www.jmscr.igmpublication.org Impact Factor 3.79
ISSN (e)-2347-176x

IGM Publication Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

A Clinical Study on Ocular Manifestations of Leprosy

Authors
Dr. M. Premanandam[1], Dr. G. Narendranatha Reddy[2]
[1,2]Dept of Ophthalmology Regional Eye hospital Kurnool & Kurnool Medical College Kurnool
Corresponding Author
Dr. M. Premanandam
Associate Professor, Dept of Ophthalmology Kurnool Medical College Kurnool and Regional Eye Hospital Kurnool
Email: *premanandam1957@gmail.com*

ABSTRACT

From september 2012 to october 2013, during this period we have selected 100 leprosy patients as a sample for study of ocular manifestions of leprosy. There people were living in leprosy colonies in kurnool,others were admitted in leprosy ward of Govt. General hospital kurnool, and leprosy patients attending regional eye hospital outpatient department.kurnool, in the juridiction of the kurnool medical college kurnool, Andra pradesh state. In our study of sample (61%) of leper's had ocular manifestations between the age group of 41-61' years this is the maximum prevalence in our study. 78% leprosy patients were make predominance shown due to lepromatoues type of the disease (77.08%) patients had ocular manifestations. Age wise (41-61 year) 65.6% effected by ocular involument. With the infected period 6-10 year's duration 69.38% shown ocular manifestations. In our further study of the sample ocular manifestations were as follows below madarosis 75.44%, lagophthalmus 39.44% cornel leasinons 44.28%, anterioruveitis 34.44, ectropion 11.48, lens changes 58.84% noticed respectively. In positive lepra reaction of 25 cases ocular involument were observed 41%. Regarding visual impairment 61 patients affected (72.16%),

i)BCVA 6/36-CF3mts(U/L) 28 cases 45.92%

ii)BCVA6/36-CF3mts(B/L) 16 cases 26.24%

iii) BCVA<CF 3mts (U/L) 5 cases of 8.2% shown visual impairment.

Remaining cases were bilateral cataract. And finally comparative study of ocular manifestions discused in table from.

According their ocular problems and systemic disease wise we refer the cases to the ophthalmology, dermatology, plasticsurgry, medicine departments respectively for further management.

INTRODUCTION

Leprosy (Hansen's Disease) history has been known since remote antiquity and it is a chronic infectious disease caused by an intracellular acid fast bacillus[1].Myco bacterium leprae was discovered over a hundred years ago around 1873 by Armauer Hansen. The disease would seen to have commenced in Ancient Egypt and spread thence to middle East, India and China in the direction, and South into the African continents. Mediaeval Europe was greatly affected by the ravages of leprosy.

After the 16th century leprosy in Europe became unknown except in Spain and Scandinavia. In temperate climates it is now rare and of sporadic occurrence but is still common in the tropics and subtropics of all continents.

Despite major advances in recent years in the understanding of the Pathology and treatment of Leprosy, ocular complications still pose the greatest single threat to patients who have a disease which is disfiguring, humiliating, relentless in its course, and yet rarely fatal on its own.

The prevalence of blindness due to leprosy has been variously estimated are being 4.7% in India .

The global distribution of registered leprosy patients it has been estimated that the number of blind leprosy sufferers could be as many as 5,00,000 to 7,00,000.

Ophthalmic manifestations are frequent with studies reporting 6% to 100% Ophthalmologic involvement in leprosy patients[4]. The frequent and types of Ophthalmologic involvement depends on the duration and the form of the disease[5]. It is two principle types 1. Lepromotous type, 2.Tuberculoed type. It involves the external Eye anterior segment and adnexa primarily, since there are cooler than other portions of the eye[4].

MATERALS AND METHODS

1. The materials for the present study taken from patients with leprosy of all ages and both sexes attending the out-patient department of Ophthalmology as well as in-patients for the department of dermatology at Government General Hospital, Kurnool attached to Kurnool Medical College.
2. The patients residing in Christ colony, Kurnool.
3. Military colony, Near Gargeyapuram.

Ocular examination included: Details examination of adnexae and extraocular structures including the examination of face, orbit, eyebrows, eyelids, palpebral fissure, extraocular movements, bells phenomenon and lacrimal sac was done. Silt lamp biomicroscopy was done for detailed examination of anterior segment. Corneal sensation checked using a wisp of cotton. Visual acuity without and with correction were studied using Snellen's acuity chart. All pateients with BCVA <3/24 in one or both eye were considered visually impaired. All patients with visual acuity less that 3/60 (Snellen) or its equivalent were considered blind (as per WHO difination). Intraocular pressure was measured using applanation tonometer and Shioz tonometer. Fundus evaluation done using direct opthalmoscope.

Investigations performed: Relevant laboratory investigation like complete haemogram, ESR, urine examination was carried out. RBS checked before starting the patients on any systemic steroids.

Diagnosis of leprosy was confirmed by clinical examination and on the basis of Smear test report for mycobacterium leprae, previously performed on the patient by the dermatologist attending the case. Opinion of the dermatologist taken whenever required regarding systemic examination and treatment.

