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Case Report

Gyrate Erythema like Manifestation - An Unusual Presentation of Borderline Lepromatous Hansen's Disease

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Leprosy is a chronic granulomatous disease caused by *Mycobacterium leprae*. Once considered a taboo, it is still misdiagnosed and underdiagnosed. Leprosy can present in innumerable diverse ways which can be confused with many treatable and non-treatable, infectious and noninfectious disorders. Though leprosy is eliminated from India in 2005, still many new cases are being reported day by day. Here we found a very rare manifestation of borderline lepromatous leprosy presented with erythematous figurate bands over trunk, proximal extremities and erythematous patches over palms and soles.

Key words: Erythematous figurate bands, Palms, Soles, Borderline Lepromatous Leprosy

Introduction

Leprosy commonly manifests as hypopigmented, hypoaesthetic patches with thickened nerves (Arakkal et al 2015). Although in leprosy this well-defined clinical presentations makes early diagnosis possible, new cases with unusual presentations leading to delayed diagnosis and treatment continue to emerge. We here report a case of Borderline lepromatous Hansen's disease presenting primarily as multiple erythematous annular plaques over the trunk and extremities with involvement of palms and soles. Palms and soles involvement in leprosy which is again a uncommon presentation.

Case synopsis

A 55 years old unemployed mentally challenged male patient was admitted with history; as narrated by relatives of gradual onset of asymptomatic multiple erythematous annular plaques with few showing ring within ring like appearance since 2 months. Initially over the back; progressing to abdomen, chest and then proximal extremities within 2 months duration (Figs. 1,2,3). Few erythematous patches were

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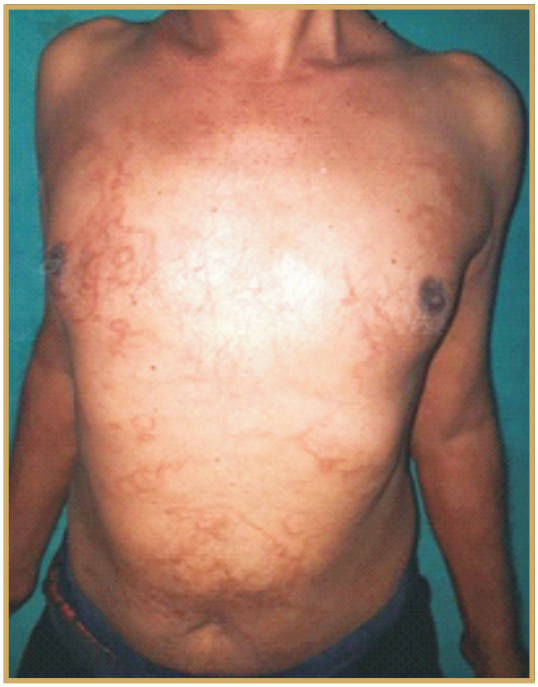

