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# Case report on Type 1 Lepra Reaction

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***Abstract:*** **Leprosy reaction also known as lepra reaction is the inflammatory reactions of the skin, nerves, and other organs, characterized by sudden appearance of redness, swelling, pain, and sometimes tenderness of the skin lesion. It occurs due to sudden alteration in the immunological status of the host against the living or dead bacilli. The reactions usually occur shortly after initiating treatment of leprosy but can occur any time (including years after treatment). Leprosy reactions can affect up to 30% to 50% of patient and can cause permanent nerve loss. Leprosy reaction is of two major types type 1 lepra reaction (reversal reaction), type 2 lepra reactions (Erythema Nodosum Leprosum (ENL). A type 1 reaction or reversal reaction is expressed clinically by inflammatory exacerbation of the skin lesions and nerve trunks, consequently leading to sensory and motor alterations. Mechanism: Delayed hypersensitivity against M.Leprae antigens. Management: reduce the stimulating antigen with MDT, while suppressing the CMI response with steroid therapy. This reaction typically occurs within the first two months of treatment. It is accompanied by pain or tenderness of one or more nerves.**

***Keywords:*** **Lepra reaction, Reversal reaction, Erythema Nodosum Leprosum (ENL), MDT (Multidrug therapy), M. Leprae (mycobacterium leprae), PB leprosy, MB leprosy, corticosteroids.**

## 1. INTRODUCTION

Type 1 reactions (T1Rs) are a major cause of nerve function impairment (NFI) in leprosy and affect up to 30% of susceptible individuals. T1Rs may be a presenting feature of leprosy or occur during multidrug treatment (MDT) or even after it has been completed.

Type 1 reactions occur both in PB and MB leprosy.

It occurs as a result of increased activity of the body's immune system, particularly cell mediated immune response fighting the leprosy bacillus or remnants of dead bacilli.

Reaction may be the first presenting sign of the disease and usually last for few weeks to few months. General condition of the patient is satisfactory. Usually there is no fever and patient does not feel ill.

Signs of inflammation are seen in the existing skin lesions i.e. skin lesions become red, more prominent, swollen shiny and warm. Lesions are usually not painful but some discomfort may be felt. Sometimes, only few patches are inflamed.

This type of reaction is usually not associated with constitutional symptoms T1Rs predominantly affects the borderline states of leprosy. Borderline disease is a strong risk factor for the occurrence of T1Rs1 but small numbers of patients with the polar forms of leprosy may also experience T1Rs. Skin lesions become erythematous and/or edematous and may ulcerate. Edema of the hands, feet and face can also be a feature of a reaction but systemic symptoms are unusual.

A T1R is characterized by an increase in inflammation in skin lesions or nerves or both. Pain in the nerve occurs due to increased intraneural pressure resulting from oedema and increased cellular infiltration. Involvement of nerve leads to permanent loss of function resulting in disability. Acute Neuritis: Existing involved or new nerves become enlarged, painful/tender and their sensory, autonomic and motor functions get affected. Silent neuropathy /quiet nerve paralysis: Sometimes, nerve function may get affected without any pain or tenderness of the nerve or inflammation of skin lesions making it much less obvious. It is seen infrequently

In addition, patient may present with edema of the hands and feet and sensory /motor impairment.

Ocular tissue is not affected in type 1 reactions but patient may develop corneal anaesthesia & lagophthalmos due to involvement of trigeminal and facial nerves

Corticosteroids have been used in the management of T1Rs.

## 2. CASE REPORT

A 30 year old female patient came with complain of erythematous patches all over the body since 2months. The patient was apparently normal 2months back when she developed erythematous patches over lower limbs and upper limbs. It is associated with itching gradually progressive in nature. There was no history of fever or trauma, diabetes mellitus, tuberculosis. There was no any family in regards to leprosy.

Multiple erythematous lesions on face and hands progressed as patient was admitted in the hospital.

Physical evaluation of this patient indicated heart rate of 90bpm and BP of 120/80mmHg

Laboratory findings were all normal HB: 12.5g/dl, WBC count 7000/$mm^3$, S.Creatnine 1.0mg/dl,RBS:75mg/dl. On this note skin biopsy was not performed.

Medication administered to the patient during the course of admission; were such as Inj Dexona 8mg OD, Inj Augmentin (ATD) 1g BD, Inj pantop 40mg OD, Inj diclo 3cc BD, Saframycin cream, white soft paraffin, MDT (Tab rifampicin 600mg+ tab clofazimine 300mg+ tab Dapsone 100mg) where from Day 2 MDT (Tab dapsone 100mg+ tab clofazimine 50mg),tab pregabalin, tab calcium 500mg OD, tab prednisolone 10mg OD, tab augmentin 625mg TID.

## 3. DISCUSSION

Type 1 lepra reaction is a delayed hypersensitivity response (Type IV, Coombs & Gel, hypersensitivity reaction). It can occur in any clinical type of leprosy, particularly the borderline group with characteristic immunological instability. It is associated with rapid increase in specific CMI activity against the leprosy bacilli or their remnants, in patients under treatment (usually during the first six months of treatment). It is also known as Reversal Reaction. This patient falls under Type 1 lepra reaction due to absence of constitutional symptoms such as fever, malaise, anorexia and joint pain. WHO multidrug therapy since 1995 has implemented the use of the combination of rifampicin, clofazimine and dapsone with MB leprosy and rifampicin and dapsone for PB leprosy. WHO has been providing free leprosy medication to all leprosy patients in all endemic countries such as DRC, Tanzania, and Ethiopia.

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