RESLTS & DISCUSSION

Leprosy is a systemic disease with highest incidence of ocular complications and one of the important causes of blindness in the world. A total 100 diagnosed cases of leprosy were taken up for study.

Table – 1 Distribution of patients according to sex

Sex	No. of Cases	Percentage
Male	78	78%
Female	22	22%

In our study majority of patients with leprosy belongs to males group (78%)

Table – 2 Distribution of patients according to age

Age Group	No. of Cases	Percentage
10-20 years	3	3%
21-40 years	20	20%
41-60 years	58	58%
> 60 years	19	19%

Distribution of patients according to age

On Categorizing the patients age wise into 4 groups as shown in the above table, we have noted that majority of patients (58%) belongs to the age group of 41-60 years followed by 20% cases in the age group of 21-40 years.

Table – 3 Distribution of patients according to type of leprosy

Type of Leprosy	No.of Cases	Percentage
Lepromatous	65	65%
Borderline	20	20%
Tuberculoid	15	15%

Distribution of patients according to type of leprosy

Out of 100 cases studied we have noted that 65% cases belongs to lepromatous type 20% borderline type remaining 15% belongs to tuberculoid type.

The prevelance of ocular lesions varies from series to series depending on race, average duration of the disease. The marked difference in the incidence is possibly due to selection variation in the study and due to geographical pattern of general incidence of the disease.

Table – 4 Ocular involvement in Leprosy

Ocular involvement	No.of Cases	Percentage
Present	61	61%
Absent	39	39%

In this study out of 100 patients of leprosy examined ocular involvement was seen in 61% of patients. The high incidence of ocular involvement may be because of late diagnosis and treatment.

This study when compared to other studies showed similar observations.

Table – 5 Comparison of incidence of ocular involvement in different studies.

S.No	Study	Percentage of Ocular involvement
1.	Junaid S.Wani et.al [28] (2005)	69%
2.	Gnandoss AS et.al[29] (1986)	59.2%

3.	Court right et.al[30] (1984)	40%
4.	Dehelf's [31] (1981)	52%
5.	Mall et.al.[32] (1981)	74%
6.	Present study	61%

Table- 6 Distribution of patients with ocular involvement according to age

Age group	No.of Cases	Percentage
10-20	0	0%
21-40	14	22.96%
41-60	40	65.6%
> 61	7	11.55%
Total	61	100%

$\chi^2 = 2.1056$

p= 0.5507 No significant

Ocular involvement seen in 61 patients out of 100 cases. On analyzing the above results we found that the majority of the patients with ocular involvement in leprosy (65.6%) were seen in the age group of 41-60 years followed by 22.96% cases in the age group of 21-40.

Table-7 Distribution of patients with ocular involvement according to Sex

Sex	No.of Cases	Percentage
Male	48	78.72%
Female	13	21.32%
Total	61	100%

$\chi^2 = 0.0105$

p= 0.9181 No significant

In our study male predominance was seen not only in the number of patients with leprosy (78%), but also in those who had ocular involvement (78.72%). These results are similar to that seen in study by Wani M.S[28] et.al, in 2005 (82.6%). This may probably be due to higher prevalence of the disease among men. Brandt[32] in 1981 also observed similar pattern.

Table-8 Distribution of patients with ocular involvement according to type of leprosy

Type of leprosy	No.of Cases	Percentage
Lepromatous	47	77.08%
Borderline	8	13.12%
Tuberculoid	6	9.84%
Total	61	100%

$\chi^2 = 2.5981$

p= 0.2728 No significant

Among the three major types of leprosy all were found to have ocular changes. Ocular involvement was predominantly seen in Lepromatous type (77.08%) followed by (13.12%) cases seen in Borderline type, 9.84% cases seen in Tuberculoid type. This is similar to study by wani M.S[28] et.al (2005), where in ocular involvement was found to be higher in lepromatous leprosy, ocular complications appeared to be more common among lepromatous patients than tubervuloid as anterior segment of the eye provides a favourable environment for the M. Leprae which are more numerous in the lepromatous patients.

Table-9 Distribution ocular lesions according to duration

Duration of leprosy in Years	Total No. of Cases	Cases with Ocular Involvement	Percentage
0-5 years	20	6	30%
6-10 years	49	34	69.38%
11-15 years	14	8	57%
16-20 years	10	6	60%
21-25 years	5	5	100%
26-30	2	2	100%

$\chi^2 = 9.069$

p= 0.0283 Significant

The above table shows definite influence of duration of leprosy on ocular involvement. As the duration of leprosy increases percentage of cases showing the ocular involvement also increases. The apparent decrease in the percentage in 11-15 and 16-20 years group is due to Tuberculoid type & Borderline type in which the ocular involvement is less prevalent than lepromatous type. According to C.P.Gupta[10] (1967) ocular lesions were seen more frequently with increasing age and duration of leprosy.

Table – 10 Ocular manifestations in leprosy of various types.

