Case Report

Leprosy Presenting with Iridocyclitis: A Diagnostic Dilemma

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Abstract

Purpose: To report a case of lepromatous iridocyclitis that posed a diagnostic challenge.
Case Report: A 50-year-old male developed profound loss of vision in the right eye, while he was in the hospital with septicemia presenting with fever, dysuria, and abdominal swelling. He also developed erythema nodosum on the legs. Skin incisional biopsy section, upon dermatology consultation, showed a granulomatous nodule in the dermis. The anterior chamber aspirate demonstrated lepra bacilli, which confirmed the diagnosis of lepromatous leprosy with type II reaction. The patient was treated with multidrug therapy and oral and topical steroids.
Conclusion: This case highlights that the lepromatous iridocyclitis, a serious vision-threatening disorder requires a high index of suspicion for prompt diagnosis in atypical cases particularly in endemic areas. Examination of the aqueous humor can also be helpful in diagnosis.

Keywords: Erythema Nodosum; Iridocyclitis; Lepromatous Leprosy; Leprosy; Uveitis

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INTRODUCTION

Leprosy is a chronic granulomatous infection caused by the obligate intracellular organism *Mycobacterium leprae*, affecting mainly the skin and peripheral nerves.[1] The reported prevalence of leprosy was 0.32 per 10,000 persons worldwide according to a global leprosy estimate in 2013.[2] Southeast Asia had the highest number of new cases, accounting for 72% of the global leprosy burden. India accounted for 58.85% of the global leprosy burden.[2] Leprosy is transmitted as an airborne infection through airway secretions. *Mycobacterium leprae* is an acid fast bacillus with a strong preference for low temperatures. Therefore, bacilli are mainly found in the skin, nose, earlobes, and peripheral nerves. Within the eye, the organism is found only in the anterior segment which has relatively lower temperature. The organism has not been observed in the posterior segment or the optic nerve. Leprosy affects the eyes, skin, and peripheral nerves. The eye is affected via direct invasion

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or during lepra reaction. Ophthalmic manifestations of leprosy include lagophthalmos, corneal ulceration, acute or chronic iridocyclitis, and secondary cataract.[3] Ocular complications may also occur indirectly through impairment of lid closure (VII nerve) and corneal anesthesia (V nerve) and through damage to adnexal tissues. Secondary infection is always a risk in a chronically affected eye. Most of the ocular complications may lead to visual impairment and blindness; therefore, early detection and appropriate treatment is essential to prevent blindness. We report an unusual case of lepromatous leprosy presenting with iridocyclitis, and systemic features managed medically.

CASE REPORT

A 50-year-old male complained of impaired vision, redness, pain, and watering in the right eye for over 10 days while admitted to the hospital with fever, dysuria, abdominal swelling, and generalized malaise. Laboratory investigation revealed that the patient had microcytic hypochromic anemia, polymorphonuclear leukocytosis, thrombocytopenia, azotemia, and abnormal liver function. Ultrasonography of the abdomen revealed hepatomegaly with fatty changes and ascites [Figure 1b]; 2D Echo imaging showed bilateral pleural effusion. Radiographs of the musculoskeletal system of the upper and lower limbs were normal. The patient was treated for septicemia.

Ocular examination revealed visual acuity of hand movement close to the face in the right eye and 20/20 in the left eye. External examination showed thinned eyebrows, loss of eyelashes, and thickened eyelids. A hypo-pigmented growth measuring 4 × 4 mm in the inferotemporal quadrant involved 4 clock hours of the anterior chamber and was suggestive of a Busacca nodule, obscuring the pupil with medium-size keratic precipitates in the right eye. Both cornea and lens were transparent. Iris was muddy and lusterless without a demonstrable pattern. The pupil was partially obscured by Busaca nodule and it was small and irregular because of multiple posterior synechiae and was non-reactive to light. Anterior chamber was hazy because of flare. Corneal sensation was reduced in the right eye. Intraocular pressure was 14 and 16 mmHg in the right and left eyes, respectively. The right fundus was not visible. The ocular examination of the left eye was within normal limits. Ultrasonography b-scan of the posterior segment showed no abnormality. The patient was negative for Mantoux test, human leukocyte antigen B-27, antistreptolysin O titer, rheumatoid factor, Widal test, hepatitis B surface antigen, and anti-hepatitis-C virus antibody. Unilateral iridocyclitis was provisionally diagnosed, but no cause was identified.

