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CASE REPORT

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Norwegian scabies seen at the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu State: a case report

Chibuzo Obiora Ndiokwelu[1*], Chinonso Bismark Okoro[1], Paul Tochukwu Nwachukwu[2], Chioma Laura Odimegwu[1,3*] and Samuel Nkachukwu Uwaezuoke[1,3]

Abstract

Background Norwegian scabies, also known as crusted scabies, is a severe form of scabies caused by an infestation of the skin by the Sarcoptes scabiei var. hominis mite. It is usually diagnostically challenging because of its rare nature and the potential for misdiagnosis with other skin diseases. This case report presents a rare case of Norwegian scabies seen at the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu State.

Case presentation The patient, a 16-year-old male Human Immunodeficiency Virus (HIV) positive patient, diagnosed with HIV 2 years before presentation but was not adherent to his Anti-retroviral medications, presented with extensive crusted lesions covering the entire body. CD4 + count on admission was 54 cells/mm^3 and the viral load was 604 copies/ml and the initial clinical diagnosis was seborrheic hyperkeratosis. The diagnosis was eventually confirmed through skin scrapings and microscopic examination. The patient was then treated with oral ivermectin, topical scabicidal agents, antibiotics, antihistamines, and emollients, with complete clearance of lesions noted after two weeks of treatment.

Conclusion This case highlights the importance of recognizing and promptly treating this apparently rare and diagnostically challenging skin condition in Nigeria.

Keywords Norwegian, Scabies, Enugu, University of Nigeria Teaching Hospital

Background

Norwegian scabies, also known as crusted scabies, is a severe form of scabies characterized by an extensive infestation of the skin by the mite Sarcoptes scabiei var. hominis. Unlike typical scabies, which predominantly affects localized areas and is commonly associated with pruritus and a limited number of lesions, Norwegian scabies presents with widespread crusted lesions, significant scaling, and a high mite burden [1]. This form of scabies is particularly prevalent in immunocompromised individuals, the elderly, and those with underlying defective skin immunity [2], making it a notable concern in healthcare settings and among vulnerable populations [3–5]. The condition is distinguished by the formation of thick, crusty plaques that cover large areas of the body, including the scalp, face, and palms. These crusts provide a conducive environment for the proliferation of the mites and can serve as reservoirs, facilitating transmission to others. The intense pruritus associated with typical scabies

*Correspondence:
Chibuzo Obiora Ndiokwelu
thaemm2@gmail.com
Chioma Laura Odimegwu
drchioms@gmail.com
[1] Department of Paediatrics, University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu State, Nigeria
[2] Department of Microbiology, University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu State, Nigeria
[3] College of Medicine, University of Nigeria, Ituku-Ozalla, Enugu State, Nigeria

may be less pronounced in Norwegian scabies, leading to delays in diagnosis and treatment.

Norwegian scabies is often associated with significant morbidity due to secondary bacterial infections, psychosocial distress, and impaired quality of life [6]. Diagnosis is primarily clinical, supported by microscopy to identify the mites or their eggs in skin scrapings [7]. Treatment typically involves systemic therapies, such as ivermectin, and topical agents, requiring careful management to address the extensive nature of the infestation [7, 8].

Understanding the epidemiology, clinical features, and management strategies for Norwegian scabies is essential for healthcare providers, particularly in settings where presentations may be perplexing. This report discusses a case of Norwegian scabies in an adolescent male seen at the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu State (UNTH). It examines the clinical presentation, diagnostic challenges, treatment approach, and outcomes, contributing to the broader understanding of this complex condition in a region and country where it may be prevalent but rarely ever reported.

Case presentation

A 16-year-old male presented to the children's emergency room (CHER) in April of 2024 with a one-month history of progressively worsening, itchy rash and skin lesions which initially started on the limbs and spread all over the body. These were very painful and significantly limited his ability to stand or walk. He was diagnosed with Human Immunodeficiency Virus (HIV) infection 2 years before presentation following a febrile illness and was placed on Anti-retroviral therapy (ART) Abacavir, Lamivudine and Dolutegravir but was not adherent to the ART. Mother was also a known HIV-positive patient diagnosed 14 years earlier, was on ART (Abacavir, Lamivudine, and Dolutegravir), adherent, and had an itchy papular rash around her elbow creases.

