

# Erythroderma due to iatrogenic immunosuppression: A case of Norwegian scabies

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## ABSTRACT

Norwegian scabies is a rare type of scabies characterised by hyperkeratotic and crusted plaques and is usually seen in immunologically and neurologically impaired patients. An elderly female presented to us with erythema and scaling over the body along with thick plaques covered with yellow crusts over the flexor aspects of the wrists and forearm. There was family history suggestive of scabies in other family members. The patient had received multiple injections of triamcinolone and was applying topical ointment containing steroids for tinea corporis. The HIV ELISA was non reactive. A potassium hydroxide mount showed multiple mites, eggs and faecal pellets. A diagnosis of Norwegian scabies was made and patient treated with oral ivermectin and topical permethrin. We present this case to highlight the possibility of this rare cause of erythroderma in a patient who has been receiving corticosteroids.

**Key words:** Scabies, Erythroderma, Parasitic disease

## INTRODUCTION

Erythroderma, defined as erythema and scaling over more than 90% body surface area is usually the result of eczematous group of diseases (40%), psoriasis (15%), drugs (10%) and malignancies (15%) in elderly patients. Rarely, it may result from other conditions such as pemphigus foliaceus (0.5%) dermatomyositis, scabies and lichen planus (0.5%) [1]. Scabies, an ectoparasitic infestation, is a common disease and can present in various forms. A very rare but highly contagious form is the Norwegian scabies, where the host immune response is modified. The unhindered multiplication of the mite on the skin occurs as a result of absence of pruritus [2]. Norwegian scabies presents as thick crusted and hyperkeratotic plaques and rarely may lead to generalised involvement leading to erythroderma [3]. Herein, we describe a patient of Norwegian scabies occurring after long duration systemic and topical steroid therapy and presenting as erythroderma.

## CASE REPORT

A 60 year old female presented to us with complaints of red raised itchy lesions over body since 6 months and generalised redness, scaling and crusting over body since 20 days. She gave history of receiving multiple injections of Triamcinolone in the last five years as well as application of an ointment containing clobetasol, gentamicin and miconazole for itchy annular skin lesions in axillae and groins (possibly Tinea cruris and corporis), prescribed to her by a quack. All members of her family had itchy lesions, predominantly present over the webs of fingers, genitalia, axillae and abdomen suggestive of scabies. On examination, she was found to have generalised erythema and scaling over most of her body (Fig. 1) including the face (Fig. 2) but sparing the palms and soles. There were ill defined plaques with thick, yellow, hyperkeratotic crusts with deep fissures present over the flexor aspect of wrists, forearms, cubital fossa (Fig. 3) and upper medial aspect of

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thighs. Excoriated papules surmounted by crusts were also seen over the trunk and extremities. Examination of nails, hair, mucosa showed no abnormality. The

systemic examination was normal with no evidence of any neurological deficit.

A potassium hydroxide mount revealed the presence of numerous scabies mite, eggs and scybala (Fig. 4). Routine investigations including blood counts and serum biochemistry was within normal limits, except for anaemia (Hb-8.8mg%). HIV ELISA was non-reactive. The chest radiograph, ultrasonography of abdomen and pelvis was normal. Skin biopsy from a papule over the back showed an intra-corneal vesicle with scabies mite and its faecal matter. There was polymorphonuclear infiltrate in the dermis (Fig. 5). Based on the clinical picture, KOH mount and histopathology, a diagnosis of erythroderma due to Norwegian scabies resulting from immunosuppression of systemic steroid abuse was made. The patient was admitted in isolation ward and treated with weekly Ivermectin 18mg and topical permethrin 5% cream with all her family members. She



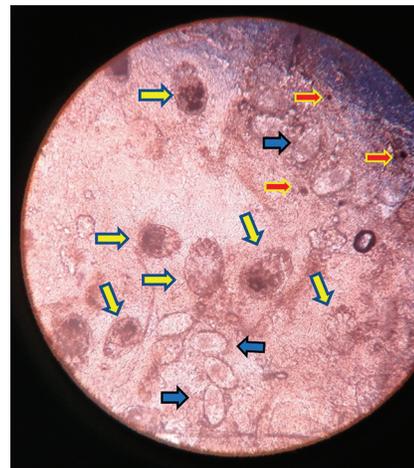
**Figure 1:** Erythema and scaling and few excoriated papules over the back.



