KAD, a student residing in Denpasar, practicing Hinduism, of Balinese ethnicity, and Indonesian nationality. This aligns with the epidemiology of scabies, which is frequently observed among younger age groups and tends to spread rapidly in densely populated living environments. [7]

From the anamnesis, it was noted that the patient developed red, watery spots approximately one week prior. These lesions appeared in the interdigital spaces of both hands and on the right foot, accompanied by persistent itching that worsened at night, disrupting the patient's sleep. Additionally, a similar complaint was reported by several family members living in the same household (the patient's sibling and mother). This history fulfills two of the four cardinal signs for diagnosing scabies: nocturnal itching and similar symptoms among household members.[7]

Itching, or pruritus, is an unpleasant sensation that provokes a desire to scratch and can adversely impact both the psychological and physical aspects of a person's life. Pruritus is classified into four types: neuropathic, psychogenic, neurogenic, and pruriroceptive. Neuropathic pruritus arises from damage to central or peripheral sensory neurons, causing stimulation of pruritic neurons without pruritogenic skin stimuli. This type can be caused by primary lesions or dysfunction at certain points along the sensory nerve pathway, where the actual nerve damage is distant from the itching site. Psychogenic pruritus is associated with psychological disorders, often presenting with an intense urge to scratch normal-appearing skin. Neurogenic pruritus stems from disorders in organs outside the skin, seen in conditions such as chronic renal failure, liver disease, hematologic conditions, lymphoproliferative disorders, and malignancies. Pruriroceptive pruritus, the most common type found in dermatologic diseases, originates in the skin through inflammation or skin damage and can typically be observed on clinical examination. This type is prevalent in most clinical pruritus cases, as both endogenous mediators and exogenous allergens that contact the skin can induce pruriroceptive itching.[8] In this case, the pruritus is classified as pruriroceptive.

In this case, physical examination showed that vital signs and general status were within normal limits. Dermatological examination revealed erythematous papules in the interdigital regions of both hands, appearing as multiple, well-demarcated, round lesions with varying diameters (0.5 to 1 cm). These papules had a linear arrangement (burrows) of approximately 1 cm in length, localized symmetrically, and covered with fine white scales. Additionally, on the right lower leg, multiple, well-demarcated, white papules were observed with diameters ranging from 0.5 to 1 cm, distributed discretely, with erythematous macular bases. These lesions were covered by thick white and brown crusts with distinct borders and geographic shapes.

This presentation aligns with the typical characteristics of scabies, in which primary lesions appear as erythematous papules or vesicles in linear or winding burrow formations, usually white or gray, with an average length of about 1 cm. These burrows serve as tunnels for *Sarcoptes scabiei* mites, often referred to as "burrows" or "cuniculi." Common predilection sites for scabies include the interdigital spaces of the hands and lower extremities, areas of thinner stratum corneum. Based on these findings, this case fulfills three of the four cardinal signs of scabies diagnosis: nocturnal itching, similar symptoms among household members, and the presence of burrows in typical predilection sites.[1,7]

The detection of the mite in patients is one of the cardinal signs in diagnosing scabies, and therefore, it is recommended to perform diagnostic tests to identify the mite if the patient's clinical condition remains uncertain. In this case, mite examination was not conducted because the diagnosis was already established based on the anamnesis and physical examination, which also helped rule out other differential diagnoses. Additionally, diagnostic tests

were not performed due to limitations in equipment at the primary health center.

The diagnosis in this case was made based on anamnesis, clinical symptoms, and physical examination findings. This aligns with the theory stating that scabies can be diagnosed directly based on clinical findings and physical examination when at least two of the four cardinal signs of scabies are present.[7,9]

In this case, the patient was treated with topical Permethrin cream 5%. The therapy provided follows the clinical practice guidelines for scabies treatment. Permethrin works by disrupting the polarization of the parasite's nerve cell membranes through binding with sodium channels. This process slows down membrane repolarization, eventually causing paralysis of the parasite. Permethrin is rapidly metabolized in the skin, and its inactive metabolites are excreted through the urine. After topical application, permethrin is absorbed, but the skin also serves as a site for metabolizing and conjugating the metabolites. The application of 5% permethrin cream is usually sufficient to eliminate ectoparasites and reduce pruritic symptoms.[10-12]

Another topical therapy given in this case was 2.5% hydrocortisone cream, applied every 12 hours to the itchy areas. Hydrocortisone cream is a corticosteroid with anti-inflammatory and antipruritic properties. It belongs to the low-potency corticosteroid group. The use of a low-potency corticosteroid in this case is appropriate because scabies is an acute-onset skin disease, and the lesions are located in skin folds, where the stratum corneum is thinner.[11,12]

The systemic therapy administered in this case was Chlorpheniramine Maleate (CTM) tablets, 4 mg taken orally every 8 hours. This drug belongs to the first-generation antihistamine class, and its mechanism of action works by reducing or inhibiting the activity of histamine in the body through H-1 receptor antagonism. As a result, this medication helps alleviate itching caused by the allergic reaction to scabies and is taken at night to reduce nocturnal pruritus symptoms in patients with scabies.[10-12]

Communication, information, and education are crucial for the patient and their family, as while the disease may not take long to heal, reinfection rates remain high and are heavily influenced by predisposing factors. Patience and adherence to treatment, as well as maintaining hygiene, are essential.[13-15] By carefully selecting and applying medications, adhering to treatment requirements, and eliminating predisposing factors, this disease can be eradicated with a good prognosis.