Fig. 1 : Erythematous annular plaques over chest and abdomen

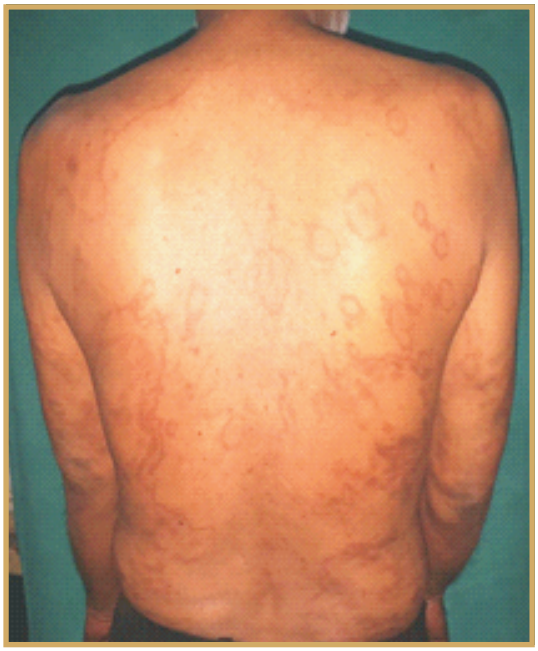

Fig. 2 : Erythematous annular plaques back and upper extremities

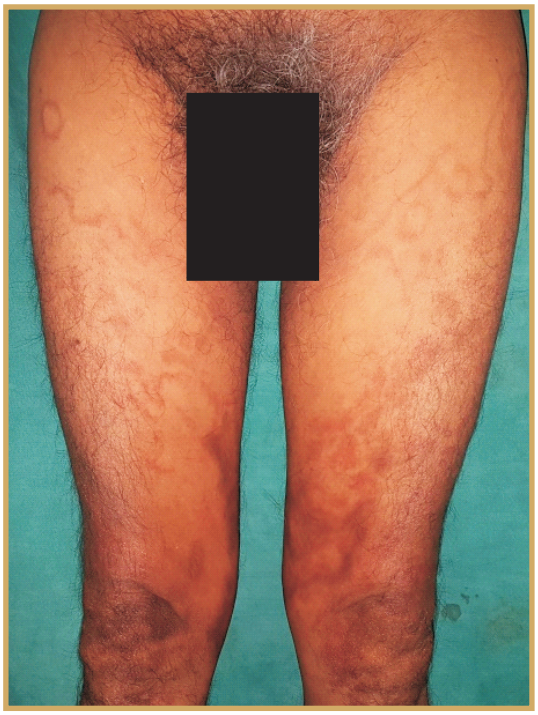

Fig. 3 : Erythematous annular plaques over lower extremities

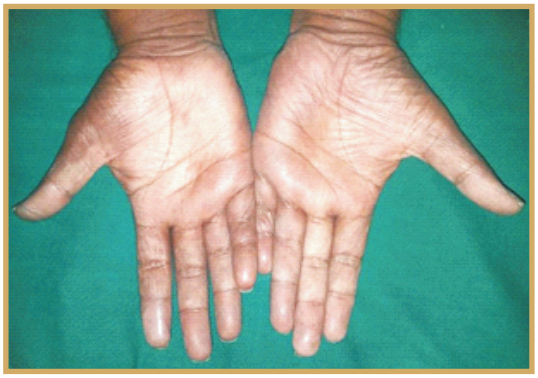

Fig. 4 : Resolving erythematous plaques over bilateral palms

observed on bilateral palms. (Fig. 4) Single ulcer was present over lateral border of right foot with hyperpigmented patch over instep of right sole (Fig. 5). On basis of history and clinical exami-

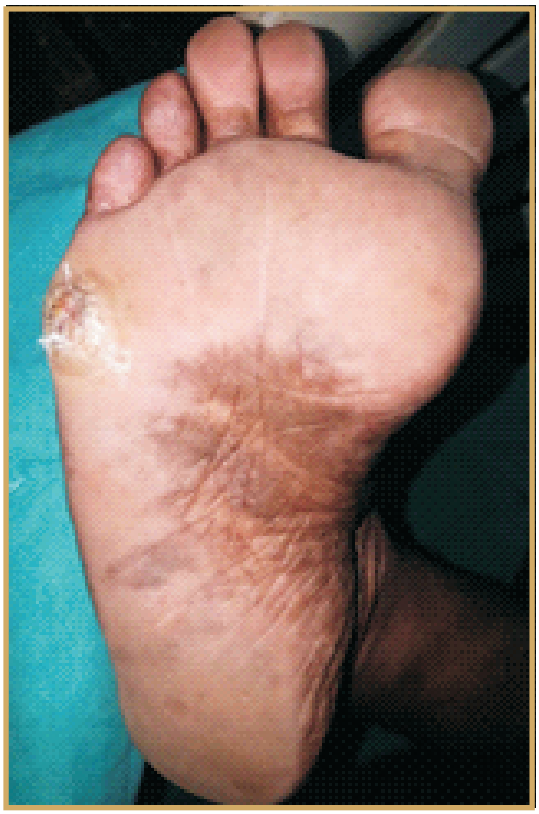

Fig. 5 : Single trophic ulcer over lateral border of right foot with hyperpigmented

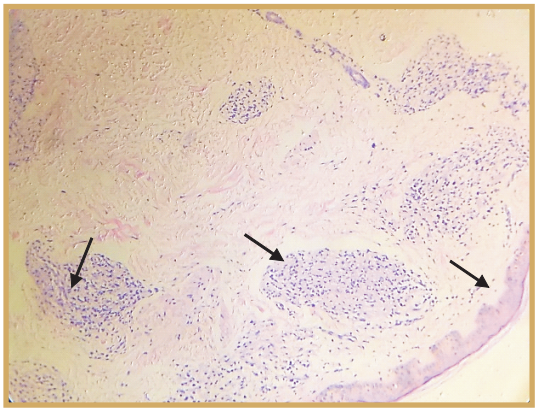

Fig. 6 : Thinning of the epidermis with dermis shows clear zone below which is focal collection of foamy macrophages along with epitheloid cells, plasma cells and lymphocytes, H&E (10X)

