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Case Report

Genital nodular scabies in Indonesian adolescent boy

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ABSTRACT

Scabies is an infection caused by infestation and sensitization to the parasitic mite *Sarcoptes scabiei var. hominis*. World Health Organization (WHO) in 2017 declared that scabies was included as Neglected Tropical Diseases (NTD) and become a significant health concern in many developing countries. According to the Global Burden of Disease Study in 2015, Indonesia was the first place among 195 countries with the greatest scabies burden. Nodular scabies is an uncommon clinical variant in classical scabies cases, characterized by persistent pruritic nodules due to immune response against the mites and their products (eggs and scybala). This variant was occurring in about 7% of scabies patients. The incidence and prevalence of nodular scabies are still unknown. Nodular scabies is usually found in young children and affect the male genitalia, especially in the scrotum. The diagnosis of nodular scabies generally can be made clinically and supported by a history of receiving adequate anti-scabies treatment. Active infestation form or atypical manifestations of nodular scabies might be confused the diagnosis. Diagnostic tools such as dermoscopic and skin biopsy may aid in differentiating them. Histopathology features also can rule out the differential diagnosis. Corticosteroid (topical or injection) and topical inhibitor calcineurin (tacrolimus) was reported effective in treating nodular scabies. We reported an Indonesian adolescent boy who has been diagnosed with scabies complained of persistent pruritic nodules on his genital for several months despite adequate anti scabies therapy being given. Intralesional corticosteroid injection was the options treatment of this case due to the nodular lesion being resistant with topical corticosteroids, while topical tacrolimus is difficult to obtain in our region.

Keywords: Nodular scabies, Genital, Corticosteroid injection

INTRODUCTION

Scabies is a skin disease caused by infestation and sensitization to the parasitic mite *Sarcoptes scabiei var. hominis*.[1-3] In 2017, World Health Organization (WHO) declared that scabies was included as Neglected Tropical Diseases (NTD). There are 200 million people in the world who are infected with scabies, especially in resource-poor tropical regions. In many developing countries scabies become a significant health concern.[4] Several countries were reported as the greatest burden cases of scabies is Southeast Asia, Oceania, Africa, and South America.[1,5] According to the Global Burden of Disease Study in 2015, Indonesia was the first place with the greatest scabies burden from 195 countries.[6]

Nodular scabies is an uncommon clinical variant of classical scabies that was characterized by persistent pruritic nodules as a type IV hypersensitivity reaction against the mites and their products (eggs and scybala).[2,3,7] This variant occurs in 7% of scabies cases. Mostly in young children.[2,8,9] Until now, the incidence and prevalence of nodular scabies are still unknown. Nodular scabies is commonly found in male genitalia especially in the scrotum.[2,3] We reported a genital nodular

scabies case in an adolescent boy in East Lombok Regency, West Nusa Tenggara, Indonesia.

CASE REPORT

An 11 years boy from the Sasak tribe was complained of pruritic erythematous nodules on the genital for 1 month ago. Itching is also felt all over his body and worsening at night which made sleep disturbance.

Figure 1: Multiple pruritic erythematous nodules in the scrotum.

Figure 2: Papulovesicular hyperpigmentation which has been eroded and overlying with fine scales at the space between fingers and dorsum of the hand.

Based on the patient's history, the first itchy grievance was experienced 2 months ago between the fingers then spreading to the axilla, buttocks, and periumbilical area. The patient's father admitted that the grievances of itching initially were experienced by the older brother after he came home from the Islamic boarding school (Pesantren) approximately 3 months ago.

The older brother also said that there were many similar skin complaints at his boarding school. It is known that the patient and his older brother sleep in the same room. One week ago, the patient has been treated with the ointment which contains salicylic acid 2% and Sulphur precipitate 4% by Public Health Centre but did not show any improvement after using it for 3 days on the entire body.

Figure 3: The brothers also have the same skin lesion as the patient.

Figure 4: After being treated with corticosteroid injections for 10 weeks. The nodules show reduction in size and some of the nodules become disappear.

On dermatological examination, multiple lesions were found, mostly discrete with erythematous nodules of 4-5 mm above the scrotal surface (Figure 1). Between the fingers, axilla, buttocks, and periumbilical area, there were multiple lesions with hyperpigmented papulovesicular, most of the lesions were eroded and overlying with fine scales (Figure 2). On the older brother's dermatological examination, the papulovesicle lesions were found similar to his younger brother on between the fingers, dorsum of the hand, and palms (Figure 3). No skin lesions were found in the parent.

