



Research Article

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## **A Case Report on Thiazide-type Diuretic Induced Fixed Drug Eruption**

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### **ABSTRACT**

Fixed drug eruption (FDE) is one of the most common cutaneous adverse drug reactions in Indian patients. Chlorthalidone (CTD), a thiazide-type diuretic that inhibits distal convoluted tubule sodium and chloride resorption, is a commonly used oral antihypertensive. We are presenting a case of chlorthalidone induced FDE where a 75 year old hypertensive male admitted in hospital with complains of rashes associated with burning sensation on trunk, back and left arm after the administration of tablet chlorthalidone. FDE is believed to be a lymphocyte CD8-mediated reaction, wherein the offending drug may induce local reactivation of memory T cell lymphocytes localized in epidermal and dermal tissues and targeted initially by the viral infection. The initial treatment of FDE is discontinuation of the causative agent.

**Keywords:** Fixed drug eruption, Chlorthalidone, Cutaneous adverse drug reactions

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## INTRODUCTION

Fixed drug eruption (FDE) is one of the most common cutaneous adverse drug reactions in Indian patients [1]. Fixed drug eruption usually appears as small number of pruritic, well circumscribed, erythematous macules that evolve into edematous plaques, these lesions typically re-occur at exactly the same sites with each administration of the causative drug. FDE lesions initially appear when susceptible patients are sensitized to a particular drug. Such sensitization occurs more rapidly in patients intermittently receiving the causative drugs rather than those continuously receiving the drugs. Thus, the period required for sensitization is highly variable depending on patients that vary from a few weeks to several years [2]. The high prevalence of coronary artery disease and hypertension causes thousands of patients to depend on cardiovascular drugs to maintain health and quality of life. One of the study found that reactions to cardiovascular drugs accounted for 9.30% of medication-related office visits to physicians in the United States with skin reactions being the most common primary complaint [3]. The drugs most commonly associated with FDE are antibiotics, analgesics, thiazide diuretics and anticonvulsants [4]. Chlorthalidone, a thiazide-type diuretic that inhibits distal convoluted tubule sodium and chloride resorption, is a commonly used oral antihypertensive [5, 6]. Here by we are presenting a case of chlorthalidone induced FDE.

### Case Report

A 75 year old male admitted in hospital with complains of rashes associated with burning sensation on trunk, back and left arm. Patient was known case of hypertension from last one month for which initially he was prescribed with tablet of telmisartan 40 mg in combination with chlorthalidone 12.5mg. After 15 days on out-patient department (OPD) follow-up, medication was changed to single tablet of chlorthalidone 12.5mg. Patient reached hospital with complaint of itching, rash and loss of appetite from last 20 days after intake of tablet chlorthalidone. On clinical examination the small number of pruritic, erythematous macules was seen over the chest, back, trunk and on left arm associated with itching and redness. Laboratory investigations such as complete blood count and biochemical investigation were normal. After questioning the patient and assessment by health care team, diagnosis of FDE to chlorthalidone was done and the causing agent (CTD) was stopped. Topical agents such as cocount oil with aloe vera, ceramide, gamma linolenic acid and fusidic acid cream for the treatment of cutaneous drug reaction and amlodipine 5mg OD for hypertension was prescribed. On 20<sup>th</sup> day follow-up in OPD, patient condition was found to be much improved.

## RESULTS AND DISCUSSION

FDE is a delayed cutaneous allergic reaction to a specific drug. Usually there is only one causative drug [4]. Allergic reaction to drugs are mainly classified as immediate reaction (IR) and non immediate reaction (NIR) depending upon duration of appearance of reaction. NIR are mainly caused by T lymphocytes [7]. FDE is believed to be a lymphocyte CD8-mediated reaction, wherein the offending drug may induce local reactivation of memory T cell lymphocytes localized in epidermal and dermal tissues and targeted initially by the viral infection [1]. Intraepidermal CD8 T cells are thought to be responsible for cutaneous manifestations in FDE, producing large amounts of IFN- $\gamma$ . After drug re-exposure, cutaneous lesions may occur because of prolonged expression of intercellular adhesion molecule-1 in basal keratinocytes by participation of CD8 memory T cells. FDE characteristically recurs in the same site or sites each time the drug is administered, and the number of sites may increase with subsequent exposure. FDE occurs as sharply marginated, round or oval itchy plaques of erythema and edema becoming dusky violaceous or brown, and sometimes vesicular or bullous. Most of the reactions occur within 30 minutes to one day of drug exposure. The lesions may be solitary or multiple. The most common sites are the genitalia in males and the extremities in females. Lesions can also be seen on the perianal, periorbital, and trunk. They may be bullous, pigmented, or nonpigmented. Histologically, FDE is characterized by marked basal cell degeneration with pigmentary incontinence. Scattered keratinocyte necrosis with eosinophilic cytoplasm and pyknotic nucleus (civatte bodies) are seen in the epidermis. Infiltration of lymphocytes, histiocytes, and neutrophil polymorphs is evident in the upper dermis [1].

## CONCLUSION

Chlorthalidone, a thiazide-type diuretic is a commonly used oral antihypertensive. Only few cases of FDE in association with chlorthalidone administration were reported. The initial treatment of FDE is discontinuation of the causative agent, after which lesions typically improve, leaving only hyperpigmented changes on previously affected areas.

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