CONCLUSION

This case report highlights the importance of early recognition and appropriate treatment of scabies, particularly in adolescents, to prevent further transmission and complications. The patient's presentation of erythematous papules, burrows, and intense nocturnal pruritus, along with a family history of similar symptoms, supported the diagnosis of scabies with secondary bacterial infection. A comprehensive treatment approach, including topical permethrin, hydrocortisone, and systemic chlorpheniramine, was effective in managing the condition and alleviating symptoms. This case also underscores the need for patient and family education regarding hygiene, proper treatment application, and environmental control to prevent reinfection and transmission. Adherence to these measures, coupled with timely medical intervention, ensures a favorable outcome and reduction in scabies' impact on affected individuals' quality of life.

DAFTAR PUSTAKA

1. Scabies: Clinical Signs, Diagnosis and Current Treatment. (2023). doi: 10.47482/acmr.1244299

2. Thompson R, Westbury S, Slape D. Paediatrics: how to manage scabies. Drugs in Context. 2021 Mar 26;10:1–13.
3. Zeyad, Alsyali., Abdullah, Alaithan., Khalid, Almubarak., Hassan, Alibrahim., Abdulrahman, Almansour., Turki, Albalawi., Syed, Rehan, Hafiz, Daimi., Shamim, S., Mohiuddin. A Comprehensive Review Study on Scabies and its Associated Impact on Psycho-Social Health of an Individual. (2019).;10(02):20700-20707. doi: 10.15520/IJCRR.V10I02.674
4. Dagne H, Dessie A, Destaw B, Yallew WW, Gizaw Z. Prevalence and associated factors of scabies among schoolchildren in Dabat district, northwest Ethiopia, 2018. Environmental Health and Preventive Medicine. 2019 Dec 30;24(1):67.
5. Kaniz, Rahman., Syed, Afzalul, Karim., Nila, Akter, Keya., Farhana, Rahman., Arm, Luthful, Kabir., Kazi, Selim, Anwar. Scabies-Major Childhood Skin Infestation in Bangladesh - An Updated Review. (2023).;10(1):48-62. doi: 10.3329/jawmc.v10i1.67482
6. Mitha Yunda Pertiwi, Dedianto Hidajat. Skabies dengan Infeksi Sekunder Pada Sindrom Down. Unram Medical Journal. 2022 Jan 22;10(4):655–60.
7. Boediarja SA dan Handoko RP. Skabies. Dalam: Menaldi, S. Ilmu penyakit kulit dan kelamin. Edisi ke-7. Jakarta: Badan Penerbit FKUI. 2016. h.137-139.
8. Cevikbas F, Lerner EA. Physiology and pathophysiology of itch. Physiol Rev. 2020; 100:945–82.
9. Perhimpunan Dokter Spesialis Kulit dan Kelamin Indonesia. Panduan praktik klinis. 2017. h. 131.
10. Nindya G dan Prasetyo S. Skabies Beserta Penatalaksanaannya; Sebuah Laporan Kasus. Bagian/ SMF Ilmu Penyakit Kulit dan Kelamin Fakultas Kedokteran Universitas Udayana/ Rumah Sakit Umum Pusat Sanglah Denpasar. 2022. h. 5-10.
11. Kementrian Kesehatan Republik Indonsesia. Panduan Praktik Klinis Bagi Dokter Di Fasilitas Layanan Kesehatan Pertama. 2022. h 790.
12. Sandra, Widaty., Eliza, Miranda., Emilina, Faradila, Cornain., Luddwi, Rizky. Scabies: update on treatment and efforts for prevention and control in highly endemic settings.. Journal of Infection in Developing Countries, (2022). doi: 10.3855/jidc.15222
13. James, W.D., Berger, T.G., Elston, D.M. 2000. Andrew's Diseases of the Skin: Clinical Dermatology. 10th Ed. Canada. Saunders Elsevier
14. Sukmawati, Tansil, Tan., Yohanes, Firmansyah., Alicia, Sarijuwita., Joshua, Kurniawan., William, Gilbert. Counseling On Prevention Of Scabies Transmission, Scabies Screening And Secondary Infection Through Gram Examination And Comprehensive Scabies Treatment. (2023). doi: 10.55606/kreatif.v3i2.1449
15. Isnaini, Isnaini., Azma, Rosida., Erida, Widyamala. Prevent Scabies with Healthy Living. (2024). doi: 10.55927/ajcs.v3i4.8759