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SEVERE NAIL DYSTROPHY DUE TO NORWEGIAN SCABIES IN A PAEDIATRIC PATIENT LIVING WITH HUMAN IMMUNODEFICIENCY VIRUS (HIV): A CASE REPORT
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SUMMARY

***Background*: Norwegian scabies is a rare presentation of scabies that can involve the nails. Severe nail dystrophy is an unusual presentation in neglected persons living with HIV.**

***Case report*: We present a case of Norwegian scabies in a pediatric patient living with HIV. The patient presented with generalized crusted and thickened skin lesions. The nails were elongated dystrophic with subungual hyperkeratosis. This was treated successfully with urea cream, ivermectin tablets and benzyl benzoate emulsion.**

***Conclusion*: Severe nail dystrophy is a rare presentation of Norwegian scabies in neglected patients. This can be treated adequately with topical urea and scabicides**

INTRODUCTION

Crusted scabies (Norwegian scabies) is a highly contagious variant of scabies characterized by unhindered proliferation and high burden of the *Sarcoptes scabiei hominis* mite (1).

Norwegian scabies is characterized by crusting and hyperkeratotic scaly plaques. The typical pruritus seen in classical scabies may be missing in this variant. Immunodeficiency, neurological and cognitive dysfunction causes reduced itching sensation and impair scratching (2). It occurs mainly in the immunocompromised states including those on steroid therapy, Down's syndrome, persons living with HIV/AIDS, transplanted patients and elderly persons (3). The atypical presentation of Norwegian scabies poses a diagnostic and treatment

challenge that is often underdiagnosed and undermanaged. We present a case of severe nail changes and prolonged case of Norwegian scabies in an immunocompromised child.

CASE REPORT

We present a case of a 9-year-old male patient living with HIV and on antiretroviral treatment. He presented to the outpatient clinic with a 3-year history of mildly itchy skin lesions. He was treated in several hospitals without much improvement. At the time of presentation, he had crusted, scaly and hyperkeratotic skin lesions which were distributed on limbs, gluteal and sacral area as shown in figure 1.

Figure 1: Showing crusted scaly and hyperkeratotic skin lesions on limbs, gluteal and Sacral regions.

The nails of the feet and hands were dystrophic, with subungual hyperkeratosis and elongated scaly outgrowths (fungating mass) from underneath the nail bed as shown in figure 2. Some parts of the finger tips were spared but appeared swollen and erythematous (figure 2).

Figure 2: Severe Nail Dystrophy and involvement of digit, hands and the wrist region before treatment.

Baseline investigations were within normal range. Viral load levels were reported as undetectable and a CD4 count of 351 cells/mm^3.

The mother complained of itching which was worse at night. She had generalized papules and excoriation marks. The papules were more concentrated on the finger webs, axillar and the groin.

The patient was started on Benzyl benzoate emulsion 25% applied twice daily, Ivermectin (200µg/kg/dose was given on days 1, 2, and 8. Urea 20% cream was applied under occlusion at night for 5 days. The mother was treated with Ivermectin and Permethrin ointment. There was a remarkable improvement of the child's nails and skin as shown in figures 3 and 4.

***Figure 3**: Post treatment appearance of the digits and nails*

***Figure 4**: Post treatment appearance of the scalp and skin*

The hyperkeratotic nails fell off without surgical intervention. To prevent a possible re-infection, the family was counselled on personal hygiene and a general improvement of the home environment. A regular clinic review was scheduled to monitor progress and early detection of recurrence. Consent was obtained from the mother to use de-identified clinical data and photographs of the body lesions for learning purposes and publishing.

DISCUSSION

Norwegian scabies is a rare manifestation of scabies characterized by uncontrolled proliferation of mites in the skin. It is seen mostly in patients who are immunosuppressed, mentally retarded or elderly (4). Living with HIV is a well-known risk factor for Norwegian scabies. The infection in this patient was well controlled, the CD4 count was still low (350 cells per micro-Litre). Patients with Norwegian scabies develop diffuse hyperkeratotic erythematous plaques (4). The lesions of the Norwegian scabies have a predilection for areas of pressure as opposed to those of ordinary scabies. This may mimic other papulosquamous eruptions including psoriasis and hyperkeratotic eczema (5). The extensors of the elbows, knees and the gluteal region were severely affected in this patient. Nail involvement in crusted scabies present as hyperkeratosis, onycholysis, and subungual debris (6). These nail findings are also seen in onychomycosis and inflammatory diseases. The nails are usually not affected in ordinary scabies. However, the distal subungual area may act as a reservoir of mites after scratching (6). The characteristic dystrophic nails, hyperkeratotic and large, psoriasis-like accumulations of scales under the nails were seen in this patient. After one week of treatment the hyperkeratotic lesions on the skin were successfully treated but dystrophic nails persisted up to 2 weeks of treatment. Clinical diagnosis and treatment of Norwegian scabies can be challenging (7). The diagnosis is easily made through microscopy and histology (8).

The treatment response is determined by various factors including the host's compromised immunity, widespread nature of the eruption, the high mite burden, and the limited penetration of the topical agents into the hyperkeratotic lesions, most particularly into the nail beds or nail plates. Currently there are no randomized control therapeutic studies for Norwegian scabies and therefore no clear treatment. There is high failure rate to standard scabies treatments. Center for diseases control (CDC) recommends a combination treatment of a topical scabicide and oral ivermectin 200 *u*g/kg on days 1,2,8,9, and 15 (9). The treatment of the nails includes, frequent trimming of the nails associated with scrubbing a topical scabicide or chemical nail avulsion using 40% urea ointment (6).

Keratolytic agents such as salicylic acid or urea are used to destroy keratotic lesions and increase the penetration of topical scabicides. In less extensive disease, keratolytic agents have been used successfully without surgical debridement (10). In severe nail dystrophy and hyperkeratotic skin lesion, surgical debridement is required (10). Urea 20% was used successfully to debulk severe hyperkeratotic lesions and avulsion of the nails.

CONCLUSION

Norwegian scabies is a severe debilitating skin disease. Severe nail dystrophy can occur in immunocompromised patients with Norwegian scabies and present a delay in diagnosis and appropriate treatment. A combination of 20% urea, topical scabicides and ivermectin cleared the skin lesions and avulsion of the nails without surgical debridement.

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