

Case report

Norwegian scabies in a malnourished young adult: a case report

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Abstract

A 19-year-old male was admitted to the medical ward with complaints of fever and swelling of the ankle and wrist joints of about two weeks' duration. The patient developed hyperkeratotic lesions of the skin over the hands, elbow and back about three weeks after admission. Antistreptolysin O, rheumatoid factor, and Widal tests as well as Chickungunya, brucella, HIV and antinuclear antibodies were negative. Culture of blood sample and pus aspirate from the ankle and chest yielded a pure growth of *Staphylococcus epidermidis*. Potassium hydroxide (KOH) mount of the scrapings from crusted skin lesions showed plenty of adult mites, eggs and faecal pellets of *Sarcoptes scabiei*. A diagnosis of crusted scabies with secondary bacterial infection was made and the patient was treated successfully with oral ivermectin, topical permethrin and vancomycin.

Key words: Norwegian, scabies, malnourished, ivermectin

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Introduction

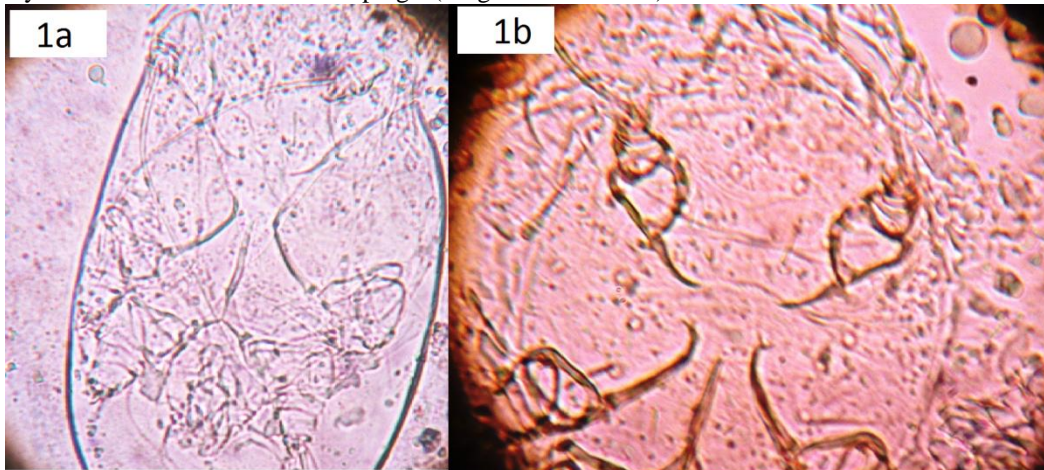
Human scabies is a contagious cutaneous infestation caused by the ectoparasite *Sarcoptes scabiei* var. *hominis* [1]. Norwegian scabies (crusted scabies, hyperkeratotic scabies) is a clinically distinct and highly contagious form of scabies. It is characterised by hyperkeratosis and crusting of the skin due to profuse proliferation of mites resulting from an impaired response to the infestation [2]. Patients with diseases such as leprosy, immune deficiency disorders, malnutrition, HIV, and malignancy, as well as the elderly and those with Down's Syndrome and mental retardation, are more prone to develop Norwegian scabies [3]. These individuals harbour millions of mites in their scales or crusts and thus are highly contagious to contacts [4].

Crusted scabies is associated with an increased morbidity and mortality because of the frequent occurrence of secondary bacterial infections and sepsis [5]. Early diagnosis and treatment is essential both for treating the patient and containing the spread of the disease. We report here a case of Norwegian scabies in a malnourished adult with probable secondary bacterial infection and sepsis.

Case report

A 19-year-old male was admitted with complaints of fever with chills, breathlessness, and swelling of the ankle and wrist joints of about two weeks' duration. On examination the patient was febrile and tachypnoeic; his pulse rate was 110/min and blood pressure was 90/70mm Hg. Bilateral pedal oedema and auscultation revealed bilateral basal crepitations over both the lung fields. Examination of other systems was normal. The patient was sick and apparently malnourished. The skin was dry with few macular lesions over the trunk. There was history of itching lesions over the gluteal region which was treated by a general practitioner one week earlier to admission. Antistreptolysin O, rheumatoid factor, Widal test, Chickungunya, brucella, HIV and antinuclear antibodies were negative. Erythrocyte sedimentation rate was 80 mm/hr, C- reactive protein ≥ 0.6 mg/dl, and blood urea was 52 mg/dl. Mantoux test was negative. Two samples of blood culture collected on the second day of admission yielded a pure growth of *Staphylococcus epidermidis* which was methicillin resistant and sensitive to vancomycin and amikacin. The patient was empirically started on injection cephalexime, dexamethasone, theophylline, and aspirin pending culture report. Cephalexime was

