

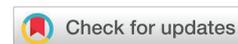
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## Case Report

# Scabies Norvegica in infant

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## Abstract

**Introduction:** Crusted scabies are a rare manifestation of scabies characterized by uncontrolled proliferation of mites in the skin. Crusted scabies are a severe variant of highly contagious scabies. Various cutaneous, neurologic and immunologic diseases have been described to predispose to crusted scabies.

**Case presentation:** The presented case is a 7-month-old male. He was hospitalized at the Clinic of Dermatovenerology, due to hyperkeratotic changes in the palms and food, papules throughout the body, and nail changes all of these accompanied by scratching. Initially, it was diagnosed as atopic dermatitis, hyperkeratosis palmoplantaris, and onychomycosis mani. The changes had started to appear five months ago. Also, the mother of the child presents the papules throughout the body, also associated with itching as classical scabies.

**Conclusion:** Crusted scabies are a severe variant of highly contagious scabies. Is known the failure of the immune system to suppress the proliferation of the mite is an important cause of crusted scabies development. Crusted scabies usually do not present as an acute eruption as in classical scabies. The eruption is slow in onset and insidious in progression. In the present case, we learned that in the stimulation of the condition, there was a major role in the application of topically fluoride steroids.

## Introduction

Scabies is an infestation of the top layer of skin caused by the parasite, *Sarcoptes scabiei*, often called scabies or mites. The mite is an obligate parasite that lives in burrowed tunnels in the stratum corneum [1]. In the case of crusted scabies, the number of mites is astronomical because of uncontrolled proliferation [1].

The failure of the immune system to suppress the proliferation of the mite is an important cause of crusted scabies development. Crusted scabies typically develop in patients with a defective T-cell immune response or decreased cutaneous sensation and reduced ability to mechanically debride the mites [2]. Crusted scabies are characterized by hyperkeratosis and crusting of the skin due to the profuse proliferation of mites resulting from an altered host response to the infestation [3].

Various cutaneous, neurologic and immunologic diseases have been described to predispose to crusted scabies [2]. There is a wide range of presentations of Norwegian scabies in people with HIV with lesions ranging from thick, crusted plaques to red papules to psoriasiform plaques to hyperkeratotic yellow papules [2,3]. The lesions in Norwegian scabies are classically distributed on the extremities but are frequently found on the back, face, scalp, and around the nail folds [4]. As Norwegian scabies are extremely infectious, early diagnosis is paramount to allow prompt therapeutic interventions and infection control [5].

Recent studies have shown that skin-homing cytotoxic T cells contribute to an imbalanced inflammatory response in the dermis of crusted scabies lesional skin. Transmission via fomites is more commonly seen in crusted scabies [2]. The immediate environment of a patient with crusted scabies is heavily infected with mites [1].

Patients with crusted scabies are capable of triggering an epidemic of scabies [6]. Diagnosis is based on clinical findings and the demonstration of the mite. Microscopic examination of the skin scrapings from the patient is essential to demonstrate the mites [6]. The specimen from the crusted lesion is scraped with a blunt scalpel and placed on a glass slide. A drop of mineral oil and a cover slip are placed on it. The microscopic examination reveals numerous mites, eggs, and mite feces (scybala) [7].

Children are an underappreciated source of infection [8], for a number of reasons: scabies infections in children are often not detected early [9] or treated thoroughly enough [10], probably involve a greater number of mites and are more likely to be passed on through close physical contact with other persons [11].

Hyperkeratosis of the skin, which is a prominent feature in crusted scabies, is probably related to increased levels of interleukin-4 [12]. Crusted scabies also develop in Australian aborigines with normal immunity [13].

## Case presentation

The presented case is a 7-month-old male. He was brought to the outpatient department in the Dermatological Clinical Center by his mother with a five-month history of the skin condition had worsened rapidly and there were extensive, generalized, thick, hyperkeratotic, crusting, yellowish papule lesions that eventually disseminated across the palms and foot, papules throughout the body and nail changes all of these accompanied by scratching (Figures 1-10).

