LEPROSY WITH PSORIASIS
A RARE ISOTOPIC PHENOMENON

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Abstract

Introduction: Isotopic phenomenon refers to the occurrence of a new dermatosis at the site of previously healed dermatosis. A number of factors including viral, neural, vascular, and immunologic factors have been implicated in the causation of this peculiar phenomenon but none has been proven conclusively. We report a case where leprosy developed at the site of psoriatic lesion previously treated with medical therapy.

Case Report: A 50 years old male presented with chief complaints of erythematous, mildly itchy scaly lesions all over the body with a history of relapses and remissions for last 20 years. After confirming the diagnosis of psoriasis with leprosy, patient was managed as an inpatient with oral hypoglycemic drugs along with multibacillary multi drug therapy. For psoriasis, patient was prescribed topical corticosteroids along with emollients over thick scaly lesions.

Conclusion: This case has been reported due to the rarity of Wolf's isotopic phenomenon and the coexistence of psoriasis with leprosy. The existing sporadic cases in literature which question the mutually exclusive relationship of leprosy and psoriasis needs further evaluation.

Key-words: Isotopic phenomenon, psoriasis, leprosy.

INTRODUCTION

Isotopic phenomenon refers to the occurrence of a new dermatosis at the site of previously healed dermatosis.[1] A number of factors including viral, neural, vascular, and immunological factors have been implicated in the causation of this peculiar phenomenon but none has been proven conclusively.[1] Leprosy and psoriasis are stigmatizing and there are only sporadic reports of coexistence of these two diseases.[2] Literature data reinforce a debatable negative connection of these diseases.

Here we report a case where leprosy developed at the site of psoriatic lesions which were previously treated with medical therapy.

CASE REPORT

A 50 years old male presented with chief complaints of erythematous, mildly itchy scaly lesions all over the body with a history of relapses and remissions for last 20 years. He complained of ulceration along with loss of sensation over some of the lesions and both hands for last one year. The patient was obese and diabetic since 15 years which was controlled by treatment.

The dermatological examination revealed erythematous and edematous plaques on the upper limbs, chest, abdomen and thighs, along with annular plaques with silvery scales over the extensors of the limbs, and trunk.(Fig 1)

Some of the plaques were ulcerated (Fig 2) and few hyper pigmented papules and macules were also seen on back. Auspitz sign was positive on silvery plaques.

On sensory examination, sensations to touch and hot/cold temperatures were impaired on the erythematous, oedematous plaques and were completely lost over the ulcerated plaques. Sensations were also impaired in hands bilaterally and right lower leg. Motor examination was normal. Ulnar nerves bilaterally and right lateral popliteal nerves were thickened.

On Slit skin smear examination, bacteriologcal index was 2; staining bacilli 80%; granulated 10%; fragmented 10. (Fig 3)

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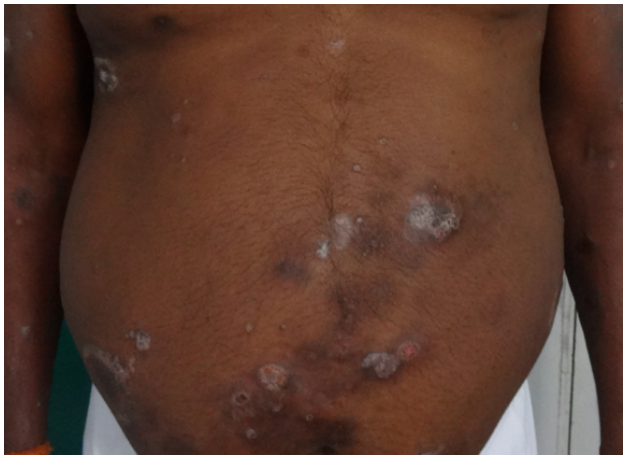

Fig.-1: Erythematous and edematous plaques along with annular plaques with silvery scales on the trunk

