Crusted scabies in an 8-year-old child

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SUMMARY

A case study of an 8-year-old girl with crusted scabies, which appeared while she was treated with systemic corticosteroids for juvenile dermatomyositis. This condition was first diagnosed at the age of 6, when treatment with systemic corticosteroids was introduced. Six months later pruritic papules developed, which were diagnosed by a pediatrician as Gottron papules. Beside systemic corticosteroids, topical corticosteroids were introduced without effect. Eight months after the diagnosis of dermatomyositis the patient's skin became erythrodermic and hyperkeratotic, accompanied by an intense pruritus. A potassium hydroxide examination of skin scales revealed numerous Sarcoptes mites. Treatment with 6% precipitated sulphur ointment led to the complete resolution of her skin condition.

Introduction

Scabies, an infestation of the skin caused by the mite *Sarcoptes scabiei*, is most commonly to be found in the developing countries, but it can easily be overlooked in the industrialized countries (1). In Slovenia the annual incidence of scabies counts more than 1000 cases, of which 160 are children (2). The majority of cases are imported by guest workers from certain regions outside Slovenia. The peak incidence was observed in the years 1971, when 8446 cases were reported; and in 1981, when 4412 cases were reported (3). Interestingly, during the war in Yugoslavia the number of annually observed cases barely exceeded 1000 patients.

Crusted (Norwegian) scabies occurs rarely. Most of the patients described are mentally debilitated or immunocompromised persons (4,5). It is sometimes observed in persons treated with topical or systemic drugs which reduce inflammation or induce immunosupression (6,7). It is rare in children. The cutaneous manifestations of crusted scabies are characterized by an erythrodermic, extensive hyperkeratotic skin reaction due to infestation of the epidermis with thousands of mites. It is highly contagious, so it is not rare that scabies is recognized only after the infection of other persons in the surrounding area. Sometimes the appro-

KEY WORDS

scabies, crusted, child, dermatomyositis, treatment

priate diagnosis can be delayed for months.

Case report

An 8-year-old girl from Bosnia was referred to our pediatric dermatology department with a history of six months of erythrodermic, hyperkeratotic and intensively pruritic skin alterations.

At the age of six years juvenile dermatomyositis had been diagnosed clinically, and confirmed by laboratory investigations. Systemic corticosteroids were introduced. Six months later pruritic skin papules were observed all over her body, which were diagnosed as Gottron papules by her pediatrician. Topical corticosteroids were introduced without effect, while systemic corticosteroids were continued. In the next months her skin became erythrodermic and hyperkeratotic, but the same treatment was continued.

On admission to our department there were numerous crusted lesions on the scalp, beside erythrodermic and hyperkeratotic skin alterations (Fig. 1 and 2). Systemic corticosteroids were discontinued two weeks prior to referral to our department.

We performed the scraping of hyperkeratotic scales, and pottasium hydroxide (KOH) examination revealed numerous Sarcoptes mites, confirming the diagnosis of crusted scabies. Her parents and a younger sister all had skin lesions typical for scabies.

Other laboratory examination showed an elevated sedimentation rate and leukocytosis with eosinophilia. The haematologic and urine analyses, however, were normal. Liver tests, as well as lactic dehydrogenase including isoenzymes, creatine phosphokinase, aldolase, and electromyogram (EMG) were also within the normal range. Her dermatomyositis was in complete remission. *Staphylococcus aureus* was isolated from crusted scalp leisons. Serologic investigation for *Trichinella spiralis* and *Toxoplasmosis* were negative.

Because of severe pains in her back, we performed an X-ray examination. Severe osteoporosis with several rib fractures and compression fractures of vertebrae were detected. These had been caused by the prolongued systemic corticosteroid therapy. The consultant pediatrician introduced systemic biphosphonate and calcium into the treatment. A few days later her pain stopped completely.

On admission to our department we introduced bland emollients topically and a systemic antibiotic. After the diagnosis was made, we introduced topical scabietic treatment with precipitated sulphur ointment for three consecutive days after which we continued with bland emollients. Ten days later a complete resolution of her skin changes was achieved.

The same treatment with topical scabicides was introduced to all her family members. At the follow up one and three months later no one had any skin symptoms. The girl is attending regular checkups at our department and needs no further therapy.

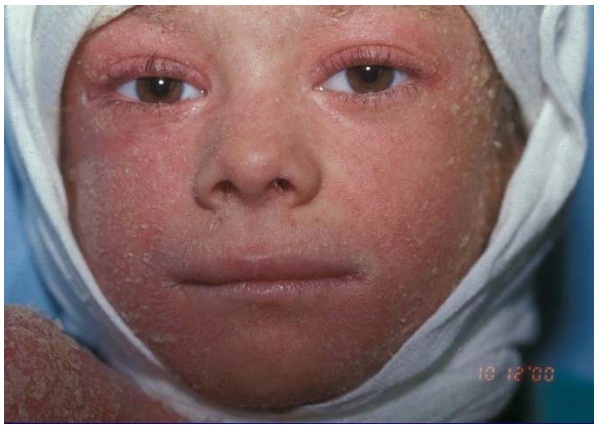

Figure 1. Erythrodermic and hyperkeratotic skin lesions in crusted scabies (face).

