Crusted ("Norwegian") scabies in a specialist HIV unit: successful use of ivermecitin and failure to prevent nosocomial transmission

Elizabeth L Corbett, Ian Crossley, John Holton, Nicholas Levell, Robert F Miller, Kevin M De Cock

A nosocomial outbreak of scabies in a specialist inpatient HIV unit resulted from a patient admitted with crusted scabies. Treatment of his infestation with topical scabicides alone failed and he remained infectious for several weeks. His infestation was then eradicated with combined topical treatment and oral ivermecitin. In total, 14 (88%) out of 19 ward staff became symptomatic, and 4 (21%) had evidence of scabies on potassium hydroxide examination of skin scrapings. The ward infection control policy was changed to distinguish patients with crusted scabies from those with ordinary scabies. A second patient with crusted scabies was treated with combined oral and topical therapy early in his admission and nursed with more stringent isolation procedures. No nosocomial transmission occurred and his infestation responded rapidly to treatment. Patients with crusted scabies require strict barrier nursing if nosocomial transmission is to be avoided. Ivermectin combined with topical scabicides may be a more efficacious treatment than topical scabicides alone in such patients.

Keywords: Opportunistic infections, dermatology, therapy, scabies

Introduction
Scabies is a frequent problem among patients infected with human immunodeficiency virus (HIV). Patients unable to mount an adequate immune response to the infestation develop atypical rashes, often involving large areas of the body, and are considerably more infectious than patients with a typical rash. The most extreme form is crusted, so-called Norwegian scabies, which was first reported in association with HIV in 1986. Treatment failure is frequently encountered when topical scabicides are used to treat crusted scabies, owing to poor penetration of the crusted areas. Ivermectin is an oral alternative to topical treatment that has been successfully used to treat patients with both ordinary and crusted scabies.

Six reports of nosocomial transmission of scabies have been published in which the index cases were HIV-infected patients with crusted scabies. In most cases misdiagnosis of the rash predisposed to nosocomial transmission. This report describes an outbreak on an HIV ward that occurred despite immediate diagnosis, and discusses appropriate preventative measures and the response of the index case and a second patient to combined topical treatment and ivermectin.

Case 1: Index Case
The index case was in a 45 year old white homosexual male who was admitted for management of worsening HIV encephalopathy and a rash. He had a previous history of asthenia with associated eczema. Scabies had been diagnosed 5 months previously and treated with malathion with worsening of the eczema. The CD4+ lymphocyte count was 0.11 (NR = 0.35-2.2) x 10^9/l. On admission, the patient had widespread papular erythema with excoriations over most of the body with areas of thick crust particularly over the scalp and beard area. Scabies was suspected by the admitting nurses, and the patient was isolated; microscopic examination of skin scrapings treated with 10% potassium hydroxide subsequently confirmed the diagnosis.

He was treated on days 1 and 3 of admission with topical malathion (Derbac M). Following this the erythema and itch increased and live scabies mites were found still to be present. Because of the lack of effect of topical treatments and the distress produced by treatment, further topical treatment was delayed for 12 days until most of the crusted areas of skin had been removed with dilute chlorhexidine gluconate solution. Topical applications of carbaryl (Derbac C) on five occasions over the following 14 days failed to clear the infestation. Oral ivermectin (200 mcg/kg) was then given on a named patient basis, and two courses of topical malathion were applied; subsequent skin scrapings were negative and the general appearances of the skin improved. In total, the patient's admission lasted 51 days, and he was infectious for at least the first 29 days.

Secondary cases
A total of 19 nursing and medical staff worked on the ward during the index patient's admission, of whom 16 (14 nurses, 2 doctors) had direct physical contact with him. Of the staff with direct patient contact, 14 (88%) developed itching within the first 14 days of his...
Hands of patient 2 showing crusted scabies.
limited by immediate diagnosis and isolation of the patient, but transmission still occurred to staff who had direct contact with him, despite use of aprons and gloves. Forearm skin contact while lifting the patient may have occurred. Of the nine symptomatic staff who were dermatologically assessed, four (44%) had microscopic evidence of scabies infection. Itching in staff with negative skin scrapings may have been psychological in origin, but in some may have represented allergic reactions to immature mites following prior sensitisation to mite antigens.14

The occupational health service must be prepared to investigate outbreaks without delay; this requires rapid access to specialist dermatology services for microscopic confirmation of the diagnosis in early cases. In the case of an established outbreak, treatment of all staff and patients who have had contact with the index case may be warranted, although there are currently no guidelines concerning the treatment of asymptomatic staff, or symptomatic staff without a definite diagnosis. Our experience has been that without such measures concerns remain among ward staff about continued transmission.

The treatment of crusted scabies with topical scabicides often requires multiple applications and early use of ivermectin orally should be considered. Nosocomial transmission of scabies from AIDS patients is a risk, especially on HIV units. The risk of transmission is greatly increased in the case of crusted scabies and guidelines to prevent and respond to nosocomial transmission should be in place.

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