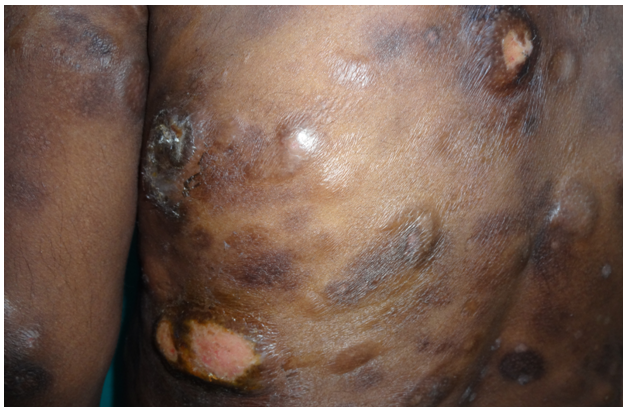

Fig.-2: Ulcerated plaques with few hyperpigmented macules on back

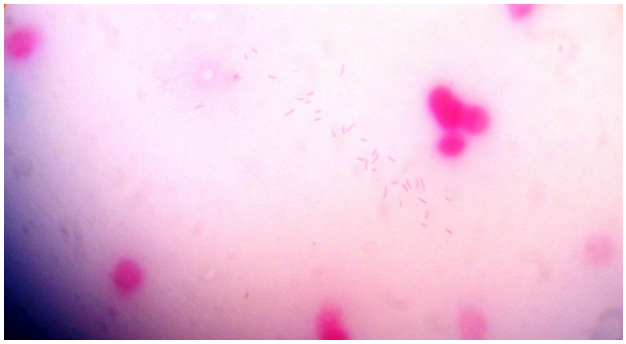

Fig.-3: Slit Skin Smear showing acid fast bacilli BI = 4+

Clinical diagnosis of leprosy with psoriasis was made and biopsy was advised.

The histopathology of an erythematous scaly plaque on upper arm revealed mildly acanthotic epidermis favoured diagnosis of psoriasis. It showed psoriasiform epidermal hyperplasia having regular elongation of bullous rete ridges along with overlying thick parakeratotic layers. The underlying dermis showed few ecstatic blood vessels and perivascular and periadenexal lymphocytic infiltrate of lymphocytes and few polymorphs, histocytes and plasma cells. (Fig 4)

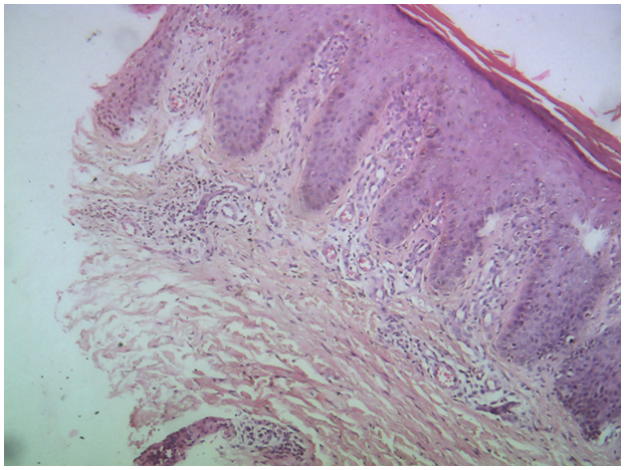

Fig.-4: Psoriasiform epidermal hyperplasia having regular elongation of bullous rete ridges (H & E staining 10x power)

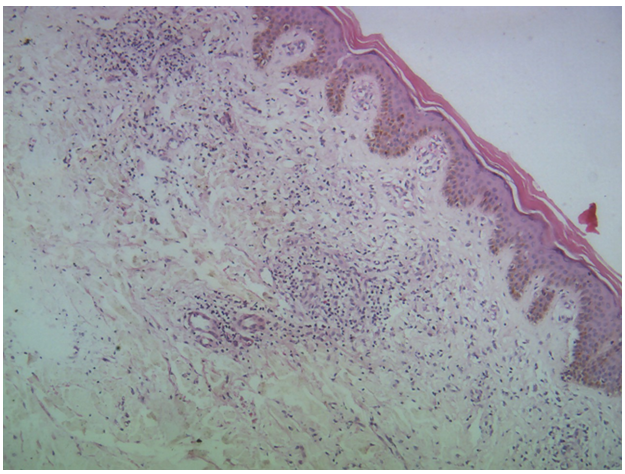

Fig.-5: Grenz zone, periadenexal and perivascular infiltrate of lymphocytes & foamy macrophages in dermis (H & E staining 10x power)