On examination, the patient was found to have extensive, thick, crusted lesions covering the entire body, including the face, trunk, and extremities (Figs. 1, 2, and 3). The lesions were hyperkeratotic, crusted, flaky, and erythematous with some areas of ulcerated peeled skin on the legs with bilateral leg oedema around the lower leg and feet. Further examination revealed that the encrusted areas contained multiple fissures and were starting to develop secondary infections and cellulitis on the legs. The patient was pale, lethargic, and malnourished with anthropometric indices; weight for age, weight for height, and height for age all below the 3rd centile for age and sex according to World Health Organization (WHO) growth charts. A clinical diagnosis of seborrheic hyperkeratosis was entertained.

Fig. 1 Pre-treatment pictures showing the chest and hands

Fig. 2 Pre-treatment pictures showing the back

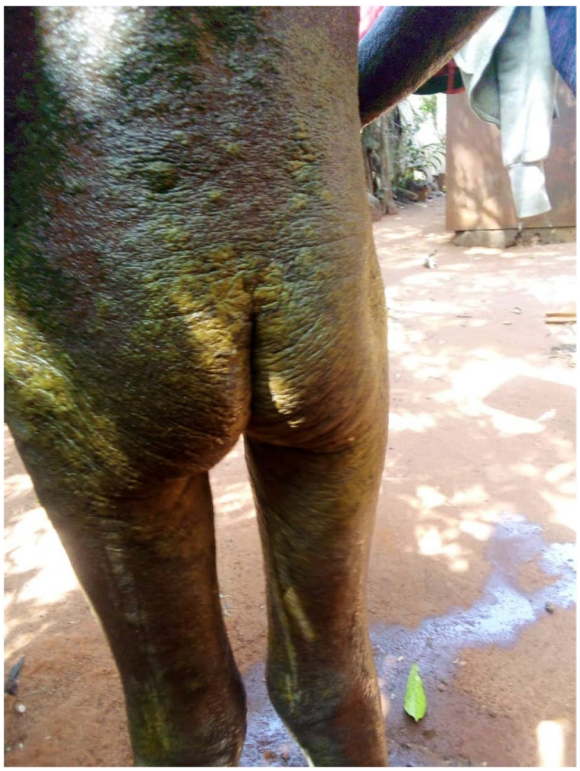

Fig. 3 Pre-treatment pictures showing the buttocks

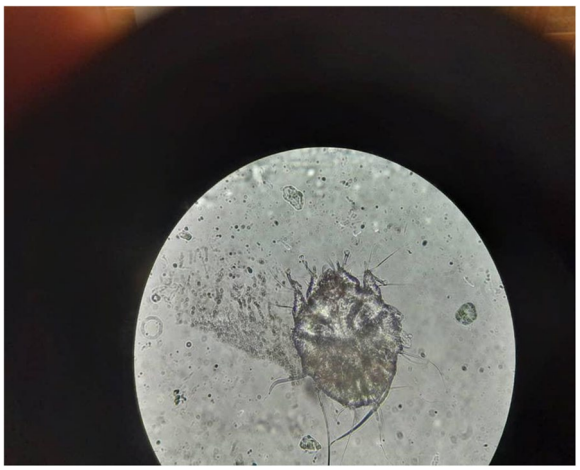

Fig. 4 Microscopic picture of the scabies mite

Skin scrapings were obtained from the lesions and examined microscopically using Wet Mount with normal saline, revealing the presence of live Sarcoptes scabiei var. hominis mites, confirming the diagnosis of Norwegian scabies (Fig. 4) (Video 1). The patient was immediately isolated to prevent transmission to other patients and healthcare workers. Packed cell volume was 28%, and total white blood cell count was 16.24×10^9 with a neutrophil percentage of 72% suggestive of an ongoing bacterial infection while serum electrolytes, urea, and creatinine were normal (K^+—3.7 mmol/l, Na^+ – 136 mmol/l, Cl^-—101 mmol/l, Urea – 6.2 mmol/l, Creatinine – 82umol/l). CD4 + count on admission was 54 cells/mm3 and the viral load was 604 copies/ml.

