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Scabies with Predilection Athypical in Elderly Patients : A Case Report

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ABSTRACT

Scabies is an infectious skin disease caused by *Sarcoptes scabiei* infestation. It is frequently found in vulnerable populations, including the elderly. In this demographic, clinical manifestations are often atypical and do not follow classic distribution patterns, which can lead to delays in diagnosis and treatment. We report a case of a 69-year-old woman who presented with chronic pruritus in the perianal area for two months. The condition was accompanied by skin thickening and a rough surface. Physical examination revealed papules that had coalesced into erythematous plaques with lichenification in the perianal region. A potassium hydroxide (KOH) skin scraping examination confirmed the presence of *Sarcoptes scabiei* mites. The patient was diagnosed with scabies and secondary lichen simplex chronicus due to repeated scratching. Management included 5% permethrin cream, oral antihistamine (cetirizine), and topical corticosteroids to reduce inflammation. Hygiene education and simultaneous treatment of all family members were also implemented. This case illustrates that scabies in the elderly can present with atypical predilection sites, such as the buttocks. Factors like decreased cellular immunity, age-related skin changes, and comorbidities influence susceptibility and clinical presentation. A delayed diagnosis increases the risk of a higher parasite burden and complications. This report emphasizes the importance of early recognition and tailored management of atypical scabies in elderly patients.

Keywords: atypical predilection, chronic lichen simplex, elderly, scabies

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INTRODUCTION

Scabies is a highly contagious skin infestation caused by the mite Sarcoptes scabiei hominis. Fertilized female mites burrow into the stratum corneum to lay eggs, triggering a delayed hypersensitivity reaction that underlies the characteristic itching and rash. Transmission primarily occurs through prolonged skin-to-skin contact (at least 5–10 minutes), although indirect transmission via fomites such as clothing or bedding is also possible, especially in crusted scabies.[1,2]

Scabies is a global health problem with an estimated 200 million individuals infected worldwide and a highly variable prevalence ranging from 0.2% to 71%. The incidence of scabies has been reported to be increasing in recent years, including in developed countries such as Germany. In Indonesia, scabies remains a public health problem with a prevalence of around 6% of the total population in 2017 according to neglected tropical disease (NTD) data.[1,2]

The elderly population is a group that is highly susceptible to scabies infestation.[1,3] This susceptibility is influenced by multifactorial factors, namely a decline in T cell-mediated cellular immunity, physiological changes in the skin such as epidermal and dermal atrophy, a decline in skin barrier function, and a slower healing process. Additionally, environmental factors such as living in long-term care facilities (nursing homes) and comorbid factors such as cognitive impairment (dementia), malnutrition, immobilization, and the use of immunosuppressive drugs (especially

topical/systemic corticosteroids) significantly increase the risk of scabies, including the more severe form known as crusted scabies.[1,3,5]

In the elderly, the clinical presentation of scabies is often atypical, making diagnosis difficult. Unlike younger populations who show lesions between the fingers, on the wrists, and in the genital area, lesions in the elderly may appear in unusual areas such as the back, scalp, face, and areas covered by clothing. Itching (pruritus), although the main symptom, may not be reported due to neuropathic or cognitive impairment. Crusted scabies (Norwegian scabies), characterized by hyperkeratotic, crusted plaques containing millions of mites, is more common in this group and is often misinterpreted as psoriasis, eczema, or a drug reaction. A multi-center study in France found that 43.1% of patients with severe scabies were initially misdiagnosed, with eczema being the most common misdiagnosis.[5]

The distribution of lesions in the elderly may deviate from the classic pattern. Lesions are often found on the palms of the hands and soles of the feet (with burrows more common on the soles of the feet), scalp, back of the ears, and under the nails (onychomycosis-like changes), which do not usually occur in young adults.[1,3] Involvement of areas covered by clothing is also more common because the elderly tend to wear clothing that covers the body throughout the day, so a thorough physical examination and removal of clothing are absolutely necessary to avoid missed diagnoses.[3]

