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Case Report

Meropenem induced symmetric drug-related intertriginous flexural exanthem

Samuel Jeyaraj Daniel[1], Balaji Ganesh Jayaraman[1], Saranya Selvam[1], Abirami Thangaraj[1]*

[1]Dept. of Dermatology, Venereology and Leprology, Thanjavur Medical College and Hospital, Thanjavur, Tamil Nadu, India

Abstract

Danish dermatologists first identified the baboon syndrome in 1984, referring to a skin eruption that was restricted to the buttocks, axilla, groin and that might have involved the flexural areas and intertriginous zones without systemic involvement. Swiss dermatologists introduced a new acronym, Symmetrical Drug Related Intertriginous and Flexural Exanthem (SDRIFE), and it has five distinctive diagnostic criteria for at the start of the twenty-first century. Antibiotics including amoxicillin, cephalosporins and chemotherapeutic agents are the most common drugs causing SDRIFE. This is type 4 hypersensitivity reaction, appearing from 1 hour to several days after intake of culprit drug. SDRIFE induced by β-lactam antibiotics especially aminopenicillins, has been the most frequently reported type. No cases related to broad spectrum antibiotic like carbapenem group of drugs especially meropenem have been documented in Indian literature so far.

Keywords: Baboon syndrome, Flexural exanthema, Skin eruption.

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1. Introduction

The earliest description of baboon syndrome was a skin eruption in the intertriginous area brought on by an agent's due to cutaneous manifestation following administration of systemic drugs. The morphology of the rash is quite characteristic. Five distinctive diagnostive criteria are, a systemically administered drug exposure, clearly defined gluteal erythema and/or V-shaped inguinal erythema, involvement of at least one other intertriginous site/flexural fold, symmetry of affected areas, and lack of systemic symptoms and signs.[1] The involvement of flexures in the skin can be attributed to various factors namely frequent occlusion, perspiration, excretion of some medicines or metabolites, intertrigo and recall phenomenon from previous mechanical stimulation.[2] Any age can be impacted by SDRIFE, with a male preponderance.

Beta-lactam antibiotics are the most frequently implicated drugs in SDRIFE. Additionally, other medications such as antihypertensives, radiocontrast agents, chemotherapeutic drugs, biologics, allopurinol, erythromycin, mitomycin, nystatin, pseudoephedrine, clindamycin, cimetidine, corticosteroids, terbinafine, and valacyclovir have also been associated with the condition.[2]

The distinctive histological features include subcorneal pustules, vacuolar changes, and hydropic degeneration in the basal cell layer, accompanied by subepidermal bullae and necrotic keratinocytes. Additionally, there is a superficial perivascular inflammatory infiltrate primarily consisting of lymphocytes and eosinophils.[2,3]

2. Case Report

55 Year old male farmer by occupation was admitted in a tertiary care centre in Tamil Nadu, with severe abdominal pain. Routine blood investigation were performed, renal function test showed elevated urea (116mg/dl.) and creatinine (6.1mg/dl). Complete hemogram showed Hemoglobin of 7.6 gm/dl with 95.8% neutophils. Liver function test were normal. Chest X-ray showed normal lung parenchyma. Echocardiogram showed normal left ventricular systolic function with ejection fraction of 60% and grade 1 left ventricular diastolic dysfunction. Computed tomography (CT) Abdomen and pelvis showed bilateral staghorn calculus

*Corresponding author: Abirami Thangaraj
Email: abits02@gmail.com

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causing hydronephrosis and acute pyelonephritis. There were no hepatomegaly or splenomagaly. Hence the diagnosis of bilateral renal calculus with pyelonephritis was made.

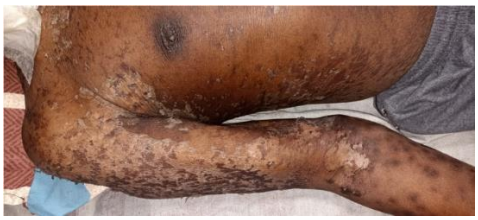

Figure 1: A showing exfoliation in right axilla, arm and cubital fossa.

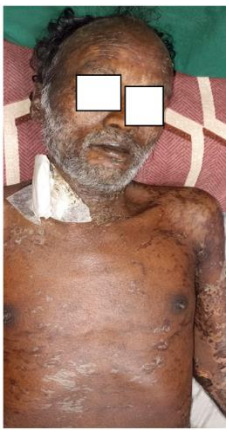

Figure 2: Showing exfoliation over face and neck flexure

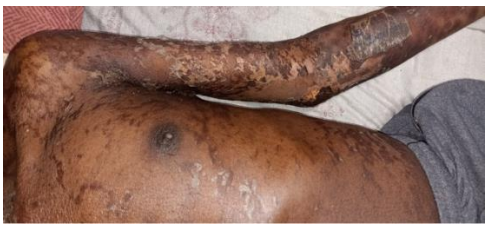

Figure 3: Showing exfoliation over left axilla, arm and cubital fossa

Figure 4: Showing exfoliation over bilateral groin andexternal genitalia.