Treatment and outcome

The patient was immediately isolated to prevent the spread of scabies to other patients and hospital staff. A multidisciplinary team, including dermatologists, and infectious disease specialists, was assembled to manage the patient.

He was treated with a combination of Permethrin cream (Days 1, 3 & 8), oral Ivermectin 200 µg/kg weekly for 2 weeks, and emollients (twice a day) to soften the crusts; dihydrocodeine (30 mg 8 hrly) for the pain, cetirizine (5 mg 12 hrly) to ease the itching and, flucloxacillin (250 mg 6 hrly) for cellulitis. Oral ivermectin was also given to other members of the family. He received wound care for the crusted areas and nutritional support to address his malnutrition. The patient showed significant improvement after the first week of treatment with the clearing of the lesions on the face while skin lesions on the other parts of his body markedly improved with the resolution of itching and reduction in the crusted lesions (Fig. 5). After two weeks of treatment, the lesions cleared, the cellulitis resolved and he was discharged afterwards with ongoing follow-up care for ART adherence (Fig. 6).

Discussion

Norwegian scabies is a rare and severe form of scabies seen commonly in immunocompromised individuals [9]. In these individuals, millions of parasites colonize the epidermis, inducing characteristic hyperplastic changes and lesions that can be challenging to identify due to the unusual and confusing physical presentations. Lesions can progress from loose and flaky skin to thick adherent crusts. While hands and feet are most commonly affected, the most severe cases have near total body surface involvement [9]. The high parasite burden and the risk of transmission in healthcare settings presents a management challenge. Due to this, isolation of the patient, and implementation of infection control measures are essential to prevent outbreaks. In such an environment like ours where late presentation and stigma are pervasive, with nescience and under-reporting as resultant consequences, it is imperative that such unique cases are promptly diagnosed and reported to bridge the knowledge and awareness gap that exists both in the medical community and in the general public in our environment [10]. In various literature, Norwegian scabies is reported to be

Fig. 5 1 week after commencement of treatment

Fig. 6 2 weeks after commencement of treatment

more common in immunocompromised patients [11, 12] and patients with underlying an cognitive impairment like Down's syndrome [13]. However, according to a systematic review by (Bergamin et al., 2024), the frequency of occurrence of Norwegian scabies in HIV patients appears similar to the rate in apparently immunocompetent individuals [14].

The huge burden of infestation usually requires several treatments and the use of a combination of topical and oral medicament is generally recommended [15, 16]. This yielded good results in the index patient. Local side effects such as skin irritation and a burning sensation as well as a compromised skin barrier may lead to a greater risk of toxicity to topical scabicidal agents through increased skin absorption [17] but these were not noted in the index case. Secondary bacterial infection, a common complication usually caused by Staphylococcus Aureus and Streptococcus Pyogenes, like the cellulitis noted in this case should be treated with appropriate antibiotics as this is a major cause of morbidity and even mortality [18]. This case report highlights the importance of considering Norwegian scabies in the differential diagnosis of patients with extensive skin plaques and crusted lesions like Psoriasis, Seborrheic dermatitis, and Lichen planus. Early recognition, appropriate multidisciplinary management, and infection control measures are crucial in the management of this highly contagious condition. Treatment should be comprehensive to address both the underlying scabies and any complications arising from secondary infections or comorbidities.

Conclusion

The primary take-away lesson from this report is that without awareness and experience from such reports, Norwegian scabies can prove diagnostically challenging to clinicians because it is not the classical type of scabies presentation, has a wide range of presentation, and has rarely ever been reported in literary works in Nigeria.

Abbreviations

HIV	Human immunodeficiency virus
CHER	Children's Emergency Room
ART	Antiretroviral Therapy
UNTH	University of Nigeria Teaching Hospital
CD4	Clusters of differentiation

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12879-025-11053-8.

Supplementary Material 1: Video 1.

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Authors' contributions
N.C.O, U.N.S and O.C.L conceptualized the case report. N.C.O, U.N.S, O.C.B, and N.P.T contributed to the design including gathering pictures, video, and literature materials. N.C.O and O.C.B drafted the manuscript text. All authors approved the submitted version and agree to be responsible and accountable for their contribution to the work.

