

# Norwegian scabies: a rare case with rare presentation

Ahsan MK<sup>a</sup>, Ahmed JU<sup>b</sup>, Islam MJ<sup>c</sup>

### Abstract

*Norwegian scabies is characterized by hyperkeratotic, heavily scaling, crusted lesions rarely presents as exfoliative dermatitis (erythroderma). This term applies when 90% or more of the skin surface is involved by scabies. A 75-year-old woman having uncontrolled diabetes mellitus and hypertension was admitted in BIRDEM general hospital with generalized erythroderma for 6 months and high fever along with vomiting for 4 days. Clinical and laboratory findings were suggestive of severe sepsis with septic shock, which were being managed by supportive medications. Microscopic examination of scales and crusts dissolved in 10% KOH revealed fields teeming with scabies mites and eggs. A skin biopsy was planned but could not be done due to critical condition of the patient. Despite of all supportive measures, patient expired due to septic shock before starting definitive treatment of Norwegian scabies.*

**Key words:** Norwegian scabies, erythroderma, uncontrolled Diabetes, septic shock.

*(BIRDEM Med J 2020; 10(3): 215-217)*

### Introduction

Norwegian scabies is a rare and highly contagious form of scabies. Usually it is characterized by uncontrolled proliferation of mites in the skin, extensive hyperkeratotic scaling, crusted lesions and variable pruritus.<sup>1,2</sup> The stratum corneum thickens and forms warty crusts as a reaction to the high mite burden. Also, the uncontrolled proliferation of mites in the skin typically develops in patients with immunosuppression.<sup>3</sup> Immuno-compromised patients are unable to handle scabies mite population, which leads to the body producing an inflammatory response and hyperkeratotic reaction. Norwegian scabies can mimic many other dermatologic diseases owing to the heavy plaque formation. It is also a rare cause of exfoliative

dermatitis involving more than 90% of skin.<sup>4,5</sup> Again the lesions can be obscured by secondary bacterial infection, excoriation, or pre-existing dermatologic disease.<sup>6</sup> In view of the situation, We report the case of a 75-year-old woman with 20-year history of diabetes, hypertension who presented with wide spread erythematous, scaly skin lesions for 6 months that was diagnosed as Norwegian scabies.

### Case report

A 75-year-old woman was admitted in BIRDEM general hospital with 6 months duration of erythroderma, fever and vomiting for 4 days. She had been followed for uncontrolled diabetes at different clinics for several years and was unsuccessfully treated with different topical steroids and antihistamines for erythroderma.

Physical examination revealed large erythematous, hyperkeratotic, scaly plaques on the trunk, umbilicus, both upper and lower limbs (figure 1). Numerous small erythematous papules and wavy threadlike gray burrows were present around wrists and interdigital spaces (figure 2). The patient's nails were also thickened and discolored. Her medical history was significant for uncontrolled diabetes and hypertension. During admission, patient was hypotensive and had features suggestive of septic shock.

---

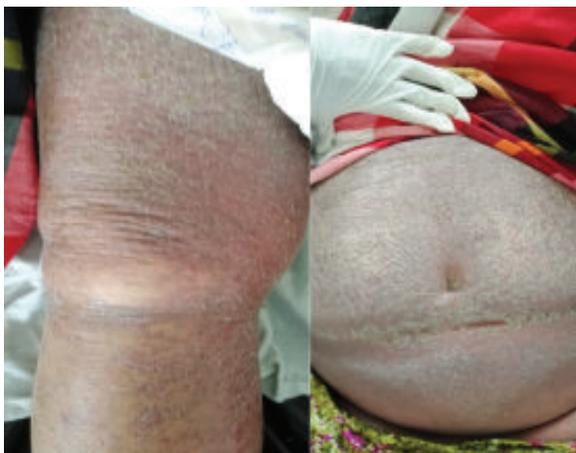
### Author information

- Mohammad Kamrul Ahsan, Associate Professor, Department of Dermatology, BIRDEM General Hospital, Dhaka, Bangladesh.
- Jamal Uddin Ahmed, Associate Professor, Department of Internal Medicine, BIRDEM General Hospital, Dhaka, Bangladesh.
- Md. Jubaidul Islam, Registrar, Department of Internal Medicine, BIRDEM General Hospital, Dhaka, Bangladesh.

