Exaggerated hyperkeratosis in a nursing home patient

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Abstract

Scabies, caused by the mite Sarcoptes scabiei var hominis, is a common infestation that presents with intense itching. Crusted scabies, also known as Norwegian scabies, is a severe variant of classic scabies that is characterized by hyperkeratotic lesions and often manifests in immunosuppressed patients. There is both a high parasitic load and high infectivity with this form of scabies because crusted scabies can look similar to many conditions including psoriasis, eczema, and seborrheic dermatitis; diagnosis can be difficult and is based on both clinical findings and microscopic detection of the scabies mite, eggs, or fecal material (scybala). We describe a case of a 64-year-old female patient diagnosed with crusted scabies.

Keywords: Crusted scabies, Norwegian scabies, parasite.

Introduction

When the Sarcoptes scabiei mite enters the skin and ingests the epidermis and sera, an intensely pruritic response is triggered by way of inflammatory and delayed-type hypersensitivity reactions to the parasite. Raised papules develop as the female mite lays eggs in the stratum corneum, and adult mites that developed from the eggs can emerge on the skin surface and cause reinfection of the host or infection of a new host. In this way, scabies can be transmitted by physical contact. While transmission via fomites is rare with classic scabies, it is important to consider this mode of transmission with the high parasite count seen in crusted scabies.¹⁻⁴

Scabies can infect any person, regardless of factors such as socioeconomic status, gender, ethnicity, and age.¹⁻⁶ The elderly are particularly susceptible to severe cases of crusted scabies, possibly due to declining immunocompetence with aging, as well as reduced scratching in cases of impaired mental status, with frequent progression to sepsis.¹⁻⁷ Nursing home outbreaks are not uncommon, and the highly contagious nature of this parasite poses a considerable source of morbidity in the elderly.¹ Here, we report a case of crusted scabies in which timely diagnosis was essential to limit spread of this parasitic infection. We additionally provide a review of the literature and high-quality clinical and histopathologic images.

Case report

A 64-year-old nursing home patient presented with diffuse erythema with scales, crusting and excoriation. Past medical history included schizophrenia, hypertension, and hyperlipidemia. The patient was not otherwise immunosuppressed or immunocompromised. There is exaggerated hyperkeratosis and finger web involvement on both hands [Figure 1], along with a foul odor. The nail plates are thick with heavy keratotic debris.

Differential diagnoses included crusted scabies, eczema, and dermatophytosis. The physician assistant caring for this patient did not have a dermatoscope or access to a microscope for skin
scraping, so a biopsy was taken, which demonstrated scabies mites along with eggshell remnants [Figures 2-5], cinching the diagnosis of crusted scabies, a relatively common infection affecting approximately 100 million people worldwide.[1]

Discussion

Crusted scabies often affects the immunosuppressed and is characterized by extremely large numbers of mites and eggs, high immunoglobulin E levels, peripheral eosinophilia, and hyperkeratotic crusts.[4,8] High mortality rates in crusted scabies can be attributed to the development of fissures in the infected skin, as well as secondary infection by bacteria. Crusted scabies is difficult to eradicate, causing patients to potentially remain infectious for a long time.[4]

Quick and accurate diagnosis is of paramount importance when faced with crusted scabies, particularly in nursing home patients, as in this case because crusted scabies can look like many conditions including psoriasis, eczema, and seborrheic dermatitis, diagnosis can be difficult. Clinical presentation along with microscopic examination of skin scrapings have been the classic diagnostic methods. One of the most specific ways to diagnose scabies is microscopic identification of mites, eggs, or fecal material (scybala). Any of these findings results in a definitive diagnosis.[4] Dermoscopy can also be used as a non-invasive and highly diagnostic tool. Findings under the dermatoscope include scabies eggs, an S-shaped burrow, and the “delta wing jet” sign, in which the scabies mite’s head is seen burrowed just underneath the skin.[9] Failure to recognize scabies in a timely manner can lead to severe debilitation in the patient and spread of infection. Notably, in the case of nursing homes, delayed diagnosis and treatment of crusted scabies can endanger caretakers and other residents, and result in great costs to the facility.[2,5]

Treatment options for scabies include topical agents such as Permethrin 5% dermal cream (considered the treatment of choice in the US), Ivermectin, Benzyl benzoate, Malathion, Lindane, and Crotamiton.[10] Classic scabies patients can be treated with topical Permethrin 5% lotion or topical Malathion 0.5% lotion, repeated after 1 week to account for patient compliance as well as to kill newly hatched mites.[11-13]

In contrast, crusted scabies requires treatment with topical Permethrin 5% lotion in addition to multiple doses of oral Ivermectin (200 µg/kg/dose). Depending on infection severity, Ivermectin can be taken in three doses (days 1, 2, and 8), five doses (days 1, 2, 8, 9, and 15), or seven doses (days 1, 2, 8, 9, 15, 22, and 29).[11,13] It is essential to isolate scabies-infected nursing home patients, but if an outbreak does occur, mass prophylaxis is an effective strategy.[11]

Healthcare providers should be cognizant of the potential for recurrence in instances where cured patients return to environments that remain infested by the scabies mite.[14] The patient in our case was treated with oral Ivermectin 9 mg (200 µg/kg) and topical Permethrin cream 5%. The Permethrin was applied on days 1, 7, and 14; the Ivermectin was dosed on days 1, 2, 8, 9, and 15. The patient had complete resolution with the treatment, with no complications. The nursing home was promptly notified of the patient’s diagnosis, and close contacts including caregivers were treated prophylactically by their primary care providers. No one else in the facility became infected.

The most crucial step in management of this case, especially to prevent spread of infection and exacerbation of the patient’s condition, was timely diagnosis. As discussed previously, scabies may easily be mistaken for several other conditions, and there are various modalities that can be used in diagnosis, including microscopy and dermoscopy. Treatment of crusted scabies differs from that of classic scabies, and primary care providers should be aware of the different dosing regimens. Crusted scabies can pose a significant problem for both the patient and close contacts, so it is crucial that health care practitioners effectively

Figure 2: H and E 200x: Numerous scabies mites in hyperkeratotic stratum corneum
manage this infection as well as educate the public, particularly those caring for the elderly. Crusted scabies can be further complicated by secondary infections with associated morbidity and mortality, making this a significant condition for primary care providers to promptly diagnose and treat. In this way, our case report highlights this highly infectious, potentially fatal condition for primary care physicians to keep in mind when faced with a patient presenting with pruritus.

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**Conflicts of interest**

There are no conflicts of interest.

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