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Case Report

Dermatology Section

A Case of Concomitant Psoriatic Exfoliative Dermatitis and Pulmonary TB with Adverse Drug Reaction to Rifampicin

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ABSTRACT

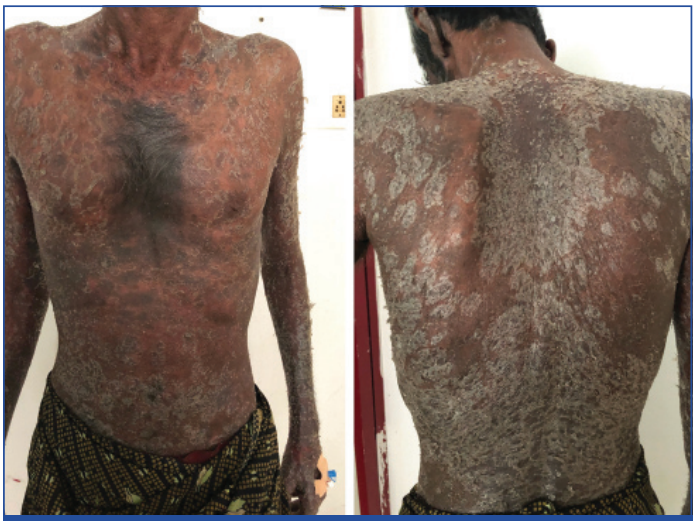
Erythroderma or exfoliative dermatitis is scaling and erythema of skin involving more than 90% of total skin surface area and is a serious and difficult condition to treat because of large areas of involvement and multiple associated complications. Psoriasis is an important cause of exfoliative dermatitis and so is adverse drug reaction. Pulmonary tuberculosis, common in India, is usually ruled out before starting any systemic treatment like immunosuppressants in the latter. Development of tuberculosis in a psoriasis patient is a challenging situation wherein the clinician has to look for the pros and cons before choosing each step in management as one can aggravate the other. The condition becomes more troublesome if it is superadded by adverse drug reaction to one of the Antitubercular (ATT) drugs. Here, authors present a case with psoriatic exfoliative dermatitis, psoriatic arthritis and pulmonary tuberculosis with adverse drug reaction to Rifampicin from Category 1 ATT; which was identified following a drug-rechallenge test and eventual management of all the conditions concurrently.

Keywords: Drug rechallenge test, Erythroderma, Psoriatic arthritis, Tuberculosis

CASE REPORT

A 50-year-old male presented with fever, generalised scaling and erythema of underlying skin of one week duration. He was a known case of psoriasis for past 15 years on irregular, unsupervised oral methotrexate. He also gave history of recurrent episodes of chills, malaise and generalised scaling which required hospitalisation, suggestive of psoriatic erythroderma. He was diagnosed with sputum positive pulmonary tuberculosis 15 days back from his native place and was started on category 1 ATT i.e., isoniazid, rifampicin, pyrazinamide and ethambutol with fixed dose combination i.e., three tablets of the combination drug containing 75 mg isoniazid, 150 mg rifampicin, 400 mg pyrazinamide and 275 mg ethambutol, even while knowing his psoriasis status. He had no significant family history.

Scaling started on the trunk and progressed to involve whole body over a period of one week. He also had pain and swelling of bilateral knee joint. Examination revealed pallor, bilateral pitting pedal oedema, large loosely adherent scales all over body with underlying skin showing erythema, thick scaly plaques on scalp and peeling of skin of palms and soles [Table/Fig-1,2]. The diagnosis



[Table/Fig-1]: Exfoliative dermatitis with large loosely adherent scales with erythema of underlying skin.

[Table/Fig-2]: Scaling and redness of hands and feet with shoreline nails.

