Atypical Presentation of Scabies Among Nursing Home Residents

Margaret-Mary G. Wilson,1,3 Carolyn D. Philpott,1,3 and Wayne A. Breer2

1Division of Geriatric Medicine and 2Department of Dermatology, Saint Louis University Health Sciences Center, and 3GRECC, Veteran’s Administration Medical Center, Saint Louis, Missouri.

Background. Scabies epidemics are not uncommon in nursing homes. Effective treatment is enhanced by prompt clinical diagnosis and early intervention. The clinical presentation of scabies may vary in older, immunocompromised or cognitively impaired persons.

Methods. We performed a retrospective study of all residents diagnosed with scabies in a multilevel long-term care geriatric facility. The duration of the outbreak was from May to September 2000.

Results. Fifteen residents contracted scabies during the outbreak. All affected residents had predominantly truncal lesions. Twelve residents had diffuse erythematous, papulosquamous lesions. Pruritus occurred in only 5 residents. Three residents with severe dementia and notably impaired functional status failed to respond to Permethrin cream (5%). All 3 residents responded to treatment with oral Ivermectin.

Conclusion. Older nursing home residents with scabies may present with atypical skin lesions. Residents with cognitive impairment and restricted mobility may be treatment resistant. The diagnosis of scabies should be considered in any nursing home resident with an unexplained generalized rash. Residents with dementia and severe functional impairment that fail to respond to Permethrin cream (5%) may benefit from treatment with oral Ivermectin.

Scabies is a common dermatosis caused by infestation with the mite Sarcoptes scabiei var hominis. The scabies mite, an arachnid of the genus Acarus, was first identified by Bonomo in 1687 (1). Classically, scabies presents as a pruritic skin eruption. Physical examination typically reveals the presence of burrows. The latter are thread-like, wavy lesions terminating in small vesicles that harbor the female mites. Burrows have a predilection for the interdigital spaces of the hands, intertriginous areas, wrists, elbows, ankles, and genitalia (2).

Scabies is highly contagious and is transmitted predominantly by direct personal contact. Fomite spread is much less frequent. Scabies outbreaks often stem from a single case within closed communities such as prisons, hospitals, and chronic health care facilities (3,4). Within the older segment of the population, outbreaks of scabies are more likely to occur in long-term care settings (5–7). Studies show that such outbreaks can prove difficult to control in spite of adequate infection control measures (8). Early clinical recognition is crucial to effective intervention but is often thwarted by the varied manifestations of this disease (2,9,10).

We describe an outbreak of atypical scabies occurring in a long-term care facility for older adults. The cases of scabies were studied in an attempt to define clinical features of scabies that may be peculiar to the older adult.

Methods.
The study was conducted in a multi–level, long-term care geriatric facility following an outbreak of scabies that occurred between May and September, 2000. Charts of all nursing home residents diagnosed with scabies were reviewed. The diagnosis of scabies was made on the basis of clinical evidence of a dermatoses and parasitological findings of adult mites, larva, or eggs of S. scabiei on microscopic examination of skin scrapings.

Results.
Fifteen patients (6 women and 9 men) were diagnosed and treated for scabies. The characteristics of the patient population are as shown in Table 1. The time from onset of symptoms to diagnosis ranged from 2 to 98 days (mean 38 ± 6.8 days). The index case went undiagnosed for the longest duration. The most prompt diagnosis was made in the last case documented. Thirteen patients had previously been diagnosed with dementia, and five patients suffered from depression and were being treated with antidepressants. Ten patients had been treated with steroid-based topical preparations with no response prior to the diagnosis of scabies.

All patients had lesions on their trunk. Nine patients also had scattered lesions on their extremities. Only two patients had lesions on their head, face, or neck.

| Table 1. Characteristics of the Study Population (n = 15) |
|-----------------------------------------------|---------------|
| Age, y                                      | 70–96         |
| BMI                                         | 15.5–31.8     |
| ADL score                                   | 0–11          |
| Serum albumin                               | 3.2–4.4       |
| GDS score                                   | 0–17          |
| MMSE score                                  | 0–28          |
| Range                                       | 83 ± 2.3      |
| Mean ± SEM                                  | 22 ± 1        |
|                                             | 6.3 ± 0.7     |
|                                             | 3.6 ± 0.1     |
|                                             | 6.1 ± 1.35    |
|                                             | 15 ± 2.4      |

Note: BMI = body mass index; ADL = activity of daily living scale (11); GDS = Geriatric Depression Scale (12); MMSE = Mini-Mental State Examination (13).
had documented involvement of the interdigital spaces. None of the patients had lesions involving the groin, buttocks, or breasts. Only five patients complained of pruritus. Twelve patients had erythematous papulosquamous lesions. The patient with the most severe and widespread lesions exhibited diffuse erythematous, vesicular, and pustular skin changes with a few scattered crusted lesions (Figure 1). Only one patient had a clearly identifiable burrow. None of the affected residents shared living quarters (Figure 2).

