

## Leprosy manifesting with type 2 lepra reaction in a patient presenting with chronic fever: A case report

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### Abstract

Leprosy is a chronic granulomatous disease involving the skin and nerves, leading to a debilitating condition. Leprosy has been controlled in most parts of the world; therefore physicians are not very well versed in the recognition, management and assessment of this disease. The protean manifestations of leprosy often lead to delays in diagnosis and increase the morbidity. We present a case of a 33-year-old male with fever, lymphadenopathy, nodular skin lesions, uveitis and arthritis. Lymphnode, bonemarrow and skin biopsy revealed 3+ AFB smear with negative AFB cultures, leading to the diagnosis of leprosy. The course of illness was complicated by flare of Erythema Nodosum Leprosum (ENL).

**Keywords:** Erythema Nodosum Leprosum; Leprosy; chronic fever.

### Introduction

Leprosy is one of the most ancient, chronic infectious diseases. Although it has been eradicated mostly throughout the world, it is still endemic in some parts of South East Asia.

Pakistan was able to control leprosy in 1996 with ongoing efforts to eliminate the disease.<sup>1</sup> Due to varying presentations, crippling complications, and contagiousness, its timely diagnosis and management are extremely important. This chronic granulomatous infection can affect skin, nerves, upper respiratory tract mucosa and eyes and causes progressive damage if left untreated.

As per World Health Organization classification, leprosy can be classified based on the number of lesions as paucibacillary (less than or equal to 5 skin lesions with or without positive skin smear) and multibacillary (6 or more lesions with or without positive skin smear).<sup>2</sup> Usually, presence of erythema nodosum leprosum is seen in patients with high bacillary load and extensive skin lesions. It occurs due to antigen-antibody complex deposition and may be associated with systemic

symptoms of uveitis,<sup>3</sup> neuritis, lymphadenitis, orchitis, and arthritis.

We present the case of a 33 year old male presenting with longstanding fever, which was later diagnosed as Erythema Nodosum Leprosum as an initial presentation of leprosy.

Ethical approval from the institutional review board of the Indus Hospital, as well as verbal consent from the patient was taken before submission of this case report.

### Case Report

A 33 years old male, resident of Karachi, was seen in May 2014 with 1.5 months history of high grade fever with chills and headache at the Family Medicine clinics of The



**Figure-1:** Inguinal Lymphadenopathy.

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**Figure-2:** Erythema Nodosum Leprosum.

Indus Hospital, Karachi. He was referred to the Infectious Disease Clinic as a case of chronic fever. The review of systems was significant for dizziness, generalized body aches, pain and swelling of both ankles, as well as redness of the right eye for the last one week. Rest of the systemic review, past and personal medical history were unremarkable.

On examination, he was a thin, lean male sitting comfortably with marked redness of the right eye. He was febrile with a temperature of 38°C and normotensive. General physical examination revealed bilateral enlargement of inguinal and femoral lymph nodes, largest measuring 6 cm X 3 cm (Figure-1). There was swelling and redness over the right ankle joint but no tenderness. Bilateral shins revealed a fading erythematous raised, tender lesion, suggestive of erythema nodosum. He was initially worked up for pyrexia of unknown origin with differentials of disseminated gonococcal disease, disseminated Tuberculosis (TB), sarcoidosis, Still's disease, and infective endocarditis.

His investigations revealed anaemia. Haemoglobin was

6.4mg/dl with thrombocytosis<sup>4</sup> of  $772 \times 10^9/L$  and a TLC of  $10.2 \times 10^9/L$ . His HCV antibody was reactive, and ESR was elevated at 110, C-reactive protein was 46mg/L. Other investigations including blood cultures, urine D/R, autoimmune profile, tests for HIV, VDRL, Malaria and Brucella were negative. His chest X-ray, ultrasound abdomen and echocardiogram were normal. Bone marrow trephine and biopsy along with lymph node FNAC revealed 3+ AFB, with GeneXpert and AFB cultures pending. He was therefore labeled as a case of Disseminated Extrapulmonary Tuberculosis.