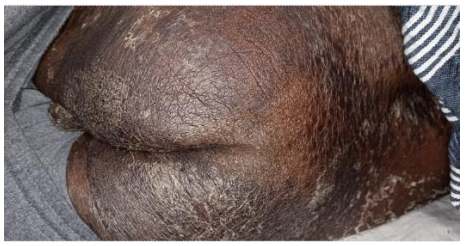

Figure 5: Showing exfoliation over gluteal region

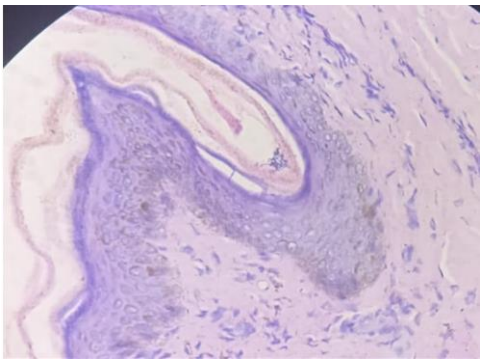

Figure 6: Histopathology: Epidermis shows hyperkeratosis, parakeratosis with focal areas showing basal cell degeneraion with melanin incontinence. Dermis shows dense inflammatory infiltrate predominantly of lymphocytes and eosinophils

Patient was initiated on Hemodialysis for acute on chronic kidney disease management. Emperically he was started on Injection meropenem 500mg IV twice daily for his acute pyelonephritis. Following 1 week of meropenem he developed itching and exfoliation over trunk and extremities. For which Dermatology opinion was sought. On dermatological examination there were exfoliation over the face, neck flexures, bilateral axilla, groin and gluteal region.(**Figure 1**-**Figure 5**) Oral and genital mucosa were normal. Serum absolute eosinophil count was 20 cells/microlitre. Peripheral smear showed neutrophilic leucocytosis and there were no atypical cells detected. Inflammatory markers like C-reactive protein was positive and Erythrocyte sedimentation rate was elevated (150mm/hr). Skin biopsy from left axilla on histopathological examination showed stratified squamous epitheium exhibiting hyperkeratosis, parakeratosis with focal areas showing basal cell degeneraion with melanin incontinence. Dermis showed dense inflammatory infiltrate predominantly of lymphocytes and eosinophils.(**Figure 6**) Since there were no systemic involvement Drug Rash with Eosinophilia and Systemic Symptom (DRESS) was ruled out. Hence the diagnosis of meropenem induced SDRIFE was made. Meropenem was stopped and started him on parenteral steroid along with anti-histamines and topical emollients. Following treatment his skin lesions started resolving and parenteral steroid was gradually tapered.

3. Discussion

SDRIFE was proposed by Hausermann in 2004 as a rare distinct entity of benign, self-limiting cutaneous drug eruptions.[4]

Broad spectum antibiotic, carbapenem group of drugs like meropenem has been documented in Spain at 2021[5] but not so far in Indian literature. Further multiple body folds were involved in this case when compared with previous case report.

Our patient has fulfilled all the 5 criteria for SDRIFE along with histopathological correlation. Following withdrawal of the culprit drug, the skin lesions started resolving. DRESS was ruled out since there were no mucosal involvement, eosinophilia, atypical cells on peripheral smear and organomagaly on imaging studies.

The pathological mechanism in symmetrical drug-related intertriginous and flexural exanthema is not yet understood; it has been clinically, histologically and immunologically accepted as a type IV drug reaction.[6]

The most prevalent histological characteristic was basal cell vacuolization, which was frequently connected to localized spongiosis and necrotic keratinocytes. Neutrophils and TIA1+ T lymphocytes were regularly seen at the dermoepidermal junction and in the epidermis. A mixture of CD3+ T cells, macrophages, granulocytes, low numbers of CD20+ B cells, and plasma cells made up the dermal inflammatory infiltrate. Psoriasiform dermatitis, spongiotic dermatitis, and interface dermatitis were the most common combination histologic patterns.[7]

4. Conclusion

SDRIFE can mimic other severe cutaneous drug reactions, such as drug reaction with eosinophilia and systemic symptoms (DRESS), fixed drug eruption (FDE), and acute generalized exanthematous pustulosis (AGEP).[8] However, AGEP and DRESS are typically characterized by a widespread rash along with systemic symptoms. FDE, on the other hand, can be easily differentiated from SDRIFE as it typically presents as asymmetrical patches or plaques on the acral, genital, and mucosal areas, usually round or oval in shape, and often leaves residual hyperpigmentation.

We are presenting this case to emphasize that SDRIFE like skin eruption can be induced by Meropenem with patient exhibiting a symmetric intertriginous eruption involving several body folds after starting the culprit medication.

5. Source of Funding

None.

6. Conflict of Interest

None.

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