Treatment and Management of Scabies in 12 Years-old Patient at Islamic Boarding School: Case Report

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Abstract

Backround : Scabies is caused by parasite, called *S. scabiei var hominis* and common public health problem that affects people worldwide. High prevalence found in children, which is still pay less attention to personal hygiene and the risk of this disease will increase in chil dren who live in environments with high population density and interpersonal contact, such as Islamic boarding schools.
Objective : The review aims to provide an understanding of treatment as well as comprehensive management of scabies infection in Islamic boarding schools.
Discussion : The patient complained of itching, started between the fingers and later moved to the stomach, difficult for sufferers to fall asleep at night cause of the increased itching experience. Pharmacological treatment uses 5% permethrin cream applied once at night and antihistamine. Non-pharmacological therapy like bathing twice a day, washing clothes, drying towels, and mattress in the sun at least once a week can help prevent the spread of scabies and prevent recurrence.
Conclusion : The diagnosis of scabies can be established by history and physical examination. Increased awareness, accurate diagnosis and prompt treatment are essential for the effective control of scabies and for prevention the spread of the disease

Keywors: Boarding School; Healthy Lifestyle; Permethrin; Scabies; Tropical Disease

1. Introduction

Scabies is a parasitic skin infestation that affects individuals all over the world and is most prevalent in tropical and resource limited areas having the highest frequency (Leung *et* al, 2020), with a global prevalence of 200 to 300 million cases every year (Thompson *et al,* 2021). According to reports, the prevalence range from 6-27% of the general population and the highest in school-age children and adolescents (Diah Mir*a et* al, 2021). The high prevalence of scabies is generally found in environments with high population density and interpersonal contact such as Islamic boarding schools, prisons and orphanages (Hayat*i et* al, 2021). Typical symptoms include acute pruritic eruptions between the fingers, wrists, axillae, areola, and genitalia (Stephanie *et al*, 2022). Scabies can have a major influence on patients focus and academic progress at school, and it also causes social stigma, sleep issues, and decrease community economic productivity (Widaty *et al*, 2022). Scabies afflicted 2.9% of Indonesia's 6.915.315 people in 2012, according to the Ministry of Health. The percentage increased to 3.6% in 2012. Scabies was found in children more commonly than in adults (Profil Kesehatan, 2012).

Study research at an orphanage in Dumai City, Riau Province, as many as 53 children were examined, 28.3% were positive for scabies (Maryant*i et* al, 2023), and it was reported that a study at a health center in Central Sulawesi found that 45.9% of patients infested with scabies were aged 11-16 years (Suciat*y et al*, 2021). This infection is more common in children, which is children still pay less attention to personal hygiene and the risk of this disease will increase in children who live together, such as in dormitories and orphanages (Maryant*i et al*, 2023). Low motivation and participation in scabies prevention and eradication in the community might be caused by inadequate scabies knowledge and poor personal hygiene. Inadequate or delayed treatment reduces the patient's quality of life and increases transmission (Angraini *et al*, 2021).

Scabies produces severe itching, particularly at night and in hot or humid climates. This stimulates scratching in order to ease the irritation. Scratching allows eggs, larvae, and adult mites to be present on the nails, allowing them to spread swiftly and easily. As a result, it is critical to wash your hands and trim your nails. Bathing with soap twice a day is also crucial since bathing causes the mites in the skin's superficial areas to be freed and rinsed away. Washing clothes, drying towels, and drying the mattress in the sun at least once a week can help prevent the spread of scabies. Mites will perish in 10 minutes if exposed to temperatures about 50^{o}C (Richards, 2021).

2. Case Report

The patient went to the polyclinic at the boarding school to receive help for her itching. It had been scratching for two months since entering the lodge. Initially irritating nodules that are scraped lead to the nodules spreading and becoming horribly festering like an ulcer. Itching spread from between the fingers to the stomach before making the body tense. Because of the increased itching they experience, it is more difficult for sufferers to fall asleep at night. Using the patient's medical history, clinical symptoms, and supportive tests, the diagnosis is formed. The diagnosis discovered that Sarcoptes scabiei mites are discovered based on four characteristics, including: nighttime itching, preference and morphology that affect a group of people. The fingers, wrists, armpits, inner thighs, male genitalia and buttocks are preferred areas.

Her complained doesn't get better despite oral medication and pharmacoointment being applied. The patient resides in the hut. The same thing happened to a friend's patient. The sufferer shares a bed with two other persons. There are 23 people in one room at the lodge. The public bathroom at the hostel is where this girl takes her twice daily showers. PDAM uses water. An erythematous macule, together with erythematous papules, pustules, blackish-red crusts, and excoriations, are present in the cruris dextra ad sinistra region. Erythematous macules, erythematous papules, pustules, crusts, and excoriations are seen in the area of the manus dextra ad sinistra. An 1 cm hyperpigmented macular tunnel and erythematous, excoriated papules can be found in the abdomen area. The macula is erythematous and covered in erythematous papules, pustules, erosions, and excoriations in the gluteal region.