The patient developed erythema nodosum over the legs [Figure 1a] four days after admission. Slit skin smear

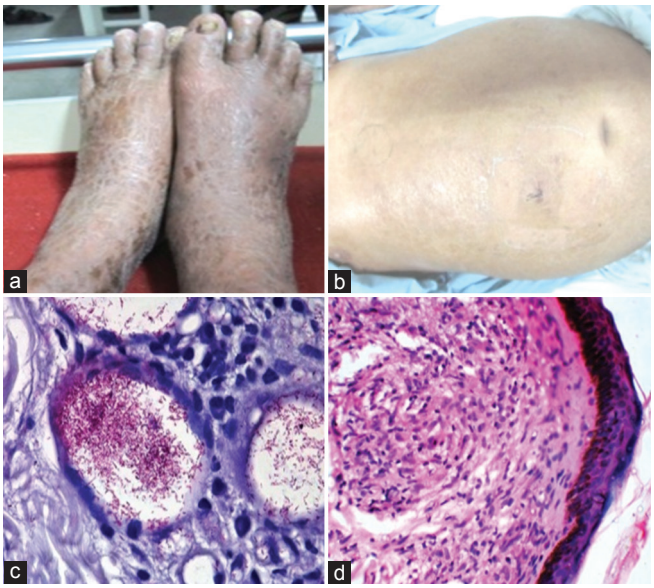

Figure 1. Clinical and microscopic image of the patient with leprosy. (a) Erythema nodosum over legs, (b) ascites, (c) anterior chamber aspirate showing acid fast bacilli (Ziehl-Neelsen stain, ×1000), (d) Paraffin block of skin incisional biopsy showing granulomatous nodule in the dermis (H and E, ×400).

from erythema nodosum and anterior chamber (AC) tap were performed after dermatology consultation. AC tap revealed numerous acid fast bacilli in each field; the slit skin smear showed lepra bacilli [Figures 1c and d]. The patient was diagnosed with lepromatous leprosy. The diagnosis was confirmed by the detection of a granulomatous nodule in a skin incisional biopsy. Other ophthalmic features of leprosy including lagophthalmos, keratitis, exposure keratopathy, corneal ulceration, conjunctival or scleral leproma, retinal pearls, and retinal detachment were not seen in this case. The patient was sent to the Leprosy Centre, and multidrug therapy (MDT) comprising dapsone (100 mg), rifampicin (600 mg), and clofazimine (300 mg) were started. Systemic involvement and iridocyclitis gradually improved with MDT.

DISCUSSION

The present case was an inpatient case being treated for septicemia and systemic complaints. Detailed ophthalmic evaluation was performed upon consultation for visual impairment, revealing features of granulomatous uveitis. This finding, along with systemic features and detection of acid fast bacilli on AC tap smear, confirmed the diagnosis of lepromatous leprosy with lepra reaction. Campos, et al reported the diagnosis of mycobacterium leprae through AC paracentesis in a case of bilateral iridocyclitis.[4] Lepromatous uveitis has also been diagnosed through skin, aqueous humor, and iris biopsy, as reported by Messmer et al[5]

The reported frequency of iridocyclitis is 7%-24%.[6-8] Iridocyclitisis a potentially blinding clinical manifestation

of erythema nodosum leprosum (type II reaction), which results from antigen antibody reaction, mainly in multibacillary (lepromatous) leprosy. Acute iritis, episcleritis, and scleritis are manifestations of a type II reaction. Citirik, et al reported the presence of a Busacca nodule in the mid-peripheral iris, similar to the nodule in the present case.[9] Acute inflammatory reaction affecting the facial nerve, cornea and iris is characteristic of type II reaction, which may severely damage the eye, directly or indirectly. Madarosis is a well-recognized feature of leprosy. It occurs after 5-10 years of untreated multibacillary leprosy. Loss or atrophy of the eyelashes may follow.[10]

The unilateral iridocyclitis in this patient, with lack of other external findings of lid or corneal deformity, was peculiar. Iridocyclitis is generally managed with topical steroids and cycloplegic drugs over a prolonged duration. Specific ocular therapy for lepromatous iridocyclitis does not exist as the anti-leprosy drugs being used systemically have little local application. General care and attention by both the patient and leprosy worker are essential to avoid minor injuries and ocular insults that may develop into major problems in already afflicted eyes. It is therefore recommended that the eyes of all leprosy patients, not merely those presenting with ocular complications, be examined monthly. Suspicious cases should be referred to eye clinics for detailed examination.[11] Treatment could then be initiated much earlier, saving many eyes. Evidence strongly indicates that the most serious effects on body tissues consequent to infection of the skin, nerves, and eyes with *Mycobacterium leprae* are because of the immune response.[12] In both lepromatous and non-lepromatous leprosy, adverse immunological reactions, either cell-mediated or humoral, may develop suddenly and have considerable severity, necessitating treatment with steroids or immunosuppressive drugs.[13]

The present case represents a clinical and histological demonstration of iridocyclitis, resulting from lepromatous leprosy, in a previously healthy male from a good socioeconomic stratum, which could have progressed into blindness if left undetected or treated inappropriately. A close and long follow-up is required in these cases, as these patients are at risk of significant ocular morbidity, despite completing the multidrug therapy.[14]

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Conflicts of Interest

There are no conflicts of interest.

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