The child had been born after a full-term normal pregnancy and was still breastfed. From the mother, we learn that the mother and other family members have changes in the skin associated with itching. The baby's treatment has been done with various lotions for atopic dermatitis (corticosteroid



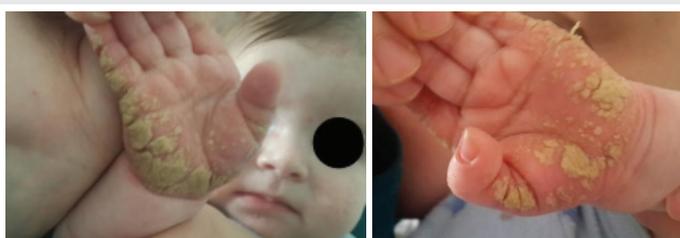
Figure 4: Hyperkeratotic lesions on both feet.



Figure 5: Papules in the child's corpus.



Figure 6: Nails infected with parasites.



Figures 1,2: Physical findings: fissured hyperkeratotic lesions on both hands.



Figure 7: Multiple Papules in the child's corpus.



Figure 3: Papulle in the face.



Figure 8: Papullae in the hands of the mother.

ointment) and the condition is worsening, and were forced to lie in a research clinic. The mother and other family members have used therapy for scabies, but the baby does not. And the changes have improved but they have emerged again.

Based on the heteroanamnesis from her mother, clinical presentation, the microscopic examination reveals numerous mites, eggs and mite feces (scybala) is diagnostic of scabies (Figure 11).

The patient was initially diagnosed with atopic dermatitis, psoriasis, ichthyosis, seborrheic dermatitis, erythroderma, or Langerhans cell histiocytosis. However, to dermatologists' doubts, crusts were assembled at 10% KOH preparation and observed on low and high-energy targets where it was diagnosed with Norwegian scabies. Laboratory tests were at normal limits. Test for HIV infections is negative for child and mother.

The treatment is based on Sulfur ointments or benzyl benzoate, which are often used in the developing world due to their low cost [6], 10% sulfur solutions have been shown to be effective [14], and sulfur ointments are typically used for at least a week [6].



Figure 9: Papules in the hands of the mother.



Figure 10: Papules in the corpus of the mother.



Figure 11: Microscopic examination: low-power microscopic visualization of the mite *Sarcoptes scabiei*.

## Discussion

Scabies are one of the three most common skin disorders in children, along with tinea and pyoderma. The disease may be transmitted from objects but is most often transmitted by direct skin-to-skin contact, with a higher risk with prolonged contact. Crusted scabies, formerly known as Norwegian scabies, is a more severe form of the infection often associated with immunosuppression Acropustulosis [4], or blisters and pustules on the palms and soles of the feet, are characteristic symptoms of scabies in infants [5]. The laboratory diagnosis of Norwegian scabies is simple, but clinical suspicion is required on the part of attending healthcare workers. Evidence has demonstrated the association between inappropriate use of topical corticosteroids and localized decreased cell-mediated immune responses, promoting the spread and proliferation of the mite in this kind of scabies [10,11]. On non-medical advice, our patient applied topical corticosteroids for seven weeks to treat pruritus, which exacerbated the mite infestation.

## Conclusion

Crusted Scabies is the least frequent presentation of scabies, and there are few reports in the national and international literature. There is relatively little worldwide epidemiological data available concerning this specific infection type. It is necessary to suspect this presentation form of the disease and establish a timely diagnosis to detect and treat, as far as possible, associated comorbidities to avoid complications and reduce morbidity and mortality.

## Authors' contributions

MF, AG, and MF were involved in the diagnosis, and literature review and helped draft the manuscript. All the authors read and approved the final manuscript.

## Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal.

## Acknowledgement

The authors acknowledge the patient for providing consent for publishing this case report.