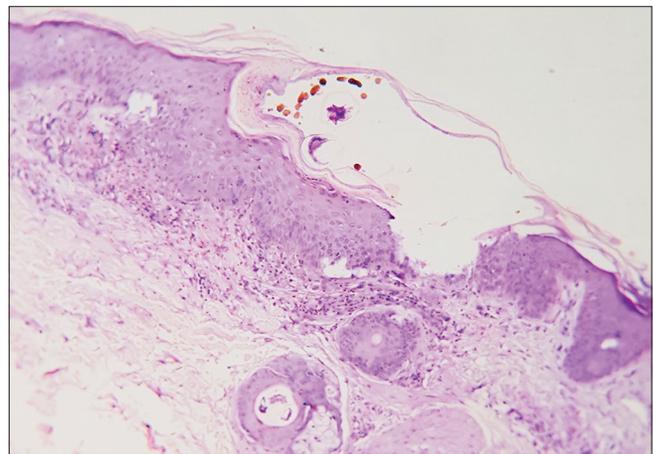
**Figure 2:** Erythema and scaling over the face



**Figure 3:** Crusted plaques over the flexor aspect of wrist, forearm and cubital fossae



**Figure 4:** Potassium hydroxide mount showing multiple scabies mites (yellow arrows), eggs (blue arrows) and scybala (red arrows)



**Figure 5:** Histopathology of the papule shows intra-corneal vesicle containing scabies mite, faecal pellets and infiltrate in the dermis.

responded very well to treatment and KOH mount was negative for mites after 15 days.

Prior to the study, patient gave written consent to the examination and biopsy after having been informed about the procedure.

## DISCUSSION

Crusted scabies is a rare manifestation of infestation by *Sarcoptes scabiei* mite which was first described in leprosy patients in Norway, hence the name Norwegian scabies. Crusted scabies is seen in immunosuppressed and mentally debilitated or neurologically impaired patients. While the number of mites in a patient of classical scabies is usually in the range of 10-20, millions of mites are present in a patient of Norwegian scabies, which is attributed to the lack of hypersensitivity and no itching seen in such patients. An altered immunity is responsible for the excessive multiplication of mites in immunosuppressed patients. Itching is a protective response that destroys the burrows and keeps the population of mites in check. Itching is a result of hypersensitivity and is thus less prominent in patients with immune deficiency. Also neurologically impaired patients do not perceive itch and are predisposed to itching [4]. There have been very few reports of crusted scabies in patients receiving immunosuppressive drugs including systemic and topical steroids [5-7]. The disease may present as crusted plaques, psoriasiform lesions or as erythroderma [4,8]. The diagnosis requires a high index of suspicion. A simple potassium hydroxide mount of the skin scrapping reveals numerous mites in various stages of development, eggs and scabala, the faecal pellets of the mite [9]. Treatment is challenging due to the heavy load of mites on the body as well as the presence of thick plaques. Treatment consists of the application of keratolytic agents to diminish the hyperkeratotic plaques and requires repeated oral ivermectin administration with multiple applications of topical scabidical agents such as permethrin 5% [10].

We present a rare case of erythroderma due to Norwegian scabies resulting from immunosuppression due to systemic and topical steroids. This case is being presented to highlight the need to consider the possibility of this rare disease entity, particularly in patients who have received long term steroids.

## CONSENT

The examination of the patient was conducted according to the Declaration of Helsinki principles.

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