Figures 1a & 1b. Egg, faecal pellets, and the adult mite of *Sarcoptes scabiei* in potassium hydroxide mount of the skin scrapings. (Magnification - 45x).



Figures 2a & 2b. Crusted lesions over elbow and back of the patient.



substituted with injection vancomycin on the fifth day of admission, and continued until the 12th day of admission. The patient became afebrile and arthritis resolved completely after one week. The patient was put on injection amikacin and oral prednisolone for one week. The patient developed a purulent discharging wound over the sternal region and swelling over the left ankle. Pus aspirated from swelling over the ankle joint and chest wall yielded a pure growth of *S. epidermidis*. Hyperkeratotic and crusted lesions appeared over the elbow, palms and back approximately two weeks after admission, which was noticed by the treating physician on routine examination. [Figures 2a, 2b] Scrapings of the lesions showed plenty of adult mites, eggs and faecal pellets of *Sarcoptes scabiei* by KOH mount

(Figures 1a and 1b). The case was diagnosed as crusted scabies. The patient was initially treated with topical permethrin 5% applied twice daily and 12 mg of ivermectin peroral repeated at weekly intervals for a total of three doses. The lesions healed completely within one week of treatment. The final diagnosis was crusted scabies with secondary infection, reactive arthritis, and sepsis due to *S. epidermidis*.

Discussion

Crusted scabies is a severe form of scabies seen often in immunocompromised, malnourished, mentally retarded or aged persons in addition to patients with systemic diseases such as leprosy, systemic lupus erythematosus, rheumatoid arthritis and leukemia [6]. In contrast to the most usual variety

of the disease, the palms, soles and face may be affected and nails may be thickened and dystrophic. Immunocompetent patients rarely develop crusted scabies. In immunocompromised hosts, the weak immune response fails to contain the disease and results in fulminant hyper-infestation. The number of mites in these patients may exceed a million [5]. Norwegian scabies may not be associated with pruritus due to an altered immune response in these patients. The patient reported here was also asymptomatic. The patient reported here was malnourished and belonged to a low socio-economic group. He was treated with broad spectrum antimicrobials for about four weeks in addition to high therapeutic doses of steroid for two weeks. The patient's symptoms resolved completely after treatment with vancomycin and steroids for one week. The patient probably got infected prior to admission and was partially treated, which manifested as crusted scabies about two weeks after admission. Malnutrition, immobility, and treatment with steroids could have precipitated the manifestation of crusted scabies. The diagnosis of scabies is often missed initially by non-specialist doctors because of the variable presentation. Differential diagnosis includes drug reactions, systemic lupus erythematosus, pityriasis rosea, pediculosis corporis, *etc.* [3]. Secondary bacterial infection may result in pyoderma, septicaemia, erythroderma and even death [7]. History of use of steroids or antibiotics prior to admission could not be established, but history of treatment for fever, arthritis and superficial skin lesions for three days at one week prior to admission could be elicited.

Crusted scabies is a highly contagious disease easily transmitted through fomites in addition to direct contact and thus capable of triggering an epidemic of scabies [8]. The treatment of Norwegian scabies is more difficult because of the increased parasitic load, hyperkeratotic skin, and involvement of the nails. The mainstay of treatment is the application of topical keratolytic agent, topical scabicide agents, or oral Ivermectin given at one- to two-week intervals for two to three weeks at a dose

of 200-250 mcg/kg [5]. The patient should be isolated and the environment disinfected. All close contacts were treated with a single dose of oral ivermectin, and followed up for one month. None of them were symptomatic at the time of treatment or during follow-up. The linen and clothing of the patient were laundered regularly until the lesions healed. A high index of suspicion and early diagnosis help in successfully curing and containing the spread of this highly contagious and deceptive form of scabies.

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