

CASE REPORT

CRUSTED SCABIES IN A PATIENT WITH ACUTE LYMPHOCYtic LEUKEMIA

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ABSTRACT: A 17 years old male patient presented with diffuse, ill defined, hyperpigmented, scaly plaques on the body, for the past 15 days. Lesions were more over the groin and also on both elbows and wrists. Patient is a known case of acute lymphocytic leukaemia, diagnosed at the age of 13 years and has been on treatment ever since. A KOH (10%) mount of the scales showed the presence of sarcoptes scabiei and skin biopsy with haematoxylin and eosin showed fragments of mite in the excised skin.

KEYWORDS: Crusted scabies, Acute lymphocytic leukaemia.

INTRODUCTION: Crusted (Norwegian) scabies is caused by an infestation with *Sarcoptes scabiei* var. *hominis* in which the mite population is enormous and may number in the millions.¹ Crusted scabies is characterized by hyperkeratosis and crusting of the skin due to the profuse proliferation of mites resulting from an altered host response to the infestation.² Crusted scabies is more difficult to treat than ordinary scabies and may require repeated treatments with scabicides and sometimes the sequential use of several agents. Recommended treatments for scabies include benzyl benzoate, sulfuram, malathion, lindane, and permethrin.¹

CASE REPORT: A 17 yrs old male patient presented with complaints of multiple, large discoloured, flaky lesions over the groin, both elbows and both wrists for 15 days. Scaly lesions started in the groin, rapidly progressed to involve the entire groin area, the elbows and wrists. Patient also complaints of itching over the lesions, which is more during the night time. It was initially mild degree but has increased in severity over the past 15 days. Patient is a known case of acute lymphocytic leukaemia, diagnosed 4 years ago at the age of 13 and has been on treatment ever since. At present patient is orally on;

1. Tab. Methotrexate 12.5 mg once a week.
2. Tab. Co-trimoxazole 400/80 three times a week.
3. Tab. 6 Mercaptopurine 50mg once a day.

Patient had no history of similar complaints in the past or being in contact with any person suffering from a similar condition. There is history of similar complaints in the family.

There were medium to large, diffuse, ill defined, poorly demarcated, hyperpigmented, hyperkeratotic, scaly plaques (Crusts) present over the entire groin and pelvic region, also over both the elbows and wrists, more on the flexor aspect. The scales were dry and loosely adherent to the underlying skin. Genitalia- scrotal skin was covered with similar plaques with lesser scaling. Excoriations were present. Oral cavity, hairs, nails and systemic examination was normal.

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Blood sugars, liver function tests, renal function tests, lipid profile, urine analysis were within normal limits. No thyroid abnormality. Chest x-ray (PA) and ECG were normal. Lymphocytes were elevated.

KOH (10%) mount done with scales taken from the plaques showed the sarcoptes scabiei mite under 10x magnifications.

Skin biopsy with haematoxylin and eosin stain showed fragments of sarcoptes scabiei in epidermis. There is mild superficial and deep perivascular inflammatory mononuclear infiltrate; morphological features were consistent with crusted scabies.

DISCUSSION: Crusted scabies was described by Boeck and Danielssen among lepers in Norway in 1848.³ It was named as Scabies Norvegi Boeki by von Hebra in 1862. This severe variant of scabies occurs as widespread hyperkeratotic crusted lesions and hence the name crusted scabies is preferred to the eponym of Norwegian scabies.⁴ It is caused by *Sarcoptes scabiei* and is usually associated with an underlying immunodeficiency state. Various cutaneous, neurologic and immunologic diseases have been described to predispose to crusted scabies [Table 1].² These include diseases that alter T cell function such as acquired immunodeficiency syndrome (AIDS), human T-lymphotropic virus 1 (HTLV1) infection, T cell lymphoma, and leukemia. It can also be seen in patients on treatment with immune suppressants and topical corticosteroids.⁵

Table 1: Disorders predisposing to crusted scabies

- Disorders with defective T cell response.
- AIDS.⁶
- T cell leukemia.⁷
- Lymphoma.^{8,9}
- Organ transplantation.¹⁰
- Reduced sensation.
- Leprosy.¹¹
- Neurological disorders.
- Tabes dorsalis.¹²
- Syringomyelia.¹²
- Parkinsons disease.¹³
- Physical debilitation.
- Critical illness.¹⁴
- Kwashiorkor.¹⁴
- Vitamin A deficiency.¹⁵
- Mental debilitation.
- Downs syndrome.¹⁶
- Senile dementia.¹⁷
- Mental retardation.¹⁷
- Other disorders.
- SLE.¹⁸
- Dermatomyositis.¹⁹
- Topical potent steroids.²⁰
- Dystrophic epidermolysis bullosa.¹⁷
- Cutaneous vasculitis.²¹
- Diabetes mellitus.²²

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Crusted scabies has been reported in malignancies which alter T cell function, such as adult T cell leukemia/lymphoma.^{5,23} As is the case in our patient who is suffering from acute lymphocytic leukemia and is also on chemotherapy for a prolonged period of 4 years.