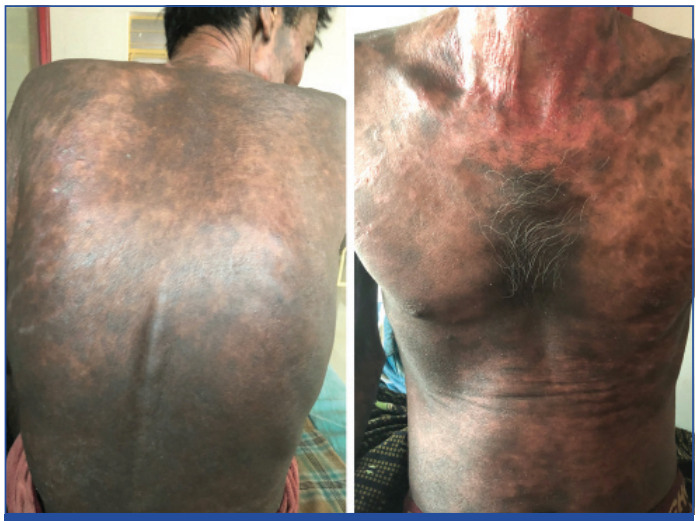
of erythroderma secondary to psoriasis with psoriatic arthritis was made as he gave multiple episodes of psoriatic exfoliative dermatitis in the past. The patient was started on intravenous dexamethasone 8 mg and other supportive measures. Meanwhile, he continued with the oral antituberculosis drugs.

Investigations revealed low haemoglobin (8.5 g/dL), normal total and differential leucocyte count and normal liver and renal functions. Chest X-ray showed patchy areas of consolidation/fibrosis of left upper and mid zone, few fibrotic strands in right mid zone and mild tracheal deviation to left-side suggestive of an acute on chronic pulmonary Koch. However, even after two days of dexamethasone, he showed further aggravation of scaling and redness with increase in pedal oedema. Hence, the diagnosis of drug reaction to one of the ATT drugs was suspected and he was advised to stop ATT after consulting with Revised National Tuberculosis Control Program (RNTCP) officer and physician. He was also managed with other supportive therapy. Sputum Acid Fast Bacilli (AFB) was done and was negative. Two days after stopping ATT, the patient showed decrease in redness of skin and scaling.

Eight days after stopping the ATT, the redness had completely cleared off and the scaling reduced. Patient was subjected to drug rechallenge test to identify the culprit drug out of the four ATT drugs. Individual drugs were reintroduced in a sequential manner starting with injection streptomycin and oral ethambutol followed by oral pyrazinamide, then oral isoniazid and lastly oral rifampicin, leaving

an interval of one week between the drugs. Meanwhile injection streptomycin was stopped, after introduction of INH. Weekly sputum AFB was done and all samples were negative. Three days after introduction of rifampicin, patient started developing erythema of underlying skin associated with intense itching especially over abdomen, thighs, palms and soles and bilateral pitting pedal oedema and the drug was stopped and was managed with IV dexamethasone, antihistamines and topical steroids after which he had reduction in the already developed erythema and oedema. Hence, the diagnosis of drug reaction was confirmed. After discussion with RNTCP officer, patient was continued with three drugs of Category 1 ATT except for rifampicin.

As there was no decrease in scaling and joint pain because of psoriasis, the patient was initially started on oral acitretin 25 mg twice daily for which he showed no response even after two weeks and hence was started on weekly methotrexate injections considering previous history of response to methotrexate, compliance to treatment and financial status of the patient. Scaling, joint pain and swelling improved drastically over 3 weeks [Table/Fig-3]. The patient is now on weekly follow up and is monitored for sputum AFB weekly, monthly chest X-rays and narrowband UVB phototherapy for psoriasis.



[Table/Fig-3]: Post methotrexate injection: clearance of scaling with post inflammatory hyperpigmentation.

DISCUSSION

Erythroderma is a serious and difficult to treat skin condition with multiple complications like fluid and electrolyte imbalance, congestive cardiac failure, septicaemia being few of them. The causes are varied and include eczemas, psoriasis, chronic actinic dermatitis, pityriasis rubra pilaris, pityriasis rosea, pemphigus foliaceous, drugs or can even be idiopathic [1]. Psoriatic erythroderma is treated with systemic immunosuppressants, generous use of topical emollients and other supportive therapy with frequent monitoring for complications.