At first, we plan to take scrapings from the webspace and do a skin biopsy of nodules but the father did not give consent. Complete blood count was normal. Furthermore, the patient was diagnosed with clinical scabies with genital nodular scabies suspected. Topical permethrin 5% is administered to the patient and his family. Topical permethrin 5% was applied on the entire body at night then left on for 8 hours and the next day all of them were

taking a bath. Permethrin was repeated after 1 week to ensure eradication of the mites. The patient and his older brother have received Cetirizine once daily before bedtime and the antibiotic Cefadroxil twice daily for 5 days to prevent secondary infection. In addition, education for cleaning the house such as washing all clothes in boiling water and drying all household furniture (sofa, carpet, mattress, etc.) direct under the sunlight were carried out. Two weeks after the treatment was completed, the skin complaints of the patient and his older brother were recovered but the nodule lesions on the genital were still persistent and feel itchier. The diagnosis of nodular scabies was made after repeated administration of topical permethrin 5% did not remission of the nodule lesions. The lesions were then treated with topical corticosteroids (mometasone furoate 0.1% cream) and were applied twice daily for 2 weeks but the lesions still did not improve. Furthermore, the therapy was replaced with corticosteroid injections (triamcinolone acetonide 10 mg/ml) intralesional every 2 weeks. Finally, complaints of itching were decreased, the size of nodules was reduced and some of them disappeared after 10 weeks of the treatment (Figure 4).

DISCUSSION

Scabies is a skin infection caused by infestation and sensitization to host-specific parasitic mite *Sarcoptes scabiei var. hominis* and their products (eggs and scybala). The typical clinical manifestation of scabies is papulovesicopustular lesions in the areas between the fingers, wrists, axilla, folds, buttocks, male genital, and breasts. Itching more severely at night and causing sleep disturbance.[1,3] Scabies infection can become chronic with the characteristic of persistent erythematous pruritic nodules despite adequate anti-scabies being already given, known as nodular scabies. The patient and his family were already treated with anti-scabies repeatedly and also given the education to prevent a recurrence however, the genital nodules remain persistent. Sil et al reported that nodules can persist for weeks to months even after an effective anti-scabies therapy was administered.[3] Nodular scabies is an uncommon manifestation. Only occurs in about 7-10% of cases in classical scabies and generally affects young children.[1-3,8-10] Lesions are usually found in male genitalia especially in the scrotum, folds, and axilla due to the absence of a fat layer in these locations.[1-3] Several atypical manifestations are found on the back, arms, scalp, and abdomen.[8]

The pathogenesis of nodular scabies is still uncertain. The skin lesions were a response to a delayed hypersensitivity reaction to the mites and their products rather than the espousal of an active infestation. The reaction occurs about 30 days after the infestation.[2,3] Yanes et al showed another theory that the reaction can be triggered by deeper penetration of the mites from the epidermis to the dermis and result in a severe inflammatory.[7]

In general, the diagnosis of nodular scabies can be made by clinical where persistent pruritic erythematous nodules are found with a history of adequate anti-scabies treatment.[1,2,8] Skin biopsy is not usually performed. It is performed on atypical manifestations and ruling out differential diagnoses that were previously made.[8,11] In the literature, histopathological of nodular scabies usually were absent the mite and mite fragments, where pseudolymphoma was found due to predominantly T-lymphocytes in the skin layer.[8,12] On the other hand, several studies have reported that mite can still be found intracorneal in the epidermis with dermal eosinophilic infiltrate in nodular scabies lesions.[8,11,13] Suh et al stated that the discovery of mite in nodular lesions can occur in active infestation form that triggers a hypersensitivity reaction.[13] Dermoscopy examination of persistent nodular scabies lesions can help distinguish the two forms, where active infestation lesions there is a jet with contrail sign (white S-shape burrow lesion containing eggs, scabies, and mite at the end of the burrow that looks like a black triangle) and mini triangle sign (adult mite containing eggs) were found. Additionally, active nodular scabies infestation responds to repeated anti-scabies therapy.[13] In this case, unfortunately, no further examination was carried out due to limited diagnostic tools (dermoscopy) and the family did not consent for biopsy. Other differential diagnoses for nodular scabies such as Langerhans cell histiocytosis, papular urticaria, cutaneous lymphoma, cutaneous mastocytosis, and bullous pemphigoid.[1-3]