The treatment plan for this patient follows the theory, and calls for the use of permethrin 5% (30 g) cream, applied once, at night, from neck to toe, and cleansed after 8–10 hours. A week after the initial application, it can be done again if the wound has not healed. Antihistamines (10 mg tab, 1x1) are used as symptomatic treatment. Beside pharmacology treatment, to prevent the transmission of scabies, people who have direct or close contact with sufferers must be treated with topical scabicide. This preventive therapy must be given to prevent the spread of scabies because a person may already contain scabies mites that are still in the asymptomatic incubation period. In addition, to prevent reinfection through bed sheets, pillows, towels and clothing used in the last 5 days, it must be washed clean and dried with hot air because scabies mites can live up to 3 days on the outside of the skin, carpets and other upholstery, so they must be cleaned (vacuum cleaner).

Figure 1.
a.In the region of the manus dextra ad sinistra there are erythematous macules accompanied by erythematous papules, pustules, blackish red crusts, and excoriations.
b.In the gluteal region the macula is erythematous with erythematous papules, pustules, erosions and excoriations
c.In the abdominal region there is a 1cm hyperpigmented macular tunnel, erythematous and excoriated papules.
d.In the feet region there are multiple erythematous papules, pustules, blackish red crust and excoriations

3. Discussion

Sarcoptes scabiei var hominis, a human-specific ectoparasite that is around 4 mm in size and completely undetectable to the naked eye, transmits the infectious skin disorder scabies. (Engelman *et al*, 2020). Sarcoptes scabiei is an ectoparasite that lives and reproduces continuously in the skin of animals, including humans and other primates, all over the world. In among the eggs, larvae, protonymphs, and tritonymphs, Sarcoptes scabiei also has adult males or females. Sarcoptes mites go through three molts as they develop: from larvae to protonymphs; protonymphs to tritonymphs; and tritonymphs to adults. It is currently unknown how Sarcoptes scabiei molts, and it is also unknown whether molting Sarcoptes mites are susceptible to acaricides (Feng *et al*, 2023).

The life cycle of the Scabies mite (*S. scabiei var. hominis*) begins with the pregnant female burrowing into the human epidermis and laying 2-3 eggs per day. Larvae emerge after 48-72 hours and form new burrows. The larvae reach adulthood in 10-14 days, mate and the cycle is repeated. Transmission is by direct skin-to-skin contact. Human scabies mites are capable to surviving in the environment, outside the human body, for 24-36 hours in normal room conditions of 21 ^{0}C and 40 -80% relative humidity (Chandler and Fuller, 2019).

The reported risk factors for scabies include overcrowding, inadequate personal hygiene, sharing of beds or clothing, younger age, gender, educational level of caregivers, place of residence, limited access to water, larger family size, lack of knowledge about scabies, parental illiteracy, and low income of households (Ararsa *et al*, 2023). This is supported by study research in elementary schools in Iran which states that independent factors associated with the risk of scabies infestation are higher in families with more than four members and most of the fathers and mothers of these schoolchildren are illiterate or have primary level of education. In addition, the study result also showed that the prevalence of scabies infestation was 31% among schoolchildren who used shared articles such as towels, combs and clothes, they were more likely to be infested by scabies than students who did not use shared articles. (Sanei-Dehkord*i et a*l. 2021). Closed institutions such as schools, jails and prisons and refugee camps are subject to outbreaks. In an event of an outbreak, a team should be constituted, containing all ele ments inside the boarding school, including school leaders, religious pillars, administrators, cleaners, and health officers. The te am should report and coordinate the management effort with local health authorities and the closest medical facilities. It is best to manage the outbreak within 24 h to allow containment and prevent mass spreading. Screening should be undertaken for all in dividuals within the boarding school. Individuals experiencing signs and symptoms of scabies should be kept away from the res t and are sent to a medical doctor for diagnosis and treatment. Once persons affected are treated with scabicides, mass environm ent cleaning and distribution of scabies prophylaxis to those who were in contact with those declared affected are required (Sun gkar and Wahdini, 2022). There remain four main signs of infection caused by Sarcoptes scabiei, which include nocturnal prurit us, infestation in a communal setting, presence of a burrow (cuniculus), and identification of the scabies parasite (Tansil Tan et al., 2023).

The diagnosis of scabies depend on the clinical identification of characteristic manifestations of infestation. The confirmation of scabies diagnosis can be facilitated through the utilization of visual imaging methods, such dermatoscopy or microscopy of skin scrapings obtained from burrows. However, it is important to note that these procedures are typically deemed unnecessary, particularly in regions with a high prevalence of the condition. Patients commonly exhibit intense pruritus, linear burrows, and papules in the vicinity of the interdigital spaces of the fingers, wrists, upper and lower extremities, as well as the waist region. Infants and young children may exhibit a more extensive rash, which can manifest on various areas of the body such as the palms, soles of the feet, ankles, and even the scalp. Inflammatory nodules associated with scabies can be observed, namely in the genital region of adult males, including the penis and scrotum, as well as in the vicinity of the breasts in females. The presence of scabies lesions in individuals who have not yet experienced itchiness can be attributed to the time lag between the first infection and the onset of symptoms (WHO, 2023).

