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Case Report

Lepromatous Leprosy Clinically Masquerading as Granuloma Annulare: An Atypical Presentation

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Diagnosis of leprosy is based on cardinal signs that include presence of an anaesthetic skin lesion, peripheral nerve enlargement, and/ or demonstration of *M. leprae* in skin smears. However, leprosy has diverse cutaneous presentations and can mimic skin lesions of large variety of other dermatological conditions, leading to delay in the diagnosis and treatment resulting in deformities and disabilities due to leprosy. We report one such case of Hansen's disease that presented as granuloma annulare in a 28-year-old man due to characteristic discrete annual lesions all over the body and absence of sensory loss / nerve thickening. Patient did not respond to steroids. Slit-skin smears (SSS) from the lesion showed bacteriological index of 4+ and morphological index of 60%. Biopsy from the lesion showed the histopathological features of lepromatous leprosy. Patient responded well to MB-MDT. This case emphasizes the importance of clinical suspicion and use of known laboratory techniques like SSS from the lesions and histopathology.

Keywords : Leprosy, Atypical, Granuloma Annulare

Introduction

Leprosy, also known as Hansen's disease,is a chronic granulomatous infection caused by the bacterium *Mycobacterium leprae* (Scollard et al 2015. Due to the cooler temperature predilection of the *M.leprae*, skin and nerves are the two most important organs affected by leprosy leading to the cardinal signs for diagnosis as presence of an anaesthetic skin lesion, peripheral nerve enlargement, and/ or demonstration of *M. leprae* in skin smears (Suzuki et al 2012). However, leprosy is one such condition that can have diverse cutaneous presentations and can mimic skin lesions of large variety of other dermatological conditions. This myriad of presentations can sometimes lead to avoidable delay in the diagnosis and treatment resulting in deformities and disabilities due to leprosy. We report one such case of Hansen's disease that clinically presented as granuloma annulare in a 28-year-old man.

Case Report:

A 28-year-old male came to our Dermatology OPD and presented with complaints of slightly pinkish to red coloured raised lesions over the trunk of eight months duration. The lesions initially started over the upper trunk as small discrete raised lesions which then coalesced over a period of two months to form circular pattern. Later, similar lesions developed over the abdomen, right forearm and left thigh. There were no similar complaints in the family and no preceding

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drug intake history. There was no history of any light-coloured patches, loss or decrease of sensation, fever, swelling of hands and feet, pain along the nerves or painful swellings. Cutaneous examination revealed slightly erythematous papules, few discrete and few coalesced to form annular plaque with central clearing over the right upper chest (Fig. 1), right lower abdomen (Fig. 2), upper trunk, right forearm and left thigh. There were no hypopigmented patches on the body and sensations were intact. Examination of nerves revealed no abnormality. His baseline investigations like complete blood picture, renal and liver function tests were within normal limits. Slit skin smears (SSS) were taken from bilateral ear lobules, eyebrows, and it showed no bacilli. It was not taken from the lesion as patient did not give consent for the same. Also,

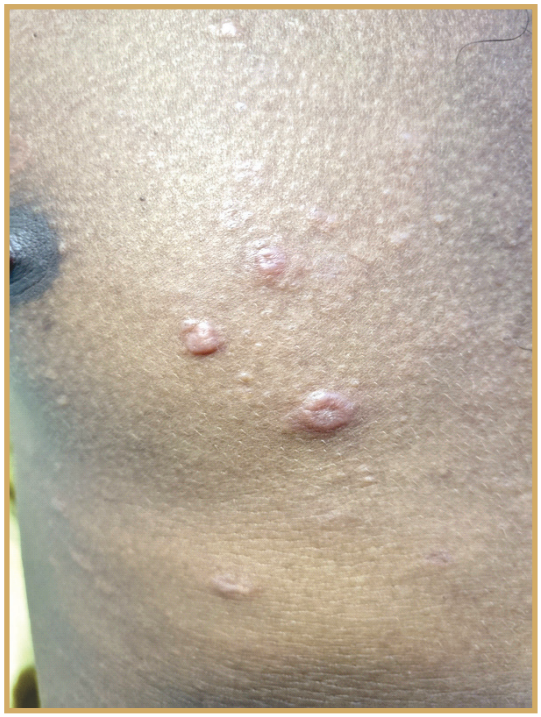

Fig. 1 : Erythematous papules and annular plaque on right upper chest.