He was started on Anti-tuberculous therapy with Isoniazid, Rifampicin, Ethambutol and Pyrazinamide along with pyridoxine and showed gradual improvement, where his fever subsided and he reported weight gain. However, no regression of his lymph nodes was noted by the 3rd month of treatment. Development of new lymph nodes in his submental and submandibular region was noted in the follow up visits with an increase in size of inguinal lymph nodes with abscess formation requiring incision and drainage. Considering it to be TB Immune Reconstitution Inflammatory Syndrome (IRIS), treatment was continued. The AFB culture and sensitivity smear for the collected pus sample was again 3+ AFB. By this time, the initial AFB cultures from the bone marrow and lymph nodes were reported to be negative.

Subsequently he developed high grade fever with erythematous tender nodular lesions on his face and forehead along with thickening of the ear pinna, diagnosed by the leprosy specialist as Erythema Nodosum Leprosum (type II lepra reaction) (Figure-2). He was later confirmed with leprosy on the basis of skin biopsy of these lesions which revealed AFB smear 3+ and was labeled with Lepromatous leprosy and started on clofazamine and rifampicin. Thalidomide was given for type 2 lepra reaction and dapsone was avoided due to anaemia.

During the course of his follow-up, he showed remarkable improvement with single relapse of lepra reaction with nodular lesions and non-healing ulcers with high grade fever which responded to high dose steroids.

## Discussion

Leprosy is a debilitating chronic granulomatous disease of the biblical era caused by *Mycobacterium Leprae*. Global incidence and prevalence of leprosy is 2.9/100,000 and 0.2 cases/10,000 people respectively.<sup>5</sup> The incidence and prevalence of this disease in Pakistan is stated to be 0.21/100,000 and 0.03/10,000 people respectively.<sup>1</sup>

This disease has a wide spectrum of presentations

ranging from the most common hypoesthetic skin lesions, to the pathognomonic deformities like saddle nose and Charcot joints. Hypersensitivity reactions associated with this disease complicates the course of illness, hence increasing the morbidity. Type 2 Lepreae reaction is associated with lepromatous leprosy with very high burden of the mycobacteria leprae. In 90% of the cases, these reactions occur after starting treatment; however rarely they may occur as a primary presentation or even after completion of therapy.<sup>6</sup> The type 2 leprae reaction is manifested by wide spread deposition of immune complexes in the skin, joints, lymph nodes, bone marrow, kidneys, liver, spleen, endothelium and testes. The patient hence presents with the classical nodular lesions, erythema nodosum leprosum, and other systemic symptoms of high grade fever, uveitis,<sup>3</sup> arthralgia etc. The difficulty arises when this disease presents only as prolonged fever and lymphadenopathy,<sup>7</sup> or initially as one of the leprae reactions in the patients who are treatment naïve.<sup>8</sup>

In our patient's initial presentation of prolonged fever with lymphadenopathy and arthritis without the classical skin manifestations of leprosy, led to the complexity in diagnosing the disease. Moreover as patients with tuberculosis more frequently present with these symptoms in endemic regions, therefore pending Acid Fast Bacilli culture report, patient was confidently started on the standard Anti tuberculous therapy on the basis of AFB smears. The reason Leprosy could not be confirmed initially on FNAC is probably because it is a poorer test which causes destruction of the tissue hence skin for AFB smear positive was taken as confirmatory in view of the other clinical findings.<sup>9</sup> In a study conducted in India it was observed that, in patients of leprosy with lymphadenopathy the most frequent site of involvement was the inguinal region.<sup>10</sup>

Another manifestation of our patient was arthritis with uveitis<sup>3</sup> hence leading us to consider Reiter's syndrome. In a study conducted by Shiva Prasad and his team they found that out of 44 cases of proven leprosy the musculoskeletal manifestations included arthritis, swollen hands and feet, arthralgia and vasculitis, apart from 28 cases of lepra reaction presenting with tenosynovitis and arthritis.<sup>11</sup> Due to the high bacillary load patient may present with anaemia and thrombocytopenia<sup>12</sup> or as pancytopenia due to bone marrow infiltration.<sup>13</sup>

Although our patient had bone marrow infiltration as seen by bone marrow AFB smears being +3 positive, he suffered from anaemia and thrombocytosis<sup>4</sup> rather than pancytopenia.

## Conclusion

The lack of pertinent knowledge regarding leprosy amongst general practitioners and the complicated course and presentation of this disease leads to delayed diagnosis and hence increasing the morbidity.

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