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RECURRENT ERYTHEMA NODOSUM LEPROSUM IN A MULTIBACILLARY LEPROSY PATIENT POST- MULTI DRUG THERAPY: A CASE REPORT

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ABSTRACT:

Erythema Nodosum Leprosum (ENL) is a serious immunological consequence that primarily affects patients with the lepromatous and borderline lepromatous types of the disease. The reaction involves immune complex deposition, complement activation, and increased proinflammatory cytokines, including TNF-α, IL-6, IL-8, and IL-10. A 41-year-old male patient with a previous diagnosis of multibacillary leprosy appeared with severe erythematous nodules and new hypopigmented patches on his extremities. He had already finished 11 cycles of MBMDT. Numerous erythematous, skin-coloured plaques and nodules were found during the clinical examination. His systemic assessment and slit-skin smear supported the diagnosis of Erythema Nodosum Leprosum (ENL), a type 2 lepra response. The patient demonstrated resistance to continued MDT, which was successfully controlled with intravenous dexamethasone and supportive care. This example emphasizes the necessity of early detection and careful management of lepra responses in order to avoid long-term consequences.

KEY WORDS: Erythema Nodosum Leprosum, Type 2 reaction, multi drug therapy, Mycobacterium leprae,

INTRODUCTION:

Leprosy, also known as Hansen's disease, is caused by Mycobacterium leprae and Mycobacterium lepromatosis.[1] Despite being curable and preventable, it remains a significant public health issue globally, especially in developing nations like India.[2] The disease affects the skin, peripheral nerves, upper respiratory mucosa, and eyes. India contributes the most to the disease burden with around 60% of new cases reported annually.[3] Type 1 and Type 2 lepra responses are the main types. Type 1, or Reversal Reaction, is a type IV hypersensitivity reaction associated with a cell-mediated immune response, commonly seen in borderline leprosy. Type 2 ENL, is a type III hypersensitivity reaction caused by immune complex deposition, primarily observed in lepromatous and borderline lepromatous leprosy.[4]

Atypical ENL, often mistaken for other dermatological conditions due to its unusual appearance, can include lesions mimicking Lucio phenomenon, erythema multiforme, Sweet's syndrome, and reactive perforating.[5] Histology is essential for distinguishing between the two illnesses. Thalidomide may be necessary for recurrent or resistant ENL.[5]

Diagnostic Criteria for Sweet's Syndrome (von den Driesch, 1994):

Major Criteria (both must be present):

1. Abrupt onset of painful erythematous plaques or nodules
2. Histopathologic evidence of dense neutrophilic infiltration

Minor Criteria (at least 2):

1. Fever >38°C
2. Association with underlying condition, such as:
    - Infection, Malignancy
    - Inflammatory diseases, Pregnancy

   Excellent response to systemic corticosteroids or potassium iodide.
3. Abnormal laboratory findings at presentation: Elevated ESR, CRP, Neutrophilia

CASE PRESENTATION:

The patient is a 41-year-old man who has been complaining of facial swelling and tingling for the past 15 days, along with new hypopigmented patches on both upper and lower limbs, many painful raised skin lesions over the face, and a tingling feeling over both lower limbs. He had already completed 11 cycles of his initial MB-MDT treatment and been diagnosed with leprosy. Upon dermatological inspection, many erythematous, skin-coloured plaques and nodules with dry surfaces and slope edges were discovered symmetrically over the face, bilateral upper limbs, and lower limbs. The greatest lesion was 15 × 7 cm on the right lower thigh, while the smallest was 2 × 3 cm on the extensor side of the left forearm. The lower limbs displayed xerosis, and both soles had hyperkeratotic plaques with fissures. Tinel's sign was positive, and the sensory evaluation revealed loss of touch, pain, warmth, and cold sensations throughout the lesions.

The peripheral nerve examination showed many nerve enlargements, especially of the ulnar, radial, and common peroneal nerves, and the radial and posterior tibial nerves were painful. The patient had a positive Buddha ear indication. Laboratory testing revealed a morphological index (MI) of 25% and a bacteriological index (BI) of 2.3, confirming multibacillary leprosy examination showed low pO_2, hypokalaemia, hypocalcaemia, and high serum lactate. In liver function tests, bilirubin levels increased while serum protein levels slightly decreased. Haematological tests revealed a normocytic normochromic blood picture.

