Norwegian scabies presenting as erythroderma in HIV: A case report

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SUMMARY

Crusted scabies is a rare and extreme manifestation of scabies that is observed mainly among immunosuppressed patients. We describe the case of a 55-year-old patient with a history of HIV infection and injection drug use. The patient was not on any antiretroviral therapy during the previous year, was malnourished and was living in unsanitary conditions. He had extensive, generalized, thick, hyperkeratotic, crusting, papular lesions, which had evolved over the previous month. Hyperkeratotic areas were fissured and linear excoriations were noted diffusely. The rash was distributed on the entire body from the scalp to the toes, with mild itching. Microscopic examination of the scale revealed numerous scabies mites and eggs. The patient was treated with topical scabicidal agents, which resulted in complete resolution. Because of the extremely contagious nature of crusted scabies, as well as its potential for complete cure with an appropriate therapy, there should be a high degree of suspicion for this disease in patients with AIDS, even when the lesions do not have the classical appearance. Nosocomial transmission of scabies from patients with AIDS is a risk, and protective measures, early diagnosis, and therapy are essential.

Keywords: Norwegian scabies, erythroderma, HIV.

INTRODUCTION

Scabies is an ectoparasitic infection caused in humans by the *Sarcoptes scabiei* var. *hominis*. In common scabies, there are few mites, probably because scratching destroys the burrows. Crusted or Norwegian scabies is a rare and severely debilitating form of the disease, first described in a group of Norwegian leprosy patients by Böck and Danielssen in 1848. It is characterized by an infestation with millions of mites, and development of a hyperkeratotic skin crust. These crusts are most prominent over the palms and soles, the extensor surfaces and under the fingernails. Affected people have a characteristic odor. It may occur in patients infected with human immunodeficiency virus (HIV). These patients, like those with a malignancy or transplant recipients have moderate to severe immunosuppression, and are often unable to mount an adequate immune response. They develop diffuse and atypical rashes and are considerably more infectious than patients with classical scabies. They can cause outbreaks of scabies in hospitals and other care facilities. We present a case of exceptionally-intense crusted scabies in a patient with HIV, with generalized hyperkeratosis.

CASE PRESENTATION

A 55-year-old patient with HIV infection and injection drug use was admitted to our Special Infections Unit with a 1-month history of mild pruritic patches covering most of his body surface, including the head and neck. Physical examination revealed diffuse large plaques of thick, tan scale. Hyperkeratotic areas were fissured, and linear ex-

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coriations were noted diffusely. The crusts were grey and yellow-brown in color, and were adherent, and firm. On removal of the crust, the undersurface was smooth, red, moist, and velvety in appearance resembling the peeling bark of a tree (Figure 1 and Figure 2).

The patient was first diagnosed with HIV infection eight years before in prison. He had initiated antiretroviral therapy with Atripla® (efavirenz/emtricitabine/tenofovir disoproxil fumarate) and had been cured regularly in the prisoners' hospital until his probation one year ago. Since then, he was not following up with any other medical facility and had discontinued his antiretroviral therapy. His living conditions were unsanitary, and he was visibly malnourished. Laboratory results were as follows: CD4 count 285 cells/μL, viral load 220,000 copies/ml, absolute eosinophil count 2,800 cells/μL. Microscopic examination of the scale enabled identification of numerous scabies mites and eggs.

The patient was isolated and treated with topical benzyl benzoate 25% and a corticosteroid cream with urea 5% over a period of fourteen days. Treatment with oral ivermectin was not possible, as it is not yet available in Greece. For his mild itching he received antihistaminic tablets. He also received an intramuscular injection of long-acting preparation of betamethasone. Additionally, his antiretroviral therapy with Atripla® was re-initiated. After fourteen days, the skin lesions resolved completely and there was no evidence of scabies on microscopic examinations of his skin scrapings (Figure 3).

DISCUSSION

There are a number of predisposing conditions associated with crusted scabies [1]. These include diseases that alter T-cell function, such as HIV, HTLV-I, T-cell lymphoma and leukemia, and moderate immunosuppression used in transplant recipients [2-12]. Systemic lupus erythematosus, rheumatoid arthritis, diabetes, malnutrition, mental retardation, Down syndrome and various neuropathies have also been found to be associated [13-16]. It has also been reported in patients with immune reconstitution inflammatory syndrome [17].

Interestingly, crusted scabies can be seen in patients with no evident immunosuppression [18]. A case-series of crusted scabies from Dakar showed that HIV infection was the most common associated disease, seen in 45% of the patients [7]. Secondary infection with bacteremia and fatal septicemia has been reported in patients with HIV infection and scabies [19].

Because patients with crusted scabies have less itching, the recognition of burrows in the typical areas of involvement with scabies, such as the interdigital spaces, is helpful, as is the clinical history.

Figure 1 - The patient at initial presentation.

Figure 2 - The patient at initial presentation.

Figure 3 - The patient after therapy (day 14).

Definite diagnosis is made by microscopic examination of the skin scrapings, with demonstration of mites. Biopsies are not recommended. However, if patients undergo biopsy for some other reason, mites can be identified as well. Because the hyponychium is a protected area, it can serve as a high-yield site to identify mites. Eosinophilia, which does not occur in patients with ordinary scabies, is found in about 58% of those with the crusted form [20].

Crusted scabies is a severe disease and significantly more contagious than ordinary scabies. The predominant route of transmission is skin-to-skin contact. The immediate environment of a patient is heavily infected with mites. Patients with crusted scabies are capable of triggering an epidemic of scabies [5, 21].

Hospitalization and isolation of the patient is required to manage crusted scabies because of the risk of transmission to people in physical contact. All individuals in contact with the patient should be treated. Careful attention to the fluid and electrolyte balance is required, similar to that for patients with major burns. Keratolytic agents, such as salicylic acid and urea, or soaking in a hot bath should be used to treat hyperkeratosis. This may bring down the mite load and also enhance the efficacy of topical scabicidal agents. Nails should be cut short and brushed with a scabicidal agent. Topical scabicide application should be repeated until two parasitological tests, 3-days apart, become negative. Ivermectin has been used successfully in crusted scabies, both as a monotherapy, as well as in a combination with other scabicidal agents [22].

CONCLUSION

Patients with crusted scabies should be thoroughly evaluated for an underlying immunosuppressed condition. Crusted scabies, superimposed on psoriatic erythroderma - particularly in patients with AIDS - can pose diagnostic, and therapeutic challenges [23]. The laboratory diagnosis is simple, but a high index of suspicion is required. The presence of atypical crusted lesions, and microscopic examination of the their scrapings is always diagnostic. Nosocomial transmission of scabies from patients with AIDS is a risk, especially in an HIV unit [21, 24, 25]. The risk of transmission is greatly increased in the case of crusted scabies, and guidelines to prevent and manage its nosocomial transmission are must.

Conflict of interest
None

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