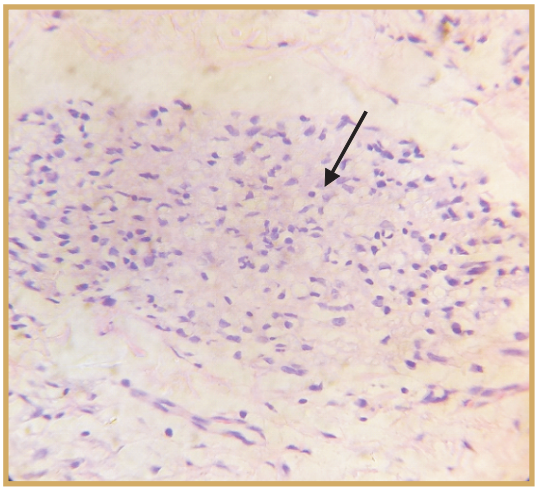

Fig. 7 : Focal collection of foamy macrophages with epitheloid cells, plasma cells and lymphocytes, H&E (40X).

nation we kept differential diagnosis as erythema gyratum repens (EGR), erythema anulare centrifugum (EAC), annular psoriasis, annular sarcoid (Mishra et al 2017), secondary syphilis and leprosy (Narayanshetty et al 2013) (Table 1). There was no associated itching. There was no history of any topical application, no history of fever or weight loss, no history of similar lesions in past, no history of seasonal variations, no history of sexual exposure. There was neither scaling over lesions nor pustules. On further examination we found thickened, non-tender bilateral ulnar nerves, left radial cutaneous nerve and bilateral lateral popliteal nerves. Patient being mentally challenged; sensory and motor examination could not be performed. General and systemic examinations were within normal limits. Routine blood investigations were within normal limits. Venereal disease research laboratory test and enzyme linked immunosorbent assay for human immunodeficiency virus were non-reactive. Histopathological study showed thinning of

Table 1 : Differentiating features of annular lesions (Narayanshetty et al 2013, Mishra et al 2017)

Disease	Clinical features	Nerve thickening	AFB staining
Erythema gyratum repens (EGR)	Multiple, annular, concentric, rapidly growing erythematous plaques with a trailing scale resembling wood grain. It is associated cale resembling wood grain. It is associated with a variety of malignancies, most notably lung, esophageal, and breast cancers.	Absent	Negative
Erythema anulare centrifugum (EAC)	Multiple, annular, polycyclic, slowly growing erythematous plaques with a trailing scale. It is usually pruritic and often spares palms and soles	Absent	Negative
Annular psoriasis	Chronic plaque psoriasis (psoriasis vulgaris) plaque, sometimes extends peripherally, the central part undergoes clearing, causing the formation of annular lesions	Absent	Negative
Annular sarcoid	Annular sarcoidosis (erythematous annular scaly plaques with prominent telangiectasia) is a rare variant of cutaneous sarcoidosis. It is commonly associated with systemic involvement.	Absent	Negative
Secondary syphilis	Annular lesions with a thin white ring of scales on the surface of the lesion (Biette's collarette)	Absent	Negative
BL Leprosy	Multiple, annular, erythematous plaques with loss of sensation over it	Present	Positive

the epidermis with dermis showing clear zone below which there is seen focal collection of foamy macrophages along with epitheloid cells, plasma cells and lymphocytes. Ziehl-Neelsen stain for acid fast bacilli showed high bacillary load (Bacteriological Index 4+) which was confirmatory towards borderline lepromatous leprosy. (Figs. 6,7). High Resolution Ultrasonography showed bilateral ulnar nerve thickening measuring cross sectional area of 10 mm^2 on right side and 14 mm^2 on left side as compare to normal value of 7.2 $\pm$ 1.4 mm^2 (Won et al 2013). High Resolution Ultrasonography of other nerves was not done as patient was not cooperative. Nerve conduction study of the lower limb revealed multifocal neuropathies. On motor nerve conduction study, bilateral Tibial Compound motor action potential (CMAP) showed mildly prolonged latencies, decrease amplitudes and conduction velocities. There was evidence of conduction block and temporal dispersion on distal stimulation and proximal stimulation. Bilateral Paroneal CMAP was severely attenuated with decrease velocity. On sensory nerve conduction study, right Sural nerve sensory nerve action potential (SNAP) was attenuated. Left Sural nerve SNAP was absent. These findings were comparable to that seen in leprosy cases. Nerve conduction study of upper limb could not be performed as patient was not cooperative.