## References

1. Parasites. Scabies Disease. Center for Disease Control and Prevention. November 2, 2010. Archived from the original on 2 May 2015. Retrieved 18 May 2015.
2. Scabies. World Health Organization. Archived from the original on 18 May 2015. Retrieved 18 May 2015.
3. Epidemiology & Risk Factors. Centers for Disease Control and Prevention. November 2, 2010. Archived from the original on 29 April 2015. Retrieved 18 May 2015.
4. Robert GH. Infectious disease secrets (2. ed.). Philadelphia: Elsevier, Hanley Belfus. 2003; 355:ISBN 978-1-56053-543-0.



5. Arlian LG. Biology, host relations, and epidemiology of *Sarcoptes scabiei*. *Annu Rev Entomol.* 1989;34:139-61. doi: 10.1146/annurev.en.34.010189.001035. PMID: 2494934.
6. Hay RJ. Scabies and pyoderma—diagnosis and treatment. *Dermatol Ther.* 2009 Nov-Dec;22(6):466-74. doi: 10.1111/j.1529-8019.2009.01270.x. PMID: 19889132.
7. Andrews RM, McCarthy J, Carapetis JR, Currie BJ. Skin disorders, including pyoderma, scabies, and tinea infections. *Pediatr Clin North Am.* 2009 Dec;56(6):1421-40. doi: 10.1016/j.pcl.2009.09.002. PMID: 19962029.
8. Sunderkötter C, Aebischer A, Neufeld M, Löser C, Kreuter A, Bialek R, Hamm H, Feldmeier H. Increase of scabies in Germany and development of resistant mites? Evidence and consequences. *J Dtsch Dermatol Ges.* 2019 Jan;17(1):15-23. doi: 10.1111/ddg.13706. Epub 2018 Nov 27. PMID: 30480868.
9. Nenoff P, Süß A, Schulze I, Meißner L, Fritsch C, Schulz B, Hennig S, Borte M, Zurek M, Ginter-Hanselmayer G. Skabies – Renaissance einer Ektoparasitose : Diagnostik und Therapie – Vorgehen in der Praxis [Scabies-Renaissance of an ectoparasite infection : Diagnosis and therapy-How to proceed in practice]. *Hautarzt.* 2021 Feb;72(2):125-136. German. doi: 10.1007/s00105-020-04729-6. PMID: 33346858.
10. Boralevi F, Diallo A, Miquel J, Guerin-Moreau M, Bessis D, Chiavérini C, Plantin P, Hubiche T, Maruani A, Lassalle M, Boursault L, Ezzedine K; Groupe de Recherche Clinique en Dermatologie Pédiatrique. Clinical phenotype of scabies by age. *Pediatrics.* 2014 Apr;133(4):e910-6. doi: 10.1542/peds.2013-2880. Epub 2014 Mar 31. PMID: 24685953.
11. Ohtaki N, Taniguchi H, Ohtomo H. Oral ivermectin treatment in two cases of scabies: effective in crusted scabies induced by corticosteroid but ineffective in nail scabies. *J Dermatol.* 2003 May;30(5):411-6. doi: 10.1111/j.1346-8138.2003.tb00408.x. PMID: 12773808.
12. DPDx – Scabies. Laboratory Identification of Parasites of Public Health Concern. CDC. Archived from the original on 2009-02-20.
13. Andrews RM, McCarthy J, Carapetis JR, Currie BJ. Skin disorders, including pyoderma, scabies, and tinea infections. *Pediatr Clin North Am.* 2009 Dec;56(6):1421-40. doi: 10.1016/j.pcl.2009.09.002. PMID: 19962029.
14. Dressler C, Rosumeck S, Sunderkötter C, Werner RN, Nast A. The Treatment of Scabies. *Dtsch Arztebl Int.* 2016 Nov 14;113(45):757-762. doi: 10.3238/arztebl.2016.0757. PMID: 27974144; PMCID: PMC5165060.

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