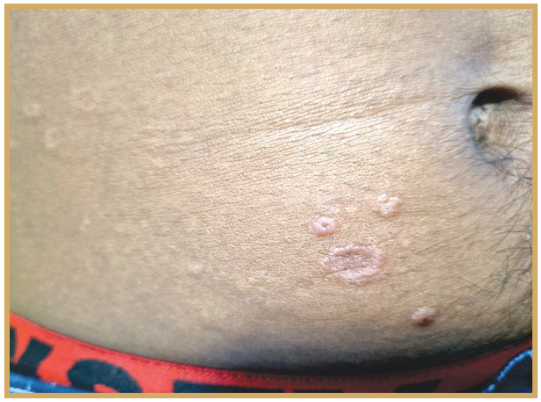

Fig. 2 : Annular plaque with central clearing and three papules over right side of lower abdomen.

patient was advised skin biopsy, but he did not consent for that at first visit. So, a clinical diagnosis of granuloma annulare was made owing to the annular nature of the lesions and patient was advised high potent topical steroid (betamethasone dipropionate 0.05% ointment). There was no improvement in the lesions, and the patient was reviewed back after one month. This visit, he was ready for biopsy and SSS from

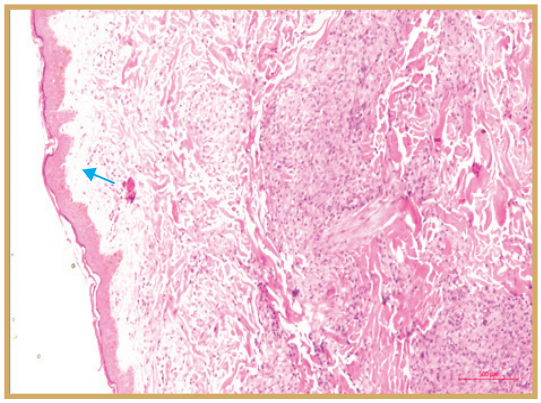

Fig. 3A : Beneath the unremarkable epidermis is grenz zone (blue arrow). Dermis shows perivascular and peri-appendageal foamy macrophages (x40 H&E).

the lesion as his lesions did not respond to the treatment. Also, slit skin smear was done from the lesion, and it showed bacillary index 4+ and morphological index 60%.

Histopathologic examination of a skin biopsy from the annular lesion over the abdomen showed unremarkable epidermis with Grenz zone. Dermis showed perivascular and peri appendageal lymphohistiocytic infiltrate rich in foamy macrophages (Figs. 3A, B, C) and no spindle shaped histiocytes. Fite stain showed numerous globi of acid-fast bacilli (Fig.3D), thus confirming the diagnosis as lepromatous leprosy. The patient was counselled about the condition and was started on multi bacillary multidrug therapy (MB-MDT) in the form of daily dose of dapsone 100 mg, clofazimine 50 mg, and single monthly supervised dose of rifampicin 600 mg and clofazimine 300 mg for one year. The patient is on regular follow up with no evidence of type

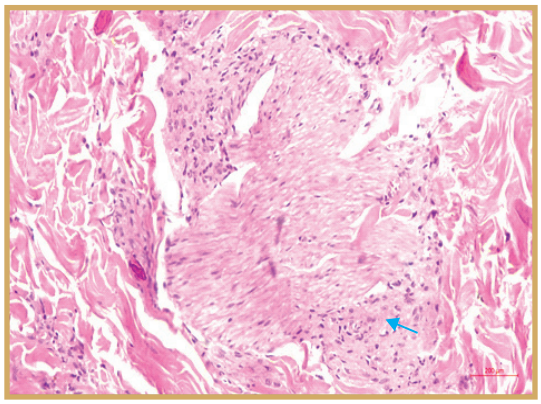

Fig. 3B : Foamy macrophage aggregate around arrector pilorum (blue arrow) (x100 H&E stain).

