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Ethambutol Induced Exfoliative Dermatitis

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ABSTRACT

Tuberculosis (TB) is a common infectious disease in the developing countries and first line anti-tubercular drugs are found to be effective. Exfoliative dermatitis caused by ethambutol is an uncommon, but serious adverse drug reaction. After one month of anti-tubercular therapy, a patient developed papulovesicular skin lesions of bilateral limbs and dechallenge was done. The condition worsened and she was treated with IV hydroxyzine 25mg, IV pheniramine maleate SOS, Oint. Betamethasone as topical steroid and liquid paraffin for the management of exfoliate dermatitis. On rechallenge, it was found that ethambul was found be reason for the dermatitis and was discontinued. Early recognition of the reaction and cessation of the causative drug can stop the progression of skin rashes and normalize the patient as in this case.

INTRODUCTION

Tuberculosis (TB) is a common infectious disease in the developing countries. Exfoliative dermatitis caused by ethambutol is an uncommon, but serious adverse drug reaction[1], characterized by scaling of skin, often with itching (pruritus, skin redness erythroderma) and hair loss. Here we report an uncommon case of disseminated TB developing ethambutol induced exfoliative dermatitis.

CASE REPORT

A 29 year old female patient was diagnosed with colonic TB in August 2012, when she was evaluated for persistent diarrhea and weight loss. Her colonic biopsy showed granulomatous lesions and cervical lymph node biopsy revealed acid fast bacilli. For Tuberculosis she was started on first line anti-tubercular drugs (Isoniazid 100mg, Rifampicin 300mg, Pyrazinamide 750mg and Ethambutol 800mg) in August, 2012.

After one month of anti-tubercular therapy the symptoms like loose stools were less frequent, but she started developing papulovesicular skin lesions of bilateral upper limb and lower limb. Anti Tubercular Treatment (ATT) was discontinued immediately and she was administered topical betamethasone and oral antihistamine. After 15 days, the patient was readmitted to the hospital with complaints of severe itching of the skin lesions since one week and continued to get fresh skin lesion over the abdomen and chest despite discontinuing ATT.

On readmission she was treated with Injection hydroxyzine 25mg, IV pheniramine maleate SOS, Oint. Betamethasone as topical steroids and liquid paraffin for the management of exfoliative dermatitis. As her itching and skin lesions were gradually subsiding, according to WHO guidelines, rechallenging of ATT was done and patient was given rifampicin 450mg and next day isoniazid 300mg was reintroduced. She continued to complain of mild itching, however there was no further development of skin lesions. But on the next day, when ethambutol 1200mg was introduced, she complained of severe itching compared to previous days and new skin rashes appeared. So ethambutol was found to be the causative agent for exofoliative dermatitis and it was discontinued. After stopping the drug, the patient's condition improved. Patient was discharged with the medications, such as, rifampicin, isoniazid, pyrazinamide, oral steroids prednisolone 20mg for 5 days followed by 10mg for 5 days, hydroxyzine hydrochloride 25mg, Pheniramine maleate 25mg, betamethasone ointment as topical steroids, pyridoxine, liquid paraffin.

DISCUSSION

The patient developed exfoliative dermatitis after administration of ethambutol and relieved after discontinuation of the drug. It developed again after the rechallenge of ethambutol and disappeared after stopping the same. The ocular toxicity is common with ethambutol, but cutaneous reactions are rarely reported. The incidence of ethambutol induced rash is found to be 0.5% [2]. The reason for drug reaction is idiopathic. The possible mechanism may be that the Chemically Ethambutol has two

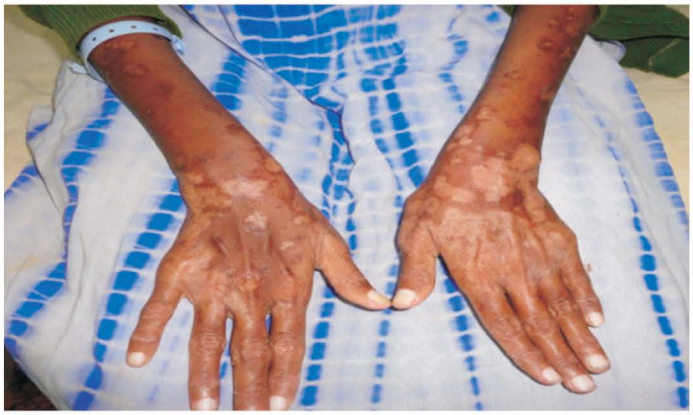

Fig. 1 : Scaly eruptions and skin lesions of palms

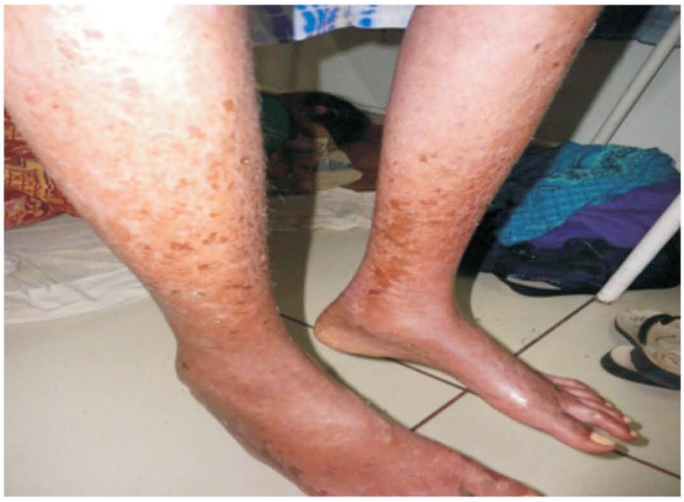

Fig. 2 : Scaly eruptions and skin lesions of leg

nitrogen each of which consists of unused lone pair of electrons that act as nucleophiles which could interact with electrophilic region of several proteins in the cutaneous portion of skin. This kind of interaction between drug and proteins results in complex formation that could induce drug allergy. The mechanism of adverse drug reaction by Ethambutol in causing skin reactions is proposed by considering the similar kind of mechanism of alkylating agents of anti-cancer drugs[5]. It is found to be delayed type of hypersensitivity reaction. Most of the cutaneous hypersensitivity reactions occur within two months of initiation of antitubercular therapy, in this case patient developed Exfoliative Dermatitis (ED) by the end of one month of her treatment. The incidence of ED is high in males compared to females M:F [6.67 :1] [3],in this case ,the patient is female and age of this patient is 29 years compared to the mean age found to be 60±19.5 in the development of ED[4]. The most common predisposing factors of hypersensitivity reactions to antitubercular treatment are HIV infection, Polypharmacy, Advanced age, autoimmune disease and renal or liver impairment [1] Our patient had none of the above risk factors.

CONCLUSION

Diagnosis of the susceptible skin reactions to first line anti-TB drugs should be done adequately before stopping the drug. Early recognition of the reaction and cessation of the causative drug can stop the progression of skin rashes and normalize the patient as in this case.

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