A patient with Lepromatous Leprosy with Type 2 Reaction developed treatment resistance after taking 100 mg of dapsone and 300 mg of rifampicin. Combining therapy with intravenous dexamethasone was used to address the lepra reaction while in the hospital. Other medications included paracetamol for discomfort, ranitidine for stomach protection, and pregabalin-nortriptyline for neuropathic symptoms. Following consultation with ophthalmology, prescriptions for doxifloxacin and Eye Mist eye drops were issued. The patient was discharged on a prednisolone and MB-MDT regimen, showing significant improvement in overall health, pain alleviation, and mobility.

DISCUSSION:

ENL, characterized by sensitive nodules, is a systemic disease-causing fever, malaise, lymphadenopathy, neuritis, arthritis, orchitis, and iritis.[4,6] India's National Leprosy Eradication Programme (NLEP) is implementing MDT, reducing disease incidence and spread, but lepra responses and drug resistance persist due to stress, infections, pregnancy, nursing, and medication therapy. [7] ENL, a leprosy-like response, is characterized by neutrophilic infiltration and panniculitis, with high bacillary load. The chronicity of the lesions affects neutrophil density, with older lesions showing higher levels .[4] Long-term antibiotic medication is typically maintained for up to two years, with immunosuppressants and steroids reduced over time. ENL is a complex immunological condition often recurrent and incapacitating, requiring accurate clinical and histological evaluation for early diagnosis and treatment. Treatment involves corticosteroids and thalidomide, despite its teratogenicity, neurotoxicity, and regulatory limitations. [4,6]

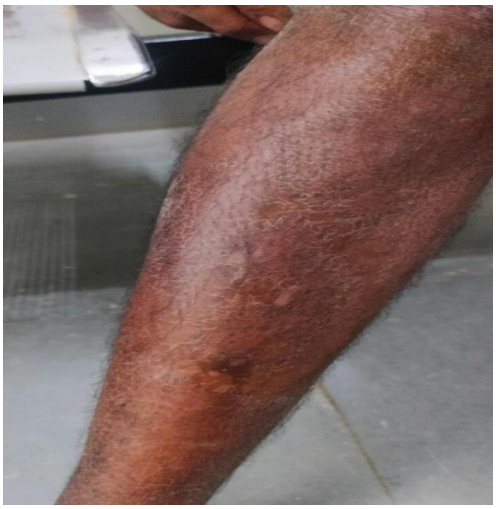

Fig 1A: A 41 years with erythema nodosum leprosum and with Erythematous, hyperkeratotic plaques with fissures on right lower extremities.

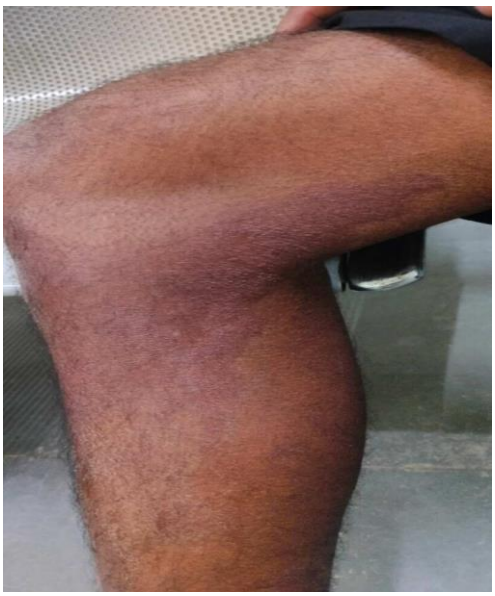

Fig 2B: 41 years with erythema nodosum leprosum and with After 11 cycles of multibacillary multidrug therapy, the initial solitary lesion plaque.

CONCLUSION:

Treating lepra responses in multibacillary leprosy patients, especially those with drug resistance symptoms, is challenging. A positive clinical outcome was achieved through timely diagnosis, corticosteroid initiation, and supportive care. ENL requires thorough evaluation due to its unique presentation. Consistent follow-up and treatment adherence are crucial for disease control.

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