**Address of Correspondence:** Mohammad Kamrul Ahsan, Associate Professor, Department of Dermatology, BIRDEM General Hospital, Dhaka, Bangladesh. Email: dr.kamrul1966@gmail.com

**Received:** July 30, 2020

**Accepted:** August 16, 2020



**Figure 1** Photograph showing erythematous, hyperkeratotic, scaly plaques on lower limbs and all over the abdomen



**Figure 2** Photograph showing multiple small erythematous papules and wavy threadlike gray burrows around wrists and interdigital spaces



**Figure 3** Microscopic picture showing scabies mite and eggs in KOH mount of scales (Collected)

Laboratory studies revealed neutrophilic leukocytosis (Total WBC-14,500/cmm, neutrophil -86%), anemia (10.2 gm/dl), raised ESR (52mm in 1st hour), hypoalbuminemia (24.4 gm/L), hyponatremia (123 mmol/L), and hypokalemia (3.2 mmol/L). Renal function, liver function and thyroid profiles were normal. NT-pro BNP was high (3470.9 U/L) and procalcitonin (2.33U/L) was normal. Peripheral blood film showed normocytic, normochromic RBC with increase neutrophil count, few band formation and toxic granules suggestive of sepsis. Her blood sugar profile revealed fasting sugar 16.5 mmol/L, 2 hours post-prandial 23.5 mmol/L and HbA1c 17.5%.

Microscopic examination of the scales revealed moving scabies mites and eggs. A skin biopsy was planned for further confirmation of diagnosis but could not be done due to critical condition of the patient.

Patient was on broad spectrum I/V antibiotics (ceftazidime, flucloxacillin and metronidazole), split mix insulin regimen, I/V fluid with electrolytes and albumin supplement. Since the patient had profound hypotension, she was also given I/V hydrocortisone (septic dose) followed by adding Inj. Noradrenalin infusion. But the patient's condition was deteriorating in spite of all efforts and died after 2 days of admission due to septic shock before starting definitive anti-scabies treatment.

### Discussion

Exfoliative dermatitis is a condition where at least 90% of body surface area develops erythema with scaling. Common causes are eczemas (40%), psoriasis (15%), drugs and malignancy, while Norwegian scabies, lichen planus, dermatomyositis, etc. account for only 0.5% cases.<sup>2</sup>

The term "Norwegian" derived from the description in Norway by Danielssen and Boeck of a type of scabies

where huge number (millions) of mites were present in lepers. It is seen in patients with immunosuppression, physical incapacity, sensory anesthesia and mental retardation.<sup>7</sup> Due to prolonged uncontrolled diabetes, our patient was immunocompromised and developed Norwegian scabies.

Norwegian scabies can mimic a variety of conditions, such as psoriasis, eczema, seborrheic dermatitis, contact dermatitis rarely exfoliative dermatitis.<sup>8,9</sup> Therefore; suspicion is the prerequisite for disease diagnosis. In our patient who is immunocompromised, Norwegian scabies was on the top of our differential diagnoses. Other differential diagnoses were drug reaction and malignancy. So, skin biopsy was planned but unfortunately patient died before that. Microscopic examination of scales detected scabies mite and eggs confirming the diagnosis (figure 3). About her medical condition, septicemia and electrolyte imbalance were the complication of erythroderma and uncontrolled diabetes.<sup>10</sup>

### **Conclusion**

Norwegian scabies should be considered as a possible cause of exfoliative dermatitis in immunocompromised patients. Clinicians should remain cautious about the critical phase of exfoliative dermatitis for septicemia, electrolyte imbalance and other complications, as prompt diagnosis and management would help in satisfactory recovery. This infection may not rank highly on one's differential diagnosis in the absence of high

suspicion, highlighting the uniqueness of the case being presented.

**Conflict of interest:** Nothing to declare.

### **References**

1. Guldbakke KK, khachemoune A. Crusted scabies: a clinical review. *J Drugs Dermatol* 2006; 5:221-27.
2. Roberts LJ, Huffam SE, Currie BJ. Crusted scabies: Clinical and immunological findings in seventy-eight patients and a review of the literature. *J Infect* 2005; 50:375-81.
3. Guggisberg D, de Viragh PA, Constantin C, Panizzon RG. Norwegian scabies in a patient with Acquired Immunodeficiency syndrome. *Dermatology* 1998; 197: 306-08.
4. Berth-Jones J. Eczema, lichenification, prurigo and erythroderma. In: Burns T, Breathnach S, Cox N, Griffiths C, editors. *Rook's Textbook of Dermatology*. 8th ed. Oxford: Wiley-Blackwell; 2010. pp. 23.46-49.
5. Das A, Bar C, Patra A. Norwegian scabies: Rare cause of erythroderma. *Indian dermatol online J* 2015; 6(1):52-54.
6. Kutlu NS, Turan E, Erdemir A. Eleven years of itching: A case report of crusted scabies. *Cutis* 2014; 94(2):86-88.
7. Nagsuk PP, Moore RA, Lopez L. A case report of crusted scabies in an adult patient with Down syndrome. *Dermatology online journal* 2015; 21(8):13.
8. Ebrahim KC, Alves JB, de Olivera LF. Norwegian scabies – rare case of atypical manifestation. *An Bras Dermatol* 2016; 91(6): 826-28.
9. Maghrabi MM, Lum S, Kennedy k. Norwegian crusted scabies: an unusual case presentation. *J Foot Ankle Surg* 2014; 53(1): 62-66.
10. James WD, Elston DM, Neuhaus IM. *Andrews' diseases of the skin*. 13<sup>th</sup> ed. Elsevier, 2020, pp.213.