Currently, the treatment of nodular scabies that is mostly used is topical or injection of corticosteroids and topical calcineurin inhibitors (tacrolimus).[2,3,7] All of the above therapies are reported to be effective in decreasing itch and reducing the size of skin lesions but required to take a long time with a high recurrence rate.[12] A comparative study, compared the use of topical corticosteroids and topical tacrolimus in nodular scabies. The skin lesions showed significantly more improvement with topical corticosteroids.[14] However, long-term topical corticosteroid administration was worried to cause atrophy and show a side effect in the skin, especially in the scrotal skin. Topical tacrolimus was considered to be more safety for long-term treatment. Reddy et al results that an intralesional corticosteroid injection (triamcinolone acetonide) treatment is effective to nodular lesions that do not respond to topical treatment.[2] In our case, the patient was given corticosteroid injections due to the lesion previously being resistant to topical corticosteroid meanwhile topical tacrolimus was difficult to obtain in our region. The lesions showed a reduction in size after 10 weeks of treatment. Another study by Zawar et al reported a new treatment approach with Liquid Nitrogen Cryotherapy (LNC) in treating resistant or frequently relapsing of nodular scabies lesions showed more satisfactory results.[11]

Complications of secondary infection due to *Staphylococcus aureus* and *Streptococcus pyogenes* in

nodular scabies are resulting from scratching of the skin. Several reports that scabies can increase the incidence of impetigo, poststreptococcal glomerulonephritis, and rheumatic fever.[1,2]

CONCLUSION

Nodular scabies is an unusual clinical manifestation variant of scabies due to response to a hypersensitivity reaction from the mites and their products. Although the diagnosis can be made clinically. Dermoscopy or biopsy may aid in confirming the diagnosis in cases of lesions with a suspected active infestation or atypical manifestations, considering that this variant is uncommon in cases of classical scabies. Injection steroid was one of the effective options for nodular scabies lesions that are resistant to topical corticosteroids.

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REFERENCES

1. Chandler DJ, Fuller LC. A review of scabies: an infestation more than skin deep. Dermatology. 2019;235:79-90.
2. Reddy DR, Reddy PR. Nodular scabies: a classical case report in an adolescent boy. J Parasit Dis.2015;39(3):581-3.
3. Sil A, Mondal S, Bhanja DB, Datta M, Mukherjee GS, Chakraborty S. Pruritic genital nodules. Pediatr Neonatol. 2020;61(2):243-4.
4. World Health Organization. WHO informal consultation on a framework for scabies control. Meeting report: Manila. 2019.
5. Gilson RL, Crane JS. Scabies. StatPearls. Treasure Island (FL). StatPearls Publising. 2021. Available at:
6. http://www.jgenprodvi.ui.ac.id/index.php/jdvi/article/view/225/pdf. Accessed on 20 September 2021.
7. Karimkhani C, Colombara DV, Drucker AM, Norton SA, Hay R, Engelman D, et al. The global burden of scabies: a cross-sectional analysis from the Global Burden of Disease Study 2015. Lancet Infect Dis. 2017;17:1247-54.
8. Yanes DA, Faith EF. Nodular scabies: a persistent nodular eruption. Dermatol Online J. 2018;24(8):18.
9. Daye M, temiz SA, Kilinc F. A case of nodular scabies with atypical course. Dermatol Ther. 2020;33(3):e13317.
10. Barry M, Kauffman CL, Wilson BB, Rozen E, Rosh AJ. Scabies. Medscape. 2020. Available at: https://emedicine.medscape.com/article/1109204-overview. Accessed on 20 September 2021.
11. Sehgal VN, Malhotra s, Ramesh V. Nodular scabies of the genitals. Int J Dermatol Clin Res. 2015;1(1):010.
12. Tai DB, Saleh OA, Miest R. Genital nodular scabies. IDCases. 2020;22:e00947.
13. Zawar V, Pawar M. Liquid nitrogen cryotherapy in the treatment of chronic, unresponsive nodular scabies. J Am Acad Dermatol. 2017;77(2):e43-4.
14. Suh KS, Han SH, Lee KH, Park JB, Jung SM, Kim ST, et al. Mites and burrows are frequently found in nodular scabies by dermoscopy and histopathology. J Am Acad Dermatol. 2014;71(5):1022-3.
15. Manjhi M, Yadav P, Mohan S, Sonthalia S, Ramesh V, Kashyap V. A comparative study of topical tacrolimus and topical triamcinolone acetonide in nodular. Dermatol Ther. 2020;33(6):e13954.

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