Delayed diagnosis and treatment in the elderly can lead to serious complications. Secondary bacterial infections by Staphylococcus aureus or Streptococcus pyogenes are the most common complications, which can manifest as impetigo, cellulitis, erysipelas, and even sepsis.[1,2,5] Scabies is also associated with an increased risk of vasculitis and bullous pemphigoid. In addition to physical effects, scabies causes a significant psychosocial burden, including sleep disturbances, social isolation, stigma, and reduced quality of life.[2,3] The mortality rate in cases of crusted scabies was reported to be 3.1% in one study.[5]

The management of scabies in the elderly faces specific challenges. The application of topical medications such as 5% permethrin to the entire body from the neck down can be difficult for elderly individuals with limited mobility or without assistance. Cognitive impairment can lead to noncompliance with treatment. The use of first-generation antihistamines to treat itching should be avoided due to their side effects on the central nervous system, such as drowsiness and confusion, so preference is given to second-generation antihistamines or low-dose gabapentin. Three key points are simultaneous treatment of all close contacts and environmental decontamination (washing clothes and bedding in hot water) are key to preventing transmission and recurrent outbreaks, especially in institutional settings.[1,3] This case report aims to highlight the diagnostic and therapeutic challenges of scabies with atypical predilection in the elderly.

CASE PRESENTATION

A 69-years-old girl presented with of itching in the buttocks crease that had been getting worse for two months. The patient first experienced this symptom a year ago in the buttocks crease. The itching was constant and not affected by time. The itching is of moderate intensity and does not interfere with the patient's sleep. In response to the complaint, the patient used a 2% miconazole cream obtained from a previous doctor and applied it only when the itching occurred. The cream was leftover from a previous treatment for a fungal infection in the foot. The itching did not show significant improvement.

For the past five months, the patient has experienced increasingly severe itching in the buttocks area and has a habit of scratching the itchy area. The itching has not improved significantly. Then, two months before treatment, the itching was only slightly reduced. One month later, the itching was also accompanied by thickening of the skin and a rough surface in the buttocks crease area that was often scratched. Due to these complaints, the patient sought treatment at the hospital.

Itching is felt at night. Itching is felt in the folds, specifically between the buttocks. No similar itching complaints have been reported in the family. Skin abnormalities between the fingers, armpits, and genitals are not reported. The patient had previously been treated for tinea cruris and was prescribed miconazole cream. The patient is allergic to seafood and chicken, and the reaction manifests as itching first in the eye area and then on the skin. The patient has a history of allergic rhinitis (+). The

patient's parents have a history of asthma (+). The patient's husband also has itching between his thighs. The patient has a history of hypertension four years ago and regularly takes 5 mg of amlodipine. The patient has a history of gout five months ago. The patient is a housewife who is busy at home every day.

Physical examination and dermatological status revealed show erythematous plaques with indistinct borders, regular edges, and lichenification above the plaque size, multiple in number, regionally distributed. The lesions were distributed across the right and left perianal regions. The diagnosis was established as Scabies. The results of skin scraping examination with KOH staining viewed under a microscope at 100x magnification revealed the presence of Sarcoptes scabiei.

The patient was treated with topical therapy on 19th August 2025 consisting of 0,25% desoksimetason (apply once daily at night, between the buttocks), 0,1% momethason (apply once daily at morning, between the buttocks). And also with topical therapy on 26th August 2025 included 5% permethrin 0.1% (apply once daily at night all over the body, then rinse off after 8 hours) and cetirizine 10 mg (morning and night).

During the treatment, there was no clinical improvement, and the patient continued to complain of itching in the affected area. The family was educated on skin care and awareness of the risk of further infection. Home skin care was also explained, including the use of prescribed ointments to speed up recovery. The family was informed that the recovery process could take several weeks or months, depending on the extent of the lesions and the presence of complications. This education aimed to prevent recurrence, increase awareness, and encourage compliance with follow-up care.

