A Clinical Study of Ocular Manifestations of Leprosy

Subha L, Ravikumar R, Palanimuthukumaran PM

Department of Ophthalmology, Sree Balaji Medical College and Hospitals,
BIHER-Bharath University, Chrompet, Chennai 600044.

Abstract:

The ocular manifestations in 75 cases revealed that majority of them had brown and eyelash madarosis constituting 33%, Lagophthalmos 10.6%, exposure keratitis 9.3% and chronic dacryocystitis 1.3%. Of the total study group, 47% of the population had no ocular manifestations, indicating the efficacy of early detection of disease and its effective control with multi drug regime therapy. A higher incidence of leprosy was recorded in male population.

Keyword: Ocular manifestations, Multi drug regime therapy, Leprosy

Corresponding author: Dr. Subha L, Associate Professor, Department of Ophthalmology, Sree Balaji Medical College & Hospital, Chennai-44. Email: medical44dept@gmail.com
**Introduction**

Leprosy (Hansens disease) is a chronic infectious disease caused by *Mycobacterium Leprae* affecting primarily the peripheral nerves and secondarily the skin, nasal mucous membrane, muscles, eyes, bones, testis, upper respiratory tract and internal organs. Since symptoms of leprosy emerge so gradually after infection from a year to twenty years, it is very complex to recognise the occurrence of leprosy. Eyebrow loss (superciliary madarosis) and lack of sensation anywhere in the skin where lesions are prevalent are the first indications and symptoms of leprosy(1-11). The other diagnostic features of leprosy include dry skin, muscular pain and paralysis, sores in the feet, lack of sensation, and bleeding in the nose (9). As the disease advances, lose of toes, fingers, and nose may be encountered. The diagnosis of leprosy can be made by scraping lesions and staining the skin scrapings of lesions and/or mucous secretions with an acid-fast stain to demonstrate the presence of *Mycobacterium lepraе*(4,7). Clinical symptoms of leprosy include one or more of the following cardinal features Viz. (I) Hypopigmented patches, partial or total loss of cutaneous sensation in affected areas, and earliest to be affected being light touches. (II) Presence of thickened peripheral nerves, presence of acid fast bacilli in the skin or nasal smears. The eye is never the primary site of mycobacterial infection but it can be a secondary site of incidence to a lesion occurring elsewhere in the body. The eye can be affected in the following ways namely by(i) nerve paralysis, (ii) direct infiltration of the tissues by leprae bacilli on the eye lids conjunctiva, sclera, iris and ciliary body. (iii) Antigen antibody reaction in which eye tissue are sensitised to leprae bacilli and their products which are antigenic, inflammation involves iris, ciliary body, and choroid sclera. The current study aims at the identification of the incidence and prevalence of various types of ocular leprosy and The distribution of the potential sight threatening ocular lesions of the leprosy were identified ocular leprosy manifestations are usually managed by both conservative and surgical techniques.

**Materials and Methods**

A total of 75 patients including both inpatients and outpatients visiting Sree Balaji Medical College and hospital for ophthalmological problems were included in the current study. The ocular leprosy disease is classified according to clinical manifestations as tuberculoid, dimorphous, Intermediate, and lepromatous. A detailed
ophthalmological examination was carried out by torch light and slit lamp to assess anterior segment involvement. External deformities and adnexal involvement was noted. Facial nerve palsy if any was detected. Trigeminal involvement was tested by cutaneous sensation in the area supplied by ophthalmic division of the 5\textsuperscript{th} nerve as well as corneal and conjunctival sensation with a wisp of cotton. Presence of papillary reaction, anterior segment, and pathology if any was confirmed. Intra ocular tension was recorded with perkins applanation tonometer. Corneal staining, gonioscopy, ultrasound biometry, and keratometry were done wherever the situation demanded. Fundus examination after dilating the patients with the application of tropicamide 0.5\% and phenylephrine 0.5\% both with direct and indirect ophthalmoscope. Smears were taken from skin lesions and ear lobules of all suspected ocular leprosy patients and they were graded with bacteriological and morphological index. Organisms were isolated by Ziehl neelsen technique. Conservative and surgical management techniques were used for the assessment of ocular leprosy patients with ocular involvement.

