

POST MULTI BACILLARY LEPROSY PRESENTING AS ECZEMA

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ABSTRACT:

Leprosy is an infectious disease caused by mycobacterium leprae. It effects skin, peripheral nerves and eyes. It can be transmitted through oral or nasal route. Leprosy is classified into 5 types according to Ridley and Jopling classification. Physical and skin examination should be done before the initiation of treatment. Symptoms include skin lesions, loss of sensation, tenderness, muscle weakness, and hypo or hyper pigmented plaques. Treatment is based on the number of skin lesions and should be provided for 24 months. Patient develop adverse events or drug reactions during or after the treatment as a reaction. Hence necessary counselling and appropriate medication usage should be provided to the patient to decrease the severity and to improve the quality of life.

KEYWORDS: Leprosy, Mycobacterium leprae, Peripheral nerves, Ridley and Jopling Classification.

INTRODUCTION

Leprosy (often called as Hansen's disease) is a chronic infectious disease caused by *Mycobacterium leprae* have an effect on cutaneous and neurological sites such as skin, peripheral nerves and eyes.^[1] The type, progression, severity and intensity of lesions depends on the immune response of the patients towards *Mycobacterium leprae*.^[2] It is represented as skin damage with hypo or hyperpigmentation associated with loss of sensation. Leprosy can stay as permanent impairment and discriminated historically which can lead to depression and self-isolation.^[3]

RIDLEY AND JOPLING CLASSIFICATION

They have proposed a classification of leprosy into five categories which was recommended and accepted worldwide. Those are as follows:

Tuberculoid (TT)

Borderline tuberculoid (BT)

Mid-borderline (BB)

Borderline lepromatous (BL)

Lepromatous (LL).^[4]

As per World Health Organization (WHO), the cases affected from one to five lesions are considered as paucibacillary and more than six lesions as multibacillary. Slit smear analysis is a technique used in the diagnosis of several cutaneous conditions. The sample is collected from the affected lesion, stained and examined under microscope. But this technique is carried only in highly specialized health centers.^[5] Treatment of leprosy is based on number of skin lesions. In India, leprosy is considered as major public health concern. Hence, proper diagnosis is necessary according to the type. The ultimate goal is to reduce the leprosy load and deformities in children and aged group.^[6]

TRANSMISSION:

Mycobacterium leprae is an acid fast, non-motile, gram-positive rod-shaped bacteria. It cannot grow or multiple exteriors of an animal pathogen as it is an intracellular obligatory bacillus.^[7]

It can also multiply or cultivate in laboratory by injecting the bacteria into the footpads of mice.

It can spread through:

Oral cavity

Nasal cavity

Putting on clothes containing lepers

Physical contact.^[8]

Bacilli have capability of living for about 5 months in nature. The division of *mycobacterium leprae* is slow and shows retard growth.^[9]

CLINICAL PRESENTATIONS

Skin lesions all over the body

Loss of sensation ^[10]

Discoloration of skin e.g., Red or pale spots

Tingling of both arms and legs

Tenderness
Muscle weakness
Hypopigmentation
Burning of wounds^[11]

PATHOGENESIS OF LEPROSY

M. leprae, an intracellular bacterium, enters the body through respiratory tract. After the entry, it migrates to neural area and schwann cells for multiplication. It invades and colonize the schwann cells of PNS which causes nerve damage, demyelination and loss of axon conductance which subsequently results in disability or deformity.^[12]

REACTIONS OF LEPROSY

Two types of reactions are classified under leprosy which occur during or after the completion of therapy for the disease. Those are:

Type-1 reaction and Type-2 reactions

Type-1 reaction: It is also expressed as reversal reaction which causes inflammation of skin and nerves by the activation of cell-mediated immunity towards the *Mycobacterium leprae*.

Type-1 reactions usually occurred in BT, BB and BL types of leprosy.^[13]

DIAGNOSIS

Physical examination

Skin examination for localized lesions

Peripheral nerve examination

Demonstration of acid-fast bacilli from Ziehl-Nielsen's stain test from L-20

Fite's technique from L-18

CASE REPORT:

43 years old female patient was admitted in the hospital with the clinical presentations of multiple, itchy, elevated lesions over upper limb, trunk, lower limb and face later followed by swelling of face. She also presented with the history of fever with chills later subsides on taking medications. She had no history of joint pain, diabetes mellitus, hypertension, tuberculosis, asthma, epilepsy and no drug intake prior to onset of lesion. The patient had a past diagnosis of multibacillary Hansen's disease that had been treated with multidrug therapy.

Patient had no family history. Personal history includes mixed diet, inadequate sleep and regular bowel movements.

On examination, she was febrile with a temperature of 100⁰F. A general physical examination revealed and her BP was 120/70 mmHg, Pulse rate- 84 bpm, P/A- soft, non-tender and diffuse hyperpigmented crusted plaques with eczematization over dorsal side of hand with raw erosion over fingers.

Routine investigations which included complete blood count, liver function test and renal function test were performed and no fluctuations were observed except the eosinophil count and it was elevated to 15%.