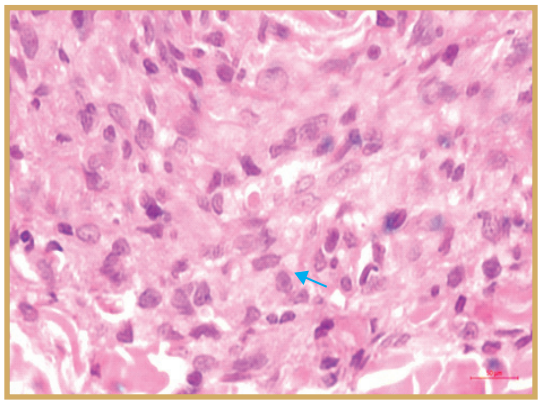

Fig. 3C : The macrophages having abundant pink to pale cytoplasm with sparse lymphocyticin filtrate (x400 H&E stain)

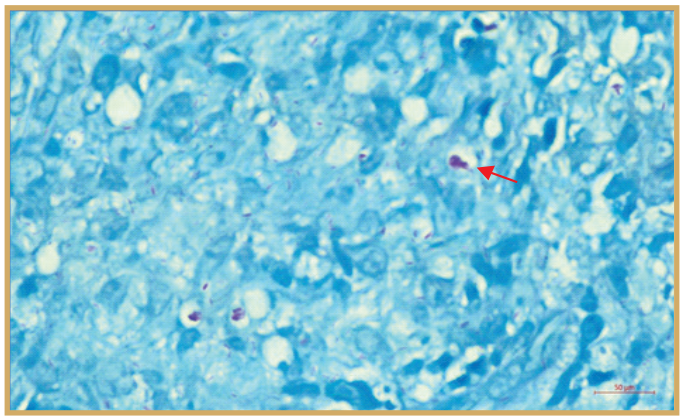

Fig. 3D : Fite-Faraco staining showing acid fast bacilli clusters in globi (blue arrow) and lying singly as well (x400).

1 or 2 lepra reactions till date. Also, the lesions slowly started to decrease in size after about 6 months of regular treatment.

Discussion

It is a common knowledge that Hansen's disease is a chronic infection caused by an obligate intracellular bacterium *Mycobacterium leprae* affecting mainly skin and peripheral nerves and is (Suzuki et al 2012). The infection spreads mainly by airborne route in close contacts. Based on level of immunity of a person to lepra bacillus, Hansen's disease can present with various morphologies like the classic hypopigmented hypo aesthetic/anaesthetic patch in tuberculoid spectrum to copper colored patches, papules, plaques and nodules in Lepromatous spectrum (Rongioletti et al 2009, Froes et al 2022). Skin surface changes in the form of dryness and hypotrichosis is seen in tuberculoid spectrum due to destruction of appendages of the skin. Nerve involvement can be in the form of nerve thickening, painful tender nerves, sensory and motor weakness in the areas supplied by the nerves. Acute oedema of hands and feet with erythema of existing patches, painful tender erythema nodosum leprosumlesions are seen during reactionary episodes (Eichelmann et al 2013).