The patient's therapy according to the prescribed theory, which involves the use of a 30g cream containing 5% permethrin. This cream is to be administered once, specifically at night, and should cover the entire body from the neck to the toes. After 8-10 hours, the cream should be washed off. If the initial treatment has not undergone complete healing, it may be considered appropriate to provide a subsequent application after a period of one week. The recommended symptomatic management for this condition involves the use of antihistamines, specifically in the form of cetirizine tablets at a dosage of 10 mg, to be taken once daily. In combination with pharmacology, it is imperative to implement non-pharmacological interventions to reduce transmission and mitigate the likelihood of recurrence. Based on the revised criteria, there exist multiple therapeutic interventions available for the management of scabies. The application of Permethrin 5% cream covered the entirety of the body, from the head to the toes, and was then rinsed off within a period of 8 to 12 hours. Based on the available evidence from the International Baccalaureate (IB), it is highly recommended to repeat the treatment after a period of 7-14 days. This suggestion is supported by the attainment of a grade A. It is recommended to provide oral ivermectin at a dosage of 200 micrograms per kilogram while also eating. This treatment should be administered in two separate doses, with a one-week interval between them. The level of evidence supporting this recommendation is classified as Ib, indicating a high level of certainty. Additionally, this treatment is assigned a grade A recommendation, further emphasising its strong endorsement. The recommended treatment regimen involves the application of a lotion containing benzyl benzoate at a concentration of 10-25%. This should be done once daily at night for two consecutive days, followed by re-application every seven days. The degree of evidence supporting this recommendation is classified as IV, and it is assigned a grade C. The recommendation for Malathion 0.5% aqueous lotion is assigned a grade C, indicating a moderate level of recommendation. The degree of evidence supporting this advice is classified as level IV. Ivermectin 1% lotion permethrin cream 5% both exhibited equivalent efficacy, according to the research, which was backed up by evidence of level Ib and a grade A recommendation. A cream, ointment, or lotion with sulphur concentrations ranging from 6% to 33% is one of the first therapies for scabies. With Level Ib evidence and a Grade A recommendation, the intervention has shown to be effective and is advised to be given over the course of three consecutive days. Synergized pyrethrins, formulated as a foam preparation, have been made accessible in certain nations and have demonstrated comparable efficacy to permethrin cream 5%. This conclusion is supported by level IIa data and is recommended at a grade B level. The use of lindane is currently discouraged due to its potential for inducing neurotoxicity (Salavastru et al. (2018).

Primary, secondary, and tertiary disease prevention strategies are identified. Primary prevention refers to disease control that takes place previous to the pathogenesis phase and consists of health promotion and specific protection. Primary prevention is providing scabies health education counselling at Islamic boarding schools. Identical to the research published by Hayati (2021), who looked into the value of health education in scabies prevention efforts at the Madrasah Tsanawiyah Harsallakum Islamic Boarding School in Bengkulu City. After receiving health education, there was an obvious rise in student's understanding of scabies knowledge, according to the study's findings. When it comes to early detection and measures to avoid sickness, one's level of knowledge is a significant factor in the way they are created (Hayati et al, 2021).

Therefore, it is crucial to teach and educate family members and those in the area about scabies, its causes, how the disease spreads, how to treat it, and how to take the medication (Diah Mira et al. 2021). When microorganisms have already infiltrated the human body, during pathogenesis, secondary and tertiary prevention is practised. Secondary prevention refers to both the first stage of an illness's recovery and the prevention of its aftereffects, such as early diagnosis, rapid treatment, and the limits of impairment. In the case of scabies, this means preventing complications or disability and receiving early, standard-compliant treatment. Therefore, for the efficient control of scabies and for preventing the spread of the disease, increased awareness, precise diagnosis, and timely treatment are crucial (Leung et al. 2020). Because the spread of scabies will be challenging to halt and likely to return without a shift in behaviour toward a helathy living (Diah Mir*a et a*l. 2021). Tertiary prevention takes the form of rehabilitation and the prevention of the recurrence or emergence of further issues caused by severe diseases (Trasia, RF, 2021).

4. Conclusion

According to the observation, scabies cases at Islamic boarding schools are a difficulty for maintaining a clean and healthy lifestyle. The patient is being managed with the updated guidelines, which prescribe for the use of permethrin 5% 30g cream, applied once, at night, from head to toe, and cleansed after 8–10 hours. The first application can be repeated a week later if the wound has not healed. Antihistamines are used as symptomatic treatment. To reduce transmission and stop recurrence, non-pharmacological therapy must also be used in addition to pharmacology. In order to treat scabies with secondary infection, education of the family and school is crucial. Parents must take on this responsibility to address issues with their children's behavior at home and in school.

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