DISCUSSION

Scabies is a highly contagious skin infestation caused by the mite Sarcoptes scabiei hominis. Fertilized female mites burrow into the stratum corneum to lay eggs, triggering a delayed hypersensitivity reaction that underlies the characteristic itching and rash. Based on the medical history and physical examination conducted on the patient who came to the clinic complaining of itching in the buttocks area since two months ago. The itching was moderate in intensity and did not interfere with the patient's sleep. Skin scraping with KOH staining revealed mites suggestive of Sarcoptes scabiei. This is because the buttocks are an anatomical and environmental predilection site for scabies, where the buttocks are a closed area with friction and high humidity, causing chronic irritation, minor microbial infections, and even mite antigen retention.[7] The itching worsens at night when the patient is resting. This is because scabies mites begin to infest and become active at night when skin temperature increases, enhancing vasodilation and inflammatory reactions, causing the mites to release antigens. The mites' life cycle occurs on human skin. They can dig very small burrows measuring 0.5 to 5 mm/day in the stratum corneum to the stratum granulosum. Along these burrows, scabies mites lay 0-4 eggs per day. The eggs hatch and produce larvae, which then leave the burrows to mature on the skin surface. After molting, the larvae transform into nymphs and continue to reproduce within the burrows. This can trigger immediate and delayed hypersensitivity immune responses. Immediate hypersensitivity is mediated by IgE, so that mite antigens that enter the body are recognized by dendritic cells and then presented to T cells, leading to a Th2 response. Th2 cells produce IL-4, IL-5, and IL-13, which stimulate IgE production by B cells. The IgE antibody response binds to mast cells, so that when the antigen enters, the mast cells degranulate and release histamine, causing rapid itching or pruritus. Delayed hypersensitivity occurs after repeated exposure or an indirect reaction, causing the body to form T cell sensitization (Th1 and Th17). T cells release cytokines in the form of IL-31, a mediator of chronic pruritus.[9]

In elderly patients, there is a decrease in T cell-mediated cellular immunity, which plays a role in suppressing mite proliferation, and a decrease in immunity and physiological changes in the skin of the elderly. The physiological changes in the skin include epidermal and dermal atrophy, hyperkeratosis, decreased barrier function, and slower healing processes. Cognitive decline, malnutrition, and reduced mobility make the elderly vulnerable to infection and require care from others, thereby increasing the risk of transmission.1 In the elderly, the presentation of scabies is often atypical, for example, lesions on the face, scalp, periareolar area, and buttocks. Delayed diagnosis due to atypical presentation can

lead to an increase in the number of mites and disease severity, requiring a different treatment approach tailored to the elderly population.[10]

According to the medical history above, the patient has a habit of scratching the itchy area, causing the patient to complain of thickened skin with a rough surface in the buttocks area since several months ago. This is caused by repeated scratching, which triggers mechanical trauma to the epidermal layer, leading to epidermal hyperplasia or thickening of the stratum spinosum and stratum corneum layers. This condition is called Chronic Lichen Simplex. In the chronic stage, scabies causes skin thickening (lichenification) and darkening of the skin color (hyperpigmentation). Lichenification occurs when a person feels an itching sensation in a specific area of the skin with or without an underlying pathological event, causing mechanical trauma to the inflamed area. Lesions that arise in LSK occur in one or more places, but most often occur in areas of the body that can be reached by the patient, such as the scalp, neck, hands, feet, pubis, vulva, scrotum, and perianal area.[10]

Patients with a history of food allergies, such as allergies to seafood and chicken, tend to have an atopic immune profile, which is characterized by a Th2 immune response and increased levels of Immunoglobulin E (IgE). IgE triggers allergic symptoms such as itching, rashes, or hives through the activation of mast cells and the release of histamine. In scabies, the body also responds to Sarcoptes scabiei mite infestation with increased IgE production, especially in severe scabies (crusted scabies). These patients show significant IgE immune reactivity to scabies mite antigens, evidence that the immune system has been modulated in a manner similar to a typical food allergy reaction.[12]