In addition to the above-mentioned cutaneous presentations which are considered to be typical of Hansen's disease, the disease is also known to present with many other atypical lesions mimicking various dermatological disorders like tinea versicolor, granuloma annulare, granuloma multiformae (Zhu et al 2017, Bhatia et al 2019, Day et al 2019). Such myriad of presentations can sometimes result in delay in diagnosis and treatment leading to nerve damage, deformities and disabilities in leprosy patients. Granuloma annulare is an inflammatory granulomatous condition clinically characterised by papules coalescing to form annular plaques with clearing in the centre and necrobiotic granulomas on histopathology (Piette & Rosenbach 2016). Our patient presented with the characteristic papules and annular plaques on the trunk. Also, the cardinal signs of Hansen's disease - the presence of hypoesthetic, hypopigmented patch, peripheral nerve thickening, and demonstration of AFB in tissue smears, were also absent in our case. This led to the initial provisional diagnosis of granuloma annulare. But slit-skin smears from the lesion showed the presence of acid-fast bacilli with high bacteriological index and the biopsy showed features consistent with leprosy thus highlighting the importance of histopathology in early diagnosis and prompt initiation of treatment in cases of suspected leprosy.

Differential diagnosis of erythematous papules and annular plaques include granuloma annulare, granuloma multiforme, erythema multiforme, lupus vulgaris, psoriasis, sarcoidosis, polymorphous light eruption, leprosy, cutaneous sarcoidosis, secondary syphilis (Wang & Khachemoune 2018). The granuloma annulare being the closest one to annular plaques with central clearing, it was our initial working diagnosis. The novelty of our case is that it closely resembled a totally unrelated, common dermatological condition in its clinical behaviour and absence of cardinal signs of leprosy further added to a diagnostic dilemma. This case also re-emphasizes the importance of appropriate slit skin smears from active lesions and the biopsy for early diagnosis and classification of leprosy so that treatment can be initiated at early stage thus preventing the complications of leprosy.

Conclusion

Leprosy is one of the common dermatological conditions that can have a protean of clinical presentations. Due to its varied clinical presentations, slit skin smears from the lesions

for acid fast bacilli have definitive role in confirming or excluding the diagnosis of leprosy in all suspected cases in dermatological practice. Biopsy would further aid in arriving at definitive classification of disease for academic purposes. We need to have a high index of suspicion for Hansen's disease and skin biopsy should be done when lesions of granuloma annulare are not responding to routine standard treatment.

References

1. Bhatia S, Shenoi SD, Pai K et al (2019). Granuloma multiforme: an uncommon differential for leprosy. *Trop Doct*. **49**:55-58.
2. Day W, Prodanovic E (2019). Borderline lepromatous leprosy masking as tinea versicolor. *Int J Dermatol*. **58**: e125-e126.
3. Eichelmann K, González SE, Salas-Alanis JC et al (2013). Leprosy. An update: definition, pathogenesis, classification, diagnosis, and treatment. *Actas Dermosifiliogr*. **104**:554-563.
4. Froes LAR Junior, Sotto MN, Trindade MAB (2022). Leprosy: clinical and immunopathological characteristics. *An Bras Dermatol*. **97**:338-347.
5. Piette EW, Rosenbach M (2016). Granuloma annulare: Clinical and histologic variants, epidemiology, and genetics. *J Am Acad Dermatol*. **75**:457-465.
6. Rongioletti F, Gallo R, Cozzani E et al (2009). Leprosy: a diagnostic trap for dermatopathologists in nonendemic area. *Am J Dermatopathol*. **31**:607–610.
7. Scollard DM, Dacso MM, Abad-Venida ML (2015). Tuberculosis and leprosy: classical granulomatous diseases in the twenty-first century. *Dermatol Clin*. **33**:541–562.
8. Suzuki K, Akama T, Kawashima A et al (2012). Current status of leprosy: epidemiology, basic science and clinical perspectives. *J Dermatol*. **39**:121–129.
9. Wang J, Khachemoune A (2018). Granuloma annulare: A focused review of therapeutic options. *Am J Clin Dermatol*. **19**:333-344.
10. Zhu TH, Kamangar F, Silverstein M et al (2017). Borderline tuberculoid leprosy masquerading as granuloma annulare: A clinical and histological pitfall. *Am J Dermatopathol.***39**:296-299.

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