Chemotherapy-induced Palmer Planter Erythrodysesthesia

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Abstract
We report a case of palmar plantar erythrodysesthesia (PPE) in a case of acute lymphoblastic leukemia treated with VALP regime. The treating physician must be aware of this uncommon complication of chemotherapeutic agents to avoid unnecessary investigations.

INTRODUCTION

Palmar plantar erythrodysesthesia (PPE) or acral erythema is a distinctive toxic reaction to some chemotherapeutic agents. Doxorubicin, cytarabine, docetaxel, fluorouracil and hydroxyurea are the most frequently implicated agents. PPE presents as a painful erythema, often preceded by paraesthesia, located on the palms and soles in the context of treatment with chemotherapy.1 It is a self-limiting condition and reassurance is the mainstay of treatment.2 Lokich et al found that this condition occurred in 6% of their patients receiving 5-fluorouracil and doxorubicin.3 However, in Indian context only one case report is available describing two cases of PPE.4

CASE REPORT

A 17-year-old young girl was admitted in our hospital with the history of fever, weakness and loss of appetite for the last 2 months. Examination revealed pallor, hepatomegaly (2 cm) and splenomegaly (2 cm). Bone marrow was consistent with the diagnosis of acute lymphoblastic leukemia (ALL-L2). Patient was started on four drugs chemotherapy, which included vincristine (1.4 mg/m²), doxorubicin (30 mg/m²), leucoginase (6000 U/m²) and prednisolone (60 mg/m²). Patient tolerated chemotherapy well and the course was uneventful till Day 22. On Day 23 patient had complaints of tingling sensation in both hands and feet. After 2 days patient developed well-defined erythema and edema over tips of all fingers and toes. This erythematous rash was tender on touch and blanched on pressure. Other parts of the body did not show a similar rash. The next day swelling and erythema had progressed to the palms and soles with the appearance of multiple bullae (Fig. 1). After 2-3 days a central pallor developed within the lesions (Fig. 2). This was followed by gradual resolution of the lesions with desquamation clearing of erythema and pain over a period of one week. The entire sequence of events lasted for two weeks. Biopsy from the lesions revealed scattered necrotic keratinocytes and mild to moderate perivascular lymphocytic infiltration in the dermis.

DISCUSSION

In 1974, Zuchlke first described an erythematous eruption of palms and soles associated with the administration of mitotane.5 Following this, numerous reports on similar reactions occurring in a variety of patients with different drugs began to appear which was named by different authors as: palmar plantar dysesthesia, erythrodysthesia, acral erythema, and hand foot syndrome. doxorubicin, cytarabine, docetaxel, fluorouracil and hydroxyurea are the most frequently implicated agents.1

The disorder consists of prodrome of dysesthesias in the palms and soles which is characteristically followed by sudden onset of a well-demarcated, acutely tender erythematous rash on the palms, fingers and soles, often associated with oedema. The rash may become bullous and then desquamate without scarring within the weeks.6 Histologically, PPE shows few specific findings. Mild spongiosis, scattered necrotic and dyskeratotic keratinocytes and vacuolar degeneration of the basal layer is seen. Dermal changes include dilated blood vessels, papillary edema and a sparse superficial perivascular lymphohistiocytic infiltrate.1

Localisation of skin toxicity to the palms and soles is an interesting feature and factors involved could be rapid cell division at these sites, gravitational forces, vascular anatomy peculiar to these areas, and
temperature gradient.\textsuperscript{5} The body has temperature gradients from trunk to extremities. Drug eruptions over distal surfaces may be attributed to the temperature dependence of antigen-antibody reactions and of complement-mediated pathways.

It is a self-limiting condition and reassurance is the mainstay of therapy.\textsuperscript{2} Withdrawal or dose reduction of the implicated drug usually gives rise to amelioration of the symptoms. Supportive treatments such as topical wound care, elevation and cold compresses may help to relieve the pain. Use of systemic steroids, pyridoxine (vitamin B\textsubscript{6}), blood flow reduction and recently, topical 99% dimethyl-sulfoxide have been used with variable outcome.\textsuperscript{1}

In our patient, it is difficult to be sure, which drug caused this reaction as patient received four-drug regime. Doxorubicin may be the culprit drug as revealed in literature. It is important that physicians recognize this distinct clinical entity and its possible causative drugs so that reassurance can be offered to the patient.

\textbf{REFERENCES}