A second histopathology was performed from erythematous oedematous scaly plaque over back which revealed moderately dense periadenexal and perivascular infiltrate of lymphocytes, histocytes and foamy macrophages in the dermis. Grenz zone was seen. (Fig 5)

AFB staining was positive of lepra bacilli. These Histopathology findings favoured diagnosis of borderline lepromatous leprosy.

After confirming the diagnosis of psoriasis with leprosy, patient was managed as an inpatient with oral hypoglycemic drugs and multibacillary multi drug therapy. For psoriasis, patient was prescribed topical corticosteroids along with emollients over thick scaly lesions. For ulcerated lesions systemic and local antibiotics were started with daily dressing. Patient came for regular follow up for 3 months and improvement was seen in both psoriatic and leprosy lesions.

DISCUSSION

In 1955, Wyburn-Mason for the first time described the occurrence of a new skin disease at the site of another skin disease that had already healed. Wolf and Wolf gave it a term; "isoloci response" (same locus) which was modified to "isotopic response" (same place) and finally reframed as Wolf's isotopic response by Ruocco et al[1].

Though psoriasis and leprosy occurrence is mutually exclusive, the relation between psoriasis and leprosy has not been well elucidated.2In the past it has been hypothesized that leprosy and psoriasis rarely develop in the same patient.[2,3] Bassukas et al defended this hypothesis by explaining that patients with psoriasis have an innate immunity and reinforced cell, which would protect against lepromatous leprosy and also against other bacterial infections.[3]

Past researchers have hypothesized that psoriasis would have expanded due to the pressure exerted by leprosy, in the genotype of individuals, leading to natural selection.6 HLA-Cw*06 allele has been associated with >50% cases of psoriasis and it is also associated with statistically significant negative association with leprosy in the Indian population.[7] In addition, HLA DR B1*04 has been associated with a susceptibility to psoriasis and psoriatic arthropathy and a protector effect against the development of lepromatous leprosy.[8]

The patient in present case reported the development of lesions suggestive of leprosy over psoriatic lesions. This contradicts the above mentioned hypothesis of exclusive existence. Theisla et al also reported a case of association between these two disorders.[9]

In past Isotopic phenomenon has been reported in various viral and bacterial infections including mycobacterial.[1]

Various theories like viral, vascular, immunologic, and neural hypothesis have been proposed to explain isotopic phenomenon, most acceptable being neural hypothesis.5 Neuropeptides and nerve signals from damaged nerve endings are the initiating event in isotopic response.In the pathogenesis of psoriasis, psoriatic lesions have a significantly larger number of nerves with increased content of neuropeptides. The neurohumoral factors may contribute to the pathogenesis of a new disease either directly by release of various neuropeptides or indirectly by aberrant activation of immune system.[1] Direct effect is spontaneous firing of the denervated central nervous system (CNS) neurons with associated release of neuropeptides which may initiate the events for a new disease.

The indirect effect is expression of cell membrane receptors at immune cells for various neuropeptides and neurotransmitters produced by the brain or peripheral nerves and these may be activated by abnormal release of neuro peptides from damaged nerves in isotopic phenomenon.

Serum levels of interferon gamma (IFN¥), and interleukin 2 (IL 2) rise in both psoriasis and leprosy.[4,10] In the present case leprosy lesions were seen over psoriatic lesions suggestive of some association between these two diseases.

CONCLUSION

This case has been reported due to the rarity of Wolf's isotopic phenomenon and the coexistence of psoriasis with leprosy. The existing sporadic cases in literature which question the mutually exclusive relationship of leprosy and psoriasis needs further evaluation.

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