

Case Report

Cetirizine-Induced Fixed Drug Eruption: A Case Report and Review of Literature

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Abstract

Cetirizine is a commonly used antihistamine in the management of itchy dermatoses, allergic reactions and cutaneous drug eruptions. However, it can rarely be the causative agent in cutaneous drug eruptions. Here we report a case of cetirizine-induced fixed drug eruption (FDE).

Keywords: Fixed Drug Eruption, Cetirizine, Second-generation Histamine-1 Receptor Antagonists

INTRODUCTION

Fixed drug eruption (FDE) was first described in 1889 and is described as a sudden eruption of annular, oedematous, dusky red macules or plaques on the skin and mucous membranes along with a burning sensation and itching that leave residual hyperpigmentation most commonly as a reaction to systemically administered drugs¹. The lesions recur on the same place with the re-introduction of the same drug. The most common sites in males are the genitalia and the extremities in females. The lesions may be solitary or multiple. They may be bullous, pigmented, or non-pigmented¹. The commonly implicated agents include antibacterial drugs, nonsteroidal anti-inflammatory drugs (NSAID), barbiturates and phenolphthalein.

Cetirizine is commonly used piperazine-derived, second-generation, non-sedative antihistamine². Cetirizine-induced FDE is uncommon and has not been previously reported in Sri Lanka. We report a patient with cetirizine induced FDE.

CASE REPORT

A 15-year-old, previously healthy girl developed a burning and pruritic rash over the right forearm and right thigh one day after taking cetirizine tablets which she had been prescribed for a common cold. She had continued to take cetirizine despite the rash, and it had progressed to involve the oral mucosal membrane with associated burning sensation. She had no prior history of intake of any other western medications, herbal medicine or home remedies. She gave a prior history of FDE for paracetamol two years previously and since then had avoided taking paracetamol. She has no prior history of allergy to any other drug. On examination she was afebrile; there were two oval shaped, erythematous macules measuring about over the left forearm (4 ×2 cm) (Figure 1) and right thigh (5×3cm). There was diffused erythema and oedema of the lips (Figure 2). There was no involvement of the genital region. A diagnosis of FDE was made based on the history and examination. She was started on treatment with methylprednisolone and lesions of lips completely recovered after two weeks and lesion of forearm and thigh healed with hyperpigmentation. A re-challenge was not carried out.



Figure 1: Skin lesions following ingestion of cetirizine



Figure 2: Mucosal lesions following ingestion of cetirizine

Table 1: Previous documented cases of second-generation antihistamine induced FDE.

Author	Year	Age of patient (years)	Sex	Drug/Dose	Distribution of the lesions	Duration taken for the onset of rash	Past history of FDE	Country
Tan WC et al ³ .	2009	30	Female	Cetirizine hydrochloride 10 mg/daily	Multiple painful blisters in the oral cavity and over the right wrist and left breast	3-4 hours	Previous history following use of cetirizine	Malaysia
Kataria G et al ⁴ .	2014	41	Female	Levocetirizine 5 mg bid	Multiple, itchy, erythematous, oedematous maculopapular lesions on the back and left arm and right forearm	4-5 hours	No	India
Ardeshna KP et al ⁵ .	2018	24	Male	Cetirizine 10 mg/daily	Multiple itchy dark colour lesions associated with burning sensation over trunk, upper extremities, and buttocks. Lesions were multiple, well circumscribed, round, hyperpigmented patches with surrounding erythema	1 hour	No	India
Cravo M et al ⁶ .	2007	45	Female	Cetirizine 10 mg/daily	multiple, round, erythematous violaceous, well-defined plaques, with central blisters, localized on the trunk, forearms, and dorsum of the hands	4 hours	No	Portugal
Gopal S et al ⁷ .	2018	34	Female	Cetirizine 10 mg/daily	Hyperpigmented itchy patches over both forearms, legs, feet, and right side of the chest	8 hours	No	India
Gupta LK et al ⁸ .	2014	52	Female	Levocetirizine 10 mg/daily	Multiple, itchy, erythematous, and oedematous macules of 2 days duration on back, left arm and right forearm	3 hours	5 similar episodes	India
Guptha et al ⁹ .	2005	52	Male	Levocetirizine 10 mg/daily	A solitary well circumscribed hyperpigmented macule on the volar aspect of the right forearm	90 days	No	India
Rambhiana KD et al ¹⁰ .	2015	22	Male	Levocetirizine	Burning and well-defined violaceous swelling around the oral cavity with itching	24 hours	No	India

DISCUSSION

Cetirizine is typically used in the management of cutaneous drug reactions including FDEs. There are approximately 8 cases of second-generation antihistamine induced FDEs reported in the literature as shown in table 1.

Most cases of second-generation antihistamine induced fixed drug eruptions were documented in Asia and with a particular preponderance seen in India. There was no specific gender-related preponderance seen. All patients had developed the rash whilst on therapeutic doses of the drugs. Most patients developed the rash within a few hours of ingestion of the drug, but one patient developed the rash approximately 90 days afterwards.

FDE accounts for 16%–21% of all cutaneous drug reactions. Genetic susceptibility has previously been postulated for NSAIDs induced-FDE. HLA-B22 and HLA Cw1 have been associated with susceptibility to FDEs¹¹. The clustering of cases in Asia, particularly in the Indian subcontinent, suggest a probable genetic predisposition for FDEs to the second-generation antihistamines.

FDEs are considered a form of delayed hypersensitivity reaction mediated by CD8⁺ T-cells. CD4⁺ T-cells contribute to the late stage of lesion development and get activated on re-challenge with the offending drug¹². Histopathologically, FDE is characterized as marked, basal cell, hydropic degeneration with pigmentary incontinence. Epidermis and dermis show scattered keratinocyte necrosis with eosinophilic cytoplasm and pyknotic nucleus, lymphocytes, histiocytes, and neutrophils.

Oral re-challenge may be used in the confirmation of the aetiology of the FDEs, but it is often unacceptable to patients. Patch testing may be carried out but is not frequently done due to lack of sensitivity¹².

FDE is one of the rare side effects of cetirizine and may be misdiagnosed and mistreated since many medical practitioners are unaware of this uncommon side effect. Further, since cetirizine is considered as a treatment option in FDE, there could be diagnostic confusion when the treatment itself is the cause for FDE.

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