Recently, T cell dysregulation and immunosuppression due to high-grade glioma has been described.²⁴ Moreover, Walton et al. have shown the role of cellular and humoral immunity in the pathogenesis of crusted scabies.²⁵

The mite population in crusted scabies is enormous and may number in the millions. It is more difficult to treat than that of ordinary scabies. It is important to strictly isolate patients with crusted scabies as these patients can easily trigger an outbreak of scabies. The nails of the patients should be clipped and scabicides should be applied as nails are the frequent source of relapse. The principles involved in the treatment of scabies are given in [Table 2].²⁶ Recommended treatments for scabies include benzyl benzoate, sulfiram, malathion, lindane, and permethrin.¹

Our patient was treated with topical permethrin (5%) cream applied over the whole body, except scalp, face and mucosa, following a scrub bath at night. The cream was advised to be left on for 12 hours or overnight and then washed with luke warm water.

Table 2: Principles of treatment of crusted scabies

- Choose the suitable medication.
- Include a scabicide and a keratolytic in the treatment.
- Multiple treatments may be required.
- Avoid under treatment.
- Treat all the contacts simultaneously.
- Give a detailed verbal and written instruction.
- Repeat skin scrapings 1 and 4 weeks after treatment.
- Launder underclothing and beddings.

The process was advised to be repeated after a week. Patient was also advised to use all clothing and bedding after washing in warm water, sun drying and ironing. The family members and close personnel were counselled and treated empirically for scabies (Blanket treatment).

We are reporting a case of crusted scabies in a patient of acute lymphocytic leukaemia on chemotherapy.

CONCLUSION: Crusted scabies is a highly contagious rare variant of scabies. Hence, it is not often thought of at the time of diagnosis. This case report aims at raising awareness of its possibility, especially in immune compromised individuals and how an early diagnosis confirmed by scrapings and biopsy can aid in appropriate treatment thus, preventing further spread of the disease or an epidemic in the hospital. Also, the case is reported for its rarity.

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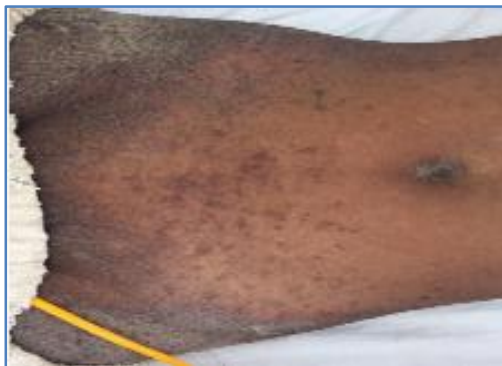
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Hyperkeratotic crusted lesion over the extensor aspect of left elbow



Scaly plaques over the wrist



Crusted plaques and papules seen in and around the Umbilicus (Peri umbilical region) and in the pelvic

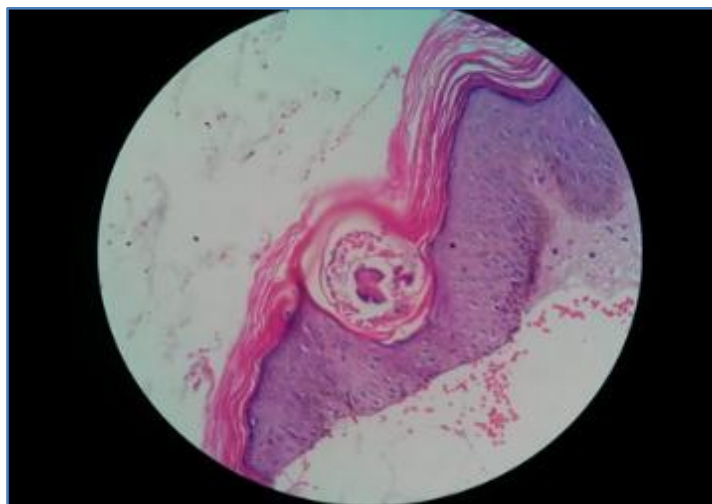
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Crusted plaques over the scrotum and groin areas



Adult female mite found in the skin scrapings



Fragments of mite and scabs are seen within the stratum corneum and superficial dermis shows perivascular infiltration by lymphocytes and eosinophils

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