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Data availability
All data and materials regarding this report are included in this article.

Declarations

Ethics approval and consent to participate
Ethics approval was obtained from the UNTH Health Research and Ethics Committee.

Consent for publication
Written informed consent for publication of clinical details and images was given by the patient and the mother.

Competing interests
The authors declare no competing interests.

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References

1. Sánchez-Borges M, González-Aveledo L, Capriles-Hulett A, Caballero-Fonseca F. Scabies, crusted (Norwegian) scabies and the diagnosis of mite sensitisation. Allergol Immunopathol (Madr). 2018;46(3):276–80.
2. Walton S, Beroukas D, Roberts-Thomson P, Currie B. New insights into disease pathogenesis in crusted (Norwegian) scabies: the skin immune response in crusted scabies. Br J Dermatol. 2008;158(6):1247–55.
3. Ede C, Gunduz O, Modi D. Crusted scabies in a pediatric renal transplant recipient on immunosuppressants. Transpl Infect Dis. 2020;22(2):e13193.
4. Bergamin G, Hudson J, Currie BJ, Mounsey KE. A systematic review of immunosuppressive risk factors and comorbidities associated with the development of crusted scabies. Int J Infect Dis. 2024;143:107036.
5. Matsuura H, Senoo A, Saito M, Fujimoto Y. Norwegian scabies. Cleve Clin J Med. 2019;86(3):163–4.
6. Engelman D, Kiang K, Chosidow O, McCarthy J, Fuller C, Lammie P, et al. Toward the global control of human scabies: introducing the International Alliance for the Control of Scabies. PLoS Negl Trop Dis. 2013;7(8):e2167.
7. Fujimoto K, Kawasaki Y, Morimoto K, Kikuchi I, Kawana S. Treatment for crusted scabies: limitations and side effects of treatment with ivermectin. J Nippon Med Sch. 2014;81(3):157–63.
8. Jaramillo-Ayerbe F, Berrío-Muñoz J. Ivermectin for crusted Norwegian scabies induced by use of topical steroids. Arch Dermatol. 1998;134(2):143–5.
9. Hasan T, Krause VL, James C, Currie BJ. Crusted scabies; a 2-year prospective study from the Northern Territory of Australia. PLoS Negl Trop Dis. 2020;14(12):e0008994.
10. Sule HM, Hassan ZI, Gyang MD, Yakuba K. Knowledge of scabies among a cohort of medical students. Open Sci J Clin Med. 2015;3(5):177–81. Available from: https://irepos.unijos.edu.ng/jspui/handle/123456789/1384.
11. Espy PD, Jolly HW. Norwegian scabies: occurrence in a patient undergoing immunosuppression. Arch Dermatol. 1976;112(2):193–6.
12. Roberts LJ, Huffam SE, Walton SF, Currie BJ. Crusted scabies: clinical and immunological findings in seventy-eight patients and a review of the literature. J Infect. 2005;50(5):375–81.
13. Lee K, Heresi G, Al HR. Norwegian Scabies in a Patient with Down Syndrome. J Pediatr. 2019;209:253-253.e1.
14. Workowski KA, Berman SM. Centers for disease control and prevention sexually transmitted disease treatment guidelines. Clin Infect Dis. 2011;53(suppl_3):S59–63.
15. Workowski KA, Berman S, Workowski KA, Bauer H, Bachman L, Burstein G, et al. Sexually transmitted diseases treatment guidelines, 2010. MMWR Recomm Rep. 2010;59(RR-12):1–110.
16. Scott GR, Chosidow O, Radcliffe K, Janier M, Jensen JS, Khotenashvili L, et al. European guideline for the management of scabies, 2010. Int J STD AIDS. 2011;22(6):301–3.
17. Johnstone P, Strong M. Scabies. BMJ Clin Evid. 2014;22(2014):1707.
18. Apap C, Piscopo T, Boffa MJ. Crusted (Norwegian) scabies treated with oral ivermectin: a case report and overview. Malta Med J. 2013;25(4). https://www.um.edu.mt/library/oar/handle/123456789/1500.

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