Discussion

Crusted or Norwegian scabies was described in 1848 by Danielssen and Boeck as a severe form of human scabies characterized by the presence of thick crusted lesions containing a large number of parasites. The causative agent is the same *Sarcoptes scabiei* var. *hominis* as in classical scabies (8).

Crusted scabies usually develops in patients with defective T-cell immune response (9), or reduced cutaneous sensibility due to physical or mental debilitation. Scabies can develop in association with transplantation, AIDS, T-cell leukemia or lymphoma and has been observed in patients with systemic lupus erythematosus, and dermatomyositis (10,11,12). Crusted scabies was also described in otherwise healthy individuals using potent topical coricosteroids (6,7).

This rare variant of scabies is characterized by diffuse hyperkeratosis associated with a variable degree of underlying erythroderma. The whole body surface can be affected. Hyperkeratosis is particularly severe on the palms and soles, under the fingernails, on the

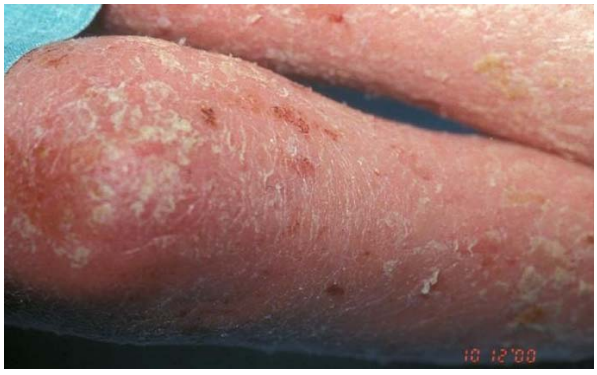

Figure 2. Erythrodermic and hyperkeratotic skin lesions in crusted scabies (knee and leg).

ears, scalp, trunk, buttocks, and extremities. Secondary bacterial infection with *Staphylococcus aureus* accompanied by generalized lymphadenopathy is common (1). A large quantity of scabies mites occur in scales and crusts and the disease is highly contagious even on casual contact. Pruritus can be severe, mild or absent. The diagnosis is confirmed by microscopic examination of scrapings.

The treatment of crusted scabies can present a serious therapeutic problem. The decision between conventional topical scabietic therapy and the new systemic agent ivermectin can be difficult. It is important to evaluate the side effects of the possible therapeutic options and to choose the one which is most adequate for the patient. As our patient had many side effects due to systemic corticosteroid treatment, we decided to use the classical topical antiscabietic treatment with precipitated sulphur ointment for three consecutive days. We considered using ivermectin where the topical treatment to be without effect.

Ivermectin reduces gamma-aminobutyric-acid (GABA) and thus inhibits neurotransmission in nematodes and arthropodes, and paralyses these organisms (13). It does not cross the blood-brain barrier so it has no paralytic effect in humans. Ivermectin rapidly improves the symptoms of scabies and was found to be a rather safe, effective treatment that is easy to administer. A single oral dose of 200 mg/kg rapidly cures most patients. The dose should be repeated 10-14 days after the initial dose, as it is not ovicidal, to address the normal incubation period time for scabies eggs (1,13).

Adverse reactions to ivermectin are rare, usually mild and transient, but it should be considered the drug of choice only in those patients with crusted scabies who do not respond to conventional treatment. Despite the apparent efficacy and safety of ivermectin, topical therapy remains the first-line treatment for children with common scabies (14).

While treating a patient with crusted scabies it is very important to examinethe patient carefully and to introduce an efficient treatment to all members of the family.

The differential diagnosis includes psoriasis, keratosis follicularis, chronic eczematous dermatitis, pytirisis rubra pilaris or lymphoma (9). Adult patients and especially children on systemic corticosteroid treatment should be carefully monitored for scabies, preferably by a dermatologist.

Conclusion

Crusted scabies is nowadays rarely found in children. Patients on long lasting systemic corticosteroid treatment are immunocompromised and are prone to it. Skin changes in juvenile dermatomyositis are typical and rarely misdiagnosed. In such cases, the cooperation of pediatricians and dermatologists is necessary for a proper diagnosis and treatment. Patients on systemic corticosteroid therapy should be carefully monitored, not only for skin changes, but also for other possible systemic side effects.

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