Tuberculosis is a common infection caused by *Mycobacterium tuberculosis*. Treatment of tuberculosis is by Directly Observed Treatment Shortcourse (DOTS) under RNTCP and is frequently updated and modified to improve the disease outcome and patient compliance. Under RNTCP, the Category 1 drugs used are isoniazid, rifampicin, pyrazinamide and ethambutol with fixed dose combination according to weight bands i.e., three tablets of the combination tablet containing 75 mg INH, 150 mg rifampicin, 400 mg pyrazinamide and 275 mg ethambutol. Principle of treatment of TB has been shifted towards daily regimen with administration of daily fixed-dose combination of first-line ATT as per appropriate weight bands [2]. Cutaneous Adverse Drug Reaction (CADR) is one of the commonly observed major adverse effects of first-line antitubercular therapy reported in 5.7% of tubercular patients [3]. It is the second most common adverse reaction (30.48%) among patients on ATT following gastrointestinal side effects [4]. Morbilliform rash, erythema multiforme, urticaria, lichenoid eruption, Stevens-Johnson syndrome and exfoliative dermatitis are the reported CADRs with anti-tubercular drugs. Exfoliative dermatitis has been reported with rifampicin, isoniazid, ethambutol, pyrazinamide, streptomycin, PAS either singly or in combination [5-10]. Among the firstline drugs, pyrazinamide is the commonest cause of CADR (2.38%), followed by streptomycin (1.45%), ethambutol (1.44%), rifampicin (1.23%), and isoniazid (0.98%) [3,11].

In the present case, there was a delay in identifying adverse drug reaction as the patient continued to have concomitant psoriatic exfoliative dermatitis and he also gave history of multiple episodes of exfoliative dermatitis in the past. However, even after two days of steroids for exfoliative dermatitis, he showed further aggravation of scaling and redness with increase in pedal oedema. Hence, the diagnosis of drug reaction to one of the ATT drugs was suspected. Rechallenge test was done which demonstrated allergy to rifampicin. Adverse drug reaction to rifampicin manifested as erythema of the underlying skin, exacerbation of scaling and intense itching. Prompt resolution of the lesions after withdrawal of ATT and administration of antihistamines further supported the diagnosis. Naranjo score was 9 which denoted definite ADR.

Considering the socioeconomic background of the patient, medical history of the patient showing control of psoriatic scaling and arthritis through methotrexate and no response to oral acitretin, patient losing confidence and compliance in treatment and increasing economic burden, authors had to look for the pros and cons in starting the patient on methotrexate when the patient already had concomitant pulmonary TB.

Predisposing factors for hypersensitivity reaction to ATT include HIV infection, polypharmacy, advanced age, autoimmune disease and liver or renal impairment [12]. Advanced age and unsupervised intake of methotrexate leading to reduced immunity could be the factors responsible in the present patient. Similar to the present case, a case of generalised psoriasis with psoriatic arthropathy who developed severe allergic reaction, seven days after starting treatment for tuberculosis was reported from Europe, who eventually continued with isoniazid, rifampicin and ofloxacin [13].

Till date, drug challenge test is the standard in detecting adverse drug reaction but the risk associated with it has limited its use. The most promising and exciting developments are likely to come from the use of in vitro tests to establish causality in CADR, particularly those that measure cytokine secretion, upregulation of activation markers or gene expression. This will help avoid the time consuming and potentially risky process of drug provocation testing. Also, new anti-tuberculosis drugs in development will reduce the need for drug provocation testing by providing more therapeutic options [14,15].

CONCLUSION

Psoriasis and tuberculosis are two conditions with high prevalence in the general population, can often present simultaneously in the same patient. Hence, it is always mandatory to screen for tuberculosis prior to starting any therapy for psoriasis as it can aggravate the former. Side effects of Antitubercular drugs have to be kept in mind as it can be missed. Adequate monitoring has to be done when a patient with tuberculosis is on any kind of immunosuppressive therapy as the chance of reactivation or metastasis to other sites can occur. Hence, each case is versatile and management has to be streamlined.

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