Lepromatous Leprosy: A Case Report

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Abstract

Background: Leprosy is a chronic infection with an incubation period of 2 to 6 years. It is a contagious infection caused by mycobacterium leprae. It is present in multibacillary (lepromatous) and paucibacillary (tuberculoid) forms affecting the skin and mucosa. The cutaneous findings range from hypopigmented to hyperpigmented patches, plaques, and ulcerative lesions. Mucosal involvement can damage the palate, tongue, nose, lips, and gum. Leprosy is usually diagnosed by clinical evaluation and is confirmed by laboratory analysis. Treatment includes drug therapy such as Dapsone, Rifampicin, and Clofazimine. If left untreated, it can cause permanent physical deformities and social stigma. Despite being curable, leprosy remains prevalent in underdeveloped areas of the world, such as South Asian countries and Brazil. Prophylaxis and control depend on early diagnosis and the active search of contacts at risk of acquiring the disease. Herein, we report a case of presenting with ulcerations and debilitating deformities and diagnosed as lepromatous leprosy.

Keywords: lepromatous leprosy, mycobacterium leprae, multibacillary

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Introduction

Leprosy is also known as Hansen's disease. It affcts the skin and peripheral nerves.[1] Lepromatous leprosy is associated with certain morbidities and must be promptly diagnosed and treated accordingly[2]. The World Health Organization (WHO) identified eliminating leprosy infection as dropping down in the prevalence of less than 1 case per 10,000 people in 2001.[2] Between 1985 and 2011, the number of cases fell from 5.4 million to approximately 219000. The prevalence rate of 10,000 people had dropped from approximately 21.1 to 0.37 in 2011.[3]

In the United States, leprosy was diagnosed in seventy five percent of immigrant population.[3] For U.S.-born citizens who had contracted leprosy after international exposure. It is transmitted from another infected individual and is exposed to infected armadillos.[4] Lepromatous leprosy is a multibacillary condition with multiple and polymorphic, symmetrically distributed lesions affecting the skin and nervous system.[6] Lepromatous leprosy infiltrates are highest in cooler areas, such as the ears, nose, eyes, extensor surfaces of the thighs and forearms.[7] Physical examination may easily miss subtle macules in early lepromatous leprosy. Damage to nerves is a slow process.[8] There is a loss of sensation in the advance stages.[9]

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Case report

A fifty-year-old male presented to the dermatology department complaining of non-healing ulcers involving both upper and lower extremities. The patient was in the usual state of health eight years back when he noticed an altered sensation in both the

upper and lower extremities. Tingling and numbness in the hands and feet led to a bullous eruption on the hands and feet for the last three months. The bullae ruptured spontaneously, leaving behind ulcerations. These ulcerations were nonhealing and progressive. Ulceration of the feet showed multiple maggots extruding from the sinuses, which were later removed therapeutically, and symptomatic treatment in the form of wound dressing was performed to promote healing. This was associated with the formation of an eschar on the helix, leading to bilateral ear distortion. There was a loss of eyebrows bilaterally, along with depression of the nasal bridge. He consulted with various medical facilities to address this issue. The patient was referred to multiple medical and neurology departments and diagnosed with axonal polyneuropathy based on nerve conduction studies. A peripheral nerve examination revealed bilateral enlargement of the ulnar nerve. Nerve conduction studies showed peripheral neuropathy, predominantly an axonal type of sensory polyneuropathy. Moderate damage to the left ulnar nerve is observed. The patient continued to experience worsening symptoms, and there was no relief from the ulcerations. He presented in the Department of Dermatology Unit-II Jinnah Hospital, Lahore, out door. The patient was diagnosed as having lepromatous leprosy.

The diagnosis was confirmed using a slit-skin smear with a bacillary index 4+, while his morphological index was zero. Subsequently, contact tracing was performed. His two brothers were also diagnosed with lepromatous leprosy, with a bacillary index of 4 and morphological index of zero. During a routine investigation, he was found to have hepatitis B and a hemoglobin level of 6.8%. The other laboratory findings were unremarkable. He received three blood transfusions at the Jinnah Hospital, Lahore.