Treatment of scabies in this patient was carried out with a combination of scabicides and mite control to kill mites, manage itching, and reduce inflammation. This medication is administered not only to the individual who is ill but also to family members who have close contact with the patient. The medication used for patients is 5% permethrin cream, which is a topical agent applied to the entire body and washed off after 8 hours with a shower. This medication is effective against all stages of the parasite because it works by damaging the mite's nervous system through disruption of sodium channels, causing paralysis and death of the mite. Topical permethrin is a synthetic pyrethroid and neurotoxin. The basic physiological mechanism that occurs in exposed parasites or arthropods is the induction of abnormalities along the excited cell membrane, causing sensory hyperexcitability, coordination disorders, and paralysis. This condition is influenced by disruption of the nerve membrane through inhibition of sodium ion movement from outside the cell membrane to inside, causing sodium influx at the end of slow depolarization. Furthermore, prolongation of sodium ion permeability during the excitatory phase affects repetitive activity in the sensory and motor pathways.[8,15]

Patients also receive cetirizine as a second-generation antihistamine that acts as a competitive antagonist of histamine H1 receptors. The itching reaction in scabies is caused by the body's allergic response to mites and their feces. When the body detects foreign substances, it releases a chemical called histamine. Histamine triggers itching, especially at night. Cetirizine works by inhibiting histamine receptors, thereby reducing itching, redness, and swelling.[8,16] Patients are also given desoxymethasone and momethasone, which are topical corticosteroids or glucocorticoid receptor agonists. These drugs work by suppressing the body's immune response in the area of skin where they are applied, thereby reducing inflammation by inhibiting the release of chemicals that trigger inflammation. The purpose of the cream is to treat local inflammation caused by scabies, especially in cases with severe skin reactions or hyperkeratotic lesions.[17] An additional medication that can be given to patients diagnosed with scabies is 10% crotamiton, which is a first-line alternative medication. This topical agent has two effects: it is antiscabies and anti-itch. It is applied to the entire body and washed off after 24 hours, and the process is repeated for up to three days. Precipitated sulfur (sulfur presipitatum) 5% - 10% is given in cream form. Benzoyl benzoate emulsion 25% is the second-line topical agent. This medication is effective against all stages and is administered every night for three days. Lindane is a lotion-based medication and is effective for all stages.[18] Ivermectin is a macrocyclic lactone antiparasitic agent produced by the fermentation of the bacterium Streptomyces avermitilis and is recommended primarily for Norwegian scabies. Ivermectin is administered at a dose of 200 μg/kg twice with a one-week interval (days 1 and 8) and is administered for crusted scabies or Norwegian scabies (ivermectin dose of 200 μg/kg on days 1, 2, 8, 9, and 15). Ivermectin is not recommended for use in children weighing less than 15 kg or in pregnant and lactating women. Ivermectin selectively binds to neurotransmitter

receptors that function in the peripheral motor synapses of parasites. This drug has a paralyzing effect by suppressing nerve impulse conduction in the interneuron synapses of nematodes and the neuromuscular synapses of parasites. Ivermectin inhibits chemical transmission at nerve synapses that use both ion channels. Transmission inhibition causes increased membrane permeability to chloride ions and hyperpolarization. This condition results in paralysis and death of the parasite.[19]

CONCLUSION

We report a case of severe scabies with an atypical presentation in a 69-year-old woman. The patient reported severe perianal itching for two months, leading to significant skin thickening and a rough texture from persistent scratching. The clinical diagnosis of scabies complicated by lichen simplex chronicus was confirmed by a positive skin scraping test for *Sarcoptes scabiei*. The initial therapeutic regimen included topical 5% permethrin, oral antihistamines, and topical corticosteroids, supplemented with strict hygiene measures and concurrent treatment of all family contacts.

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