On cutaneous examination, multiple, scaly, hyperpigmented plaques with crusting and oozing over both the lower limbs extending from bilateral knees to ankles. Few discrete, oozy and hyperpigmented plaques over thighs followed by dry skin with red spots are found on previously healed lesions. Single raw erosion over left thumb finger.

Patient was previously treated with multidrug therapy for 2 years on multibacillary leprosy. After the completion of the treatment, patient gradually developed eczema with dry lesions which continued periodically for several months.



Figure-1 Hyperpigmented plaques with raw erosion of fingers



Figure-2 Eczematous plaques extending from knees to ankles

Nerve examination

Site	Right	Left
Ulnar nerve	Palpable and enlarged	Palpable
Radial cutaneous nerve	Palpable and enlarged	Palpable

Ophthalmic examination reveals watering and incomplete closure of eyes.

CONFORMATIONAL DIAGNOSIS:

Eczematization with trophic changes secondary to leprosy completed multibacillary multidrug therapy.

TREATMENT:

During the period of stay in the hospital, patient was administered with the following medications (Table-2)

Table-2. Supportive therapy given to patient during the hospital stay

S. No	Brand name	Generic name	Dose	Frequency
1.	Cap. Amoxil	Amoxicillin	500mg	1-0-1
2.	Tab. Pantop	pantoprazole	40mg	1-0-0
3.	Tab. Cpm	Chlorpheniramine	4mg	1-0-1
4.	Tab. Vit C	Ascorbic acid	1 tab	0-1-0
5.	Cap. A&D	Vitamin	1 tab	0-1-0
6.	Oint. Soframycin	E/A	1-0-1
7.	Liq. Paraffin	Paraffinum	E/A	1-0-1
8.	Oint. Betamethasone	E/A	0-0-1
9.	Lacrigel Ocular lubricant	1-0-1

DISCUSSION:

Leprosy is a long term infectious disease caused by mycobacterium leprae, affecting population and stigmatize people causing behavioral and emotional disturbances. It is a contagious disease and spreads by airborne droplets. Treatment of leprosy is divided into phases based on the number of skin lesions. Treatment of multibacillary multidrug therapy includes 12-24 months with dapsone, clofazimine and rifampin. Patient develops type-1 or type-2 reactions before, during or after the treatment with MDT. Those reactions include tenderness, erythema and inflamed plaques. Type-2 reactions are more severe than type-1 reactions. If these left untreated it causes permanent nerve damage and deformity.

REFERENCES:

1. Gopalakrishnan S et al. Knowledge, attitude and health seeking behavior on leprosy among urban adults in Kancheepuram district of Tamil Nadu: A Community-based cross-sectional study. *Journal of Family Medicine and Primary Care*, 2021;10(5):1895-1903.
2. I.A. Rodrigues Junior et al. Leprosy classification methods: A comparative study in a referral center in Brazil. *International Journal of Infectious Disease*, 2016;45:118-122.
3. McCormick CD et al. Trends of leprosy and multibacillary infection in the state of Georgia since the early 1900s. *PLOS Neglected Tropical Disease*, 2019:1-10.
4. Mathur MC et al. Clinicohistopathological Correlation in Leprosy. *Kathmandu University Medical Journal*, 2011;9(36):248-51.
5. Nobre ML et al. Multibacillary leprosy by population groups in Brazil: Lessons from an observational study. *PLOS Neglected Tropical Disease*, 2017:1-14.
6. Ramesh A et al. A clinico pathological correlation in leprosy in a tertiary care teaching institution. *International Journal of Research in Dermatology*, 2019;5(4):870-74.

7. Worobec SM. Current approaches and future directions in the treatment of leprosy. *Research and Reports in Tropical Medicine*,2012;79-91.
8. Porritt RJ, Olsen RE. Two Simultaneous Cases of Leprosy Developing in Tattoos. *The American Journal of Pathology*,1947;23(5):805-817.
9. Rea TH, Modlin RL. Leprosy. In: Wolff K, Goldsmith LA, Katz SI, Gilchrest BA, Paller AS, Leffell DJ, editors. *Fitzpatrick's Dermatology in General Medicine*. 7th ed. New York: McGraw-Hill; 2008:1786–1796.
10. Moura RS et al. Description of Leprosy Classification at Baseline among Patients Enrolled at the Uniform Multidrug Therapy Clinical Trial for Leprosy Patients in Brazil. *The American Society of Tropical Medicine and Hygiene*,2015;92(6):1280-84.
11. Andrew K, Kadala M. Leprosy: A Review of History, Clinical Presentation and Treatments. *American Journal of Infectious Diseases and Microbiology*,2020;8(3):88-94.
12. Bhat R M, Prakash C. Leprosy: An Overview of Pathophysiology. *Interdisciplinary Perspectives on Infectious Diseases*,2012:1-6.
13. Nery JAC et al. Understanding the type 1 reactional state for early diagnosis and treatment: a way to avoid disability in leprosy. *An Bras Dermatol*,2013;88(5):787-92.