Treatment was started per the WHO guidelines for leprosy: oral rifampicin 600 mg plus clofazimine 300 mg once per month and dapsone 100 mg plus clofazimine 50 mg daily. The patient was referred to the Leprosy Hospital, Rawalpindi, Jinnah Hospital, Lahore, for further management.

Figure-1: *Ear showing moth-eaten appearance*

Figure-2: *Face showing madarosis and saddle nose*

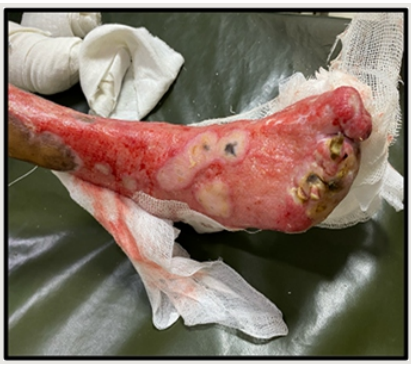

Figure-3: *Foot and Leg Showing ulcer and resorption of Toes*

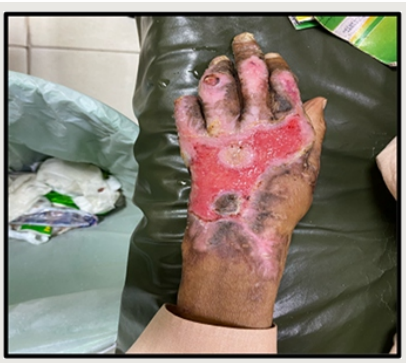

Figure-4: *Hand showing Ulcer*

Discussion

Leprosy is a multisystem disease with a heterogeneous clinical presentation. The pathogenesis of lepromatous leprosy is characterized by a predominance of humoral immunity (Th2 response) and an absence of a cell-mediated (Th1) response.[10] The diagnosis is based on clinical findings and is confirmed through bacteriological and histopathological tests.[11] Lepromatous leprosy represents the polar end of the spectrum in patients with a diminished immune response to Mycobacterium leprae. The clinical presentation of leprosy includes cutaneous manifestations that may present as nodules, plaques and peripheral nerve involvement leads to the thickening of the peripheral nerves and sensory impairment.[12] Differential diagnosis included systemic lupus erythematosus, lymphoma, sarcoidosis, cutaneous leishmaniasis, tertiary syphilis and systemic mycosis. Treatment requires several drugs with adverse effects and is expensive, particularly in less-developed countries. The most used drugs were clofazimine , rifampicin, and dapsone. Quinolones and macrolides such as clarithromycin and minocycline are also effective.[13]

In lepromatous leprosy, the oral lesions may involve the palate. Multidrug treatment for multibacillary leprosy provides effective results.[14] Patients may develop reactions that can be treated with prednisone, thalidomide, or both. Oral lesions can be a source of infection in Lepromatous leprosy.[15]

Multiple erythematous plaques on the face may be present in lepromatous leprosy patients. A slit skin smear was positive for Mycobacterium leprae. Histopathology of the plaque shows diffuse atrophy of the epidermis with a subepidermal cell-free zone and dermal infiltrates of foamy macrophages (Virchow cells) and acid-fast bacilli. The cellular infiltrate in the dermis is composed of foamy macrophages mixed with lymphocytes. Histopathological findings, a diagnosis of subpolar lepromatous leprosy was made, and the patient was started treatment of leprosy.[14,15] Routine skin smears in all new leprosy cases are helpful to differentiate localized multibacillary cases from paucibacillary cases for management.[16]

Conclusion

Leprosy can be a socially stigmatizing skin condition; however, early diagnosis and efficient treatment can prevent complications. Lepromatous leprosy can be challenging to diagnose. Early detection is essential to minimize damage and restrict disability. Public awareness seminars and campaigns about leprosy can also help address the stigma, which is a significant barrier to seeking timely medical care in endemic regions such as South Asia.

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Authors Contribution

HS: Conceptualization of Project

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HS: Literature Search

NAA, WH: Drafting, Revision

HS: Writing of Manuscript