Balanitis in Acute Lymphoblastic Leukemia: A Rare Etiology and Unusual Presentation

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An 18-year-old virgin boy, belonging to a poor socio-economic background and a diagnosed case of acute lymphoblastic leukemia on induction chemotherapy (Day-25), presented with painful swelling of glans penis with nocturnal exacerbation. He was afebrile. He had history of circumcision during early infancy. Examination revealed stark balanitis along with erythematous, scaly, papular lesions on penile shaft, scrotal skin, trunk, and bilateral upper and lower limbs (Fig. 1a, b). Web spaces of hands and feet were uninvolved and pruritus was minimal. The family members gave history of pruritic skin lesions. A possibility of scabies was considered and he was treated with topical 5% permethrin and single dose of ivermectin. Within days there was significant improvement in balanitis and papular rash (Fig. 1c, d). The oral and topical treatment was repeated after 1 week and family members were also treated appropriately. He never developed similar skin lesions later during chemotherapy.

Patients receiving cancer chemotherapy are known to develop atypical manifestations of common pathogens. Scabies is a parasitic dermatosis that results from infestation by a mite *Sarcoptes scabiei* var *hominis*. In developing countries, overcrowding and poor hygiene facilitate direct

skin-to-skin spread. Essentially, pruritus resulting from hypersensitivity to mite is the main symptom and skin lesions are small and crusted. However, pruritus in patients receiving cancer chemotherapy may be mild or absent and skin lesions may show enormous crusting (Norwegian scabies) [1, 3]. The diagnosis may be confirmed by microscopic examination of skin crustings but false negative rates are substantial [2]. Balanitis in immunosuppressed individuals can be caused by *Candida*, *Treponema pallidum*, herpes simplex virus, etc. However, nocturnal accentuation of symptoms and positive family history clinched the diagnosis in the index case. Exposure to steroids and immunosuppressed status due to underlying ALL probably caused exacerbation of pre-existing mite infestation in this patient. In view of immunosuppressed status and risk of dissemination, this patient was treated with both topical permethrin and oral ivermectin. In resource constraint settings, overcrowding in out-patient departments and sharing of linens in day care centre beds is common. Being highly contagious, this common condition necessitates early recognition and prompt treatment to prevent institutional outbreaks.

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Fig. 1 **a** Clinical photograph taken on day-1 showing inflammation of glans penis along with erythematous, scaly, papular lesions on penile shaft, scrotal skin, lower abdominal wall and thighs. **b** Lesions

of penile shaft and scrotum are better appreciated on a close up. **c**, **d** Clinical photograph taken on day-4 showing near complete resolution of the lesions

Compliance with Ethical Standards

Conflict of interest There is no conflict of interest between the authors.

Informed Consent Informed signed written consent was taken from the patient involved.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Human and Animals Rights No animals were involved in the study.

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