Topical permethrin 5% cream was used as the initial miticide in all patients. Eight patients required a second treatment for persistent symptoms. Three of the eight patients continued to manifest symptoms with continued presence of the mite in skin scrapings. They responded to treatment with one dose of oral ivermectin (200 mcg/kg). All three patients had severe dementia and were bedridden with flexion contractures. There were no reported cases of scabies among the facility staff members.

**DISCUSSION**

Scabies classically presents as an intensely pruritic, papular, or vesicular dermatitis with linear burrows terminating in a small vesicle that harbors the female mite. Burrows are most often found on the hands, wrists, elbows, feet, and genital ar-
The mite also has a predilection for the interdigital and intertriginous areas (2). However, in debilitated, immunocompromised, or institutionalized persons, scabies may present with unusual features (14,15). The majority of patients in our cohort presented with a nonpruritic, truncal papulosquamous dermatoses, which confounded the diagnosis and resulted in delayed treatment. Scabies outbreaks, among institutionalized older adults, with similar clinical features have been reported in the literature. Additionally, the high prevalence of dementia noted in this study has also been previously documented among nursing home patients with scabies (14,16).

Host factors are a determinant of the clinical manifestation of scabies (17). With aging, there is loss of epidermal undulations and progressive flattening of the undersurface of the epidermis (18). The adult female mite travels at a rate of 2.5 cm each minute (19). The absence of undulations in aging skin may reduce impedance and allow the adult mite to travel further as it seeks a site to burrow. The itch–scratch cycle in scabies may also be affected by aging. The onset of pruritus in scabies coincides with development of the immune response (20). Patients with scabies demonstrate elevated IgE, IgG, and IgM, which return to normal following effective treatment. Reduced hypersensitivity due to altered lymphocyte function in elderly persons may suppress itching. The coexistence of cognitive or functional disability in the older adult may impair the ability to scratch and thus prevent effective elimination of the mite. These factors, acting in concert, may explain the tendency for scabies to assume a more generalized distribution in older adults. An increase in stratum corneum renewal time and reduction in corneocyte shedding are other age-related skin changes (21). These changes may reduce the rate of scabies transmission from an infested older adult and have some bearing on the absence of reported scabies among the staff in the facility.

Topical permethrin 5% cream, which is equally effective and less neurotoxic than lindane 1%, is the initial treatment of choice in patients with scabies. Application should be made to all cutaneous surfaces from the neck to the toes. Care must be taken to ensure that the cream is applied to the interdigital, intertriginous, intergluteal, and subungual areas. Nails should be trimmed to facilitate treatment. The infested resident’s clothes, sheets, and towels should be washed in a hot cycle the day after treatment. All residents within the facility who are at risk for contacting scabies should be treated simultaneously.

The failure to respond to initial treatment with permethrin noted in this study is not uncommon among nursing home residents (6,14,16). Application and patient compliance with topical preparations may be hampered in older persons with impaired cognition, behavioral disorders, or severe restrictions in mobility and flexion contractures. Additionally, an alteration in surface lipid content has been identified in aging skin (22). The effect of these changes on the efficacy of topical mitocides may be relevant in determining therapeutic response. Ivermectin, a macrocyclic lactone, is an antihelminthic used more commonly in the treatment of onchocerciasis. There are several reports of the efficacy of this agent in the treatment of scabies resistant to topical agents (23–25). We used oral ivermectin with success in three patients with persistent treatment failure on permethrin. There were no adverse effects with the use of ivermectin in these patients.

Early recognition of scabies, prompt treatment, and the institution of adequate infection control measures are crucial to ensuring rapid control of an epidemic of scabies in long-term care geriatric facilities. Health professionals should be aware of the possibility of a variant of scabies, peculiar to the older adult, which may not be readily recognized by
physicians and nurse practitioners. Thus, a high level of suspicion for scabies should be maintained in any older adult with an unexplained generalized skin rash, and appropriate investigations and infection control measures should be instituted until the diagnosis is established. Following topical treatment, older residents with scabies should be monitored closely because the response to topical treatment may be unsatisfactory. Ivermectin may be considered in such cases.

Acknowledgment

Address correspondence to Margaret-Mary G. Wilson, MRCP (UK), Division of Geriatric Medicine, Saint Louis University Health Sciences Center, 1402 S. Grand Blvd, Rm M238, Saint Louis, MO 63104. E-mail: wilsonmg@slu.edu

References

11. Katz S. Assessing self-maintenance: activities of daily living, mobil-