Discussion

The clinical presentation of leprosy is highly variable and in all its stages it can mimic great variety of other lesions. The differential diagnosis is so wide from vitiligo, Pityriasis alba, Pityriasis versicolor to morphea, Yaws, Post-Kala-azar Dermal Leishmaniasis (PKDL). One has to exclude wide variety of dermatological diseases before diagnosing it to be leprosy as social stigma attached with leprosy. Even neurological conditions and lepra reactions are to be differentiated from a number of systemic illnesses like primary amyloidosis of peripheral nerves, chronic progressive polyneuritis, muscle atrophy, peripheral neuropathy (Raval 2012). In leprosy, annular lesions usually represent borderline cases. There is loss of sensation over the lesion (Narayanshetty el al 2013). Sometimes it's difficult to assess sensation in clinical examination. After histopathological confirmation and correlation with the clinical picture the disease was classified as borderline lepromatous leprosy in our patient.

In literature few cases of atypical manifestations of leprosy manifesting as angioedema, lesions mimicking Lupus vulgaris, mimicking cutaneous T cell lymphoma, Lepromatous leprosy with single plaque with gynaecomastia and non-healing ulcer over right finger (Raval 2012), Granuloma annulare like presentation, Erythema multiforme like presentation (Das et al 2007). Our case presented with gyrate erythema like unusual presentation in Borderline lepromatous leprosy such as asymptomatic multiple erythematous annular plaques with few showing ring within ring like appearance over back; progressing to abdomen, chest and then proximal extremities, few erythematous patches over bilateral palms, single ulcer over lateral border of right foot with hyperpigmented patch over instep of right sole). On thorough literature search we found single case report of Erythema gyratum repens – like pattern in Lepromatous leprosy (Mohanan et al 2014). We report our patient as a second case of gyrate erythema like presentation in Borderline Lepromatous leprosy.

Immune status of the patient decides the type and number of skin lesions in leprosy. Lesions in tuberculoid leprosy are usually scanty and symmetrical with smooth borders and have hypoaesthesia. On the other hand lepromatous leprosy seen in patients with poor cell mediated immunity tends to cause multiple, asymmetrical skin lesions with irregular margins (Pruthi et al 2016).

Literature search shows palmoplantar involvement in leprosy to be approximately 10% but these lesions are seen more in case of lepra reactions in borderline types of leprosy. Hopkins et al screened 245 leprosy patients for lesions over certain anatomical locations and found palmar involvement in 17 (6.9%) and planter involvement in 13 (5.9%) cases (Sajad et al 2015). Our patient was having hyperpigmented patch over right sole with erythematous patches over bilateral palms. Our case was not in reaction.

Leprosy has a predilection for cooler and trauma prone areas of the body. Although palms and soles are trauma prone and cooler areas of the body with rich nerve supply; Palm soles are categorized as one of the immune zones in leprosy but are less frequently affected because of the thicker skin and fibrofatty tissue, which results in a high nerve bed temperature. This case is testament to the fact that leprosy can affect any site of the body, hence the term relative immune zones in leprosy seems more appropriate (Sajad et al 2015).

Our patient was having hyperpigmented patch over right sole. Literature survey did not reveal any explanation for hyperpigmentation in leprosy. Hypothesis by Chattopadhyay and Gupta states

that hyperpigmentation in leprosy may be due to the overactivity of melanocytes as a result of neurohormonal or biochemical stimulation (Arrakkal et al 2015).

Conclusion

Our case of gyrate erythema like unusual presentation is one of the rarest clinical presentations of BL Hansen's disease. Leprosy may mimic a plethora of other disorders due to its myriad clinical presentations and therefore may be misdiagnosed or underdiagnosed. This case had asymptomatic multiple erythematous annular plaques with few showing ring within ring like appearance over back; progressing to abdomen, chest and then proximal extremities. Few erythematous patches were observed on bilateral palms. Single ulcer was present over lateral border of right foot with hyperpigmented patch over instep of right sole and was confirmed as BL Hansen's disease due to thickened, non-tender bilateral ulnar nerves, left radial cutaneous nerve and bilateral lateral popliteal nerves which were confirmed on High Resolution Ultrasonography, Nerve conduction study of the lower limb revealed multifocal neuropathies, histopathological study was confirmatory of borderline lepromatous leprosy with Bacteriological Index of 4. Unusual presentations of leprosy continue to occur and there is need for sustained awareness of this serious but curable disease.

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