Results

The ocular manifestations in 75 cases revealed that majority of them had brown and eyelash madarosis constituting 33\%, Lagophthalmos 10.6\%, exposure keratitis 9.3\% and chronic dacroyocystitis 1.3\%. Of the total study group, 47\% of the population had no ocular manifestations. A maximum of 44\% of the patients examined were in the age group of more than 61 years for ocular leprosy. Among the total number of ocular leprosy patients, male patients were 28 whereas the total number of female patients was 5, and thus the data may reflect the male population preponderance for the incidence of ocular leprosy. The higher incidence of leprosy in male population can be attributed to higher rate of exposure and hence increased risk of infection. A maximum incidence of ocular leprosy was detected in paucibacillary group than that of the multibacillary while the incidence of pscibacillary in the group was with a time lag of 19 to 24 months which was low (4.1\%) compared to that of time lag of < 6 months (45.2\%) and these may, indicate the effectiveness of early detection and effective treatment and control of the disease by multi drug regime therapy. In case of lagophthalmos, an early treatment gave good results and thus prevented sight loss. Cornea should be lubricated by artificial tears i.e. 2\% methyl cellulose drops during sleep to prevent or reduce infection. The palpebral aperture was filled with lubricant and antibiotic.
ointment and bandaging or taping of the eyelid were employed. The cause of exposure to be corrected and surgical tarsorraphy involving 1/4 or 1/3 of the palpebral aperture was done in case of inadequate Bells phenomenon. Depending on the severity of the lesion mediolateral or lateral tarsorrhaphy was planned. In case of intraocular episcleral nodules showing a few signs of activity that were little influenced by local treatment. When active signs occurred, eye were treated with steroids.

Discussion

The present study has shown ocular manifestations viz. brown and eyelash madarosis 33%, Lagophthalmos 10.6%, exposure keratitis 9.3% and chronic dacroyocystitis 1.3%. The occurrence of a maximum of 44% of the patients with ocular leprosy who were in the age group of more than 61 years. Similarly Mpyet and Solomon (2005): examined 480 people and reported that (48%) 456 of 960 eyes were with one ocular lesion and 37% of them were leprosy related sight threatening ocular lesions. They also recorded that the prevalence of blindness was 10.4%. An additional 7.5% of subjects were severely visually impaired Cataract was the commonest cause of blindness. Prevalence of leprosy in general have decreased over the past 30 years, which is mainly due to the efforts of WHO which provided multi-drug therapy (MDT) free of cost to all diagnosed leprosy patients (11). In the current study, We have shown that 28 male patients had ocular leprosy whereas there were only 5 female patients had ocular leprosy and thus the data reflect the male preponderance for the incidence of ocular leprosy. The higher incidence of leprosy in male population can be attributed to higher rate of exposure and hence increased risk of infection. Our results also concurred with the previous reports on ocular Leprosy patients by Campos, and Monterio (1). A maximum incidence of ocular leprosy was detected in paucibacillary group than that of the multibacillary while the incidence of psychobacillary in the group was with a time lag of 19 to 24 months which was low (4.1%) compared to that of time lag of <6 months (45.2%) and these may, indicate the effectiveness of early detection and effective treatment and control of the disease by multi drug regime therapy (2,3,11). In case of lagophthalmos, an early treatment gave good results and thus prevented sight loss. Cornea should be lubricated with artificial tears i.e 2% methyl cellulose drops during sleep to prevent or reduce infection. The palpebral aperture was filled with lubricant and antibiotic ointment and bandaging or taping of the eyelid was employed. The
cause of exposure to be corrected and surgical tarsorraphy involving 1/4 or 1/3 of the palpebral aperture was done in case of inadequate Bells phenomenon. Depending on the severity of the lesion mediolateral or lateral tarsorrhaphy was planned. In case of intraocular episcleral nodules showing a few signs of activity were little influenced by local treatment. When active signs of ocular leprosy occurred, eyes were treated with steroids. Thus the study has shown that leprosy is currently curable with a blend of antibiotic and other therapy for 6 months to 2 years and completely kill /eliminate the bacteria Mycobacterium leprae and also the immune responses in the patient. As Hansen's disease is known to be transmitted through with direct contact from person-to-person or through inhalation of the coughing or sneezing droplets from infected Individuals we need to take enough precautions and treatment to prevent infections of such deadly disease.

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