	Lepromatous (47)	Borderline (8)	Tuberculoid (6)	Total (61)	Percentage
Super Ciliary madarosis	36	7	3	46	75.44%
Loss of cilia	32	7	3	42	68.88%
Lagophthalmos	19	2	0	21	34.44%
Ectropion	4	3	0	7	11.48%
Dacryo systitis	0	0	1	1	1.64%
Chronic Conjunctivitis	5	0	2	7	11.48%
Episcleral Nodule	1	0	0	1	1.64%
Corneal Hyposthesia	8	1	0	9	14.76%
Various other corneal lesions	24	2	1	27	44.28%
Lens changes	22	4	5	31	50.84%
Anterior Uvietis	19	2	0	21	34.44%
Phthis bulbi	1	0	0	1	1.64%

Various other corneal lesions

- Corneal opacity
- Corneal ulcer
- S.P.K (Superficial Punctate Keratitis)
- Exposure Keratitis
- Anterior Staphyloma

Out of 61 patients with ocular manifestations, in many patients more than one lesions were observe loss of eyebrows & cilia are the commonest ocular manifestation, observed in our study (75.44%) & 68.88% respectively). This observation was similar to that seen in other studies where in madarosis was found to be the commonest ocular manifestation.

Table – 11 Comparison of incidence of madarosis in different studies

S.No	Study	Percentage
1.	Wani.S[28] et.al, (2005)	72.46%
2.	Acharya BP[34] (1978)	59.2%
3.	Lamba et.al[35] (1983)	70%
4.	Schield[36] (1974)	59%

Present study shows 75.44%

In our study lagophthalmos was seen in 34.44% of cases. This observation was almost similar to that seen in other various studies, as shown below.

Table – 12 Comparison of incidence of lagophthalmos in different studies

S.No	Study	Lagophthalmos
1.	Wani.S[28] et.al, (2005)	28.98%
2.	Acharya BP[34] (1978)	34.3%
3.	Lamba et.al[35] (1983)	13%
4.	Schields[36] (1974)	29%
5.	Weerekon[37] (1972)	27%

Present study shows 34.44% of lagophthalmos in 61 patients.

Lagophthalmos was found to be more common in lepromatous type, followed by borderline type. This observation was similar to that seen in study by Wani.M.S.[28] et.al where in incidence of lagophthalmos was highest in lepromatous leprosy.

Table – 13 Comparison of Uveal involvement with other studies

S.NO	Study	Percentage of Uveal Involvement
1.	Wani.S[28] et.al, (2005)	31.88%
2.	Lamba et.al[35] (1938)	14%
3.	Horn bloss[38] (1973)	16%
4.	Gnandoss AS[29] et.al (1986)	5.6%

Present study shows 34.44%

Ectropion observed in 11.48% of cases only one case of pthysisbulbi was found in lepromatous type.

Posterior segment changes due to leprosy have not been see in our study.

Table – 14. Lepra reaction in leprosy patients with ocular involvement

S.No	Lepra Reaction	No.of Cases	No.of cases with ocular involvement	Percentage
1.	Present	25	25	41%
2.	Absent	44	11	18.04%
3.	Non known	31	25	41%
	Total	100	61	

Out of 100 patients history of lepra reaction was present in 25% cases absent in 44% cases and not known in 31% cases

All 25 patients with history of lepra reaction had ocular involvement. This can be explained by the fact that the patients have the greatest risk for developing eye complications due to lepra reaction during first 6-12 months of systemic treatment.

Among 61 patients with ocular involvement history of lepra reaction was present in 41% of cases,

absent in 18.04% of case, not known in 41% of cases.

Table – 15 Visual impairment in patients with ocular involvement

S.No	Visual Impairment	No.of Cases	Percentage
1.	BCVA 6/36- CF 3 mt (U/L)	28	45.92%
2.	BCVA 6/36- CF 3 mt (B/L)	16	26.24%
	Total	44	72.16%
3.	BCVA < CF 3mt (U/L)	5	8.2%
	Remaining cases are due to age related bilateral senile cataract.		
	Total	61	

Out of 61 patients with ocular involvement visual impairment was seen in 72.16% cases out of which unilateral visual impairment was seen in 45.92% and Bilateral visual impairment was seen in 26.24% cases. Visual impairment due to age related Bilateral senile cataract is also included. Lesions responsible for visual impairment other than lens changes were lagophthalmos, corneal lesions & Uveitis.

8.2% of cases with visual acuity of < CF 3mt in one eye was seen. None of the patients had visual acuity of less than CF 3mt in both eyes. The incidence of blindness as reported by other studies are 40.57% in study by Wani.S[28] et.al, 29.50% by court right [30] and 8% by Hornbloss[38].

SUMMARY & CONCLUSIONS

Total 100 members of leprosy patients who lived in leprosy colonies in Kurnool and patients who admitted in leprosy ward Govt. General Hospital, Kurnool they were examined in detail for the ocular manifestations of leprosy patients in the period of September 2012 to October 2013.

In our study out of 100 patients with leprosy ocular involvement was seen in 61% of patients, and maximum prevalence seen in the age group of 41-60 years. Male predominance was seen in number and also ocular involvement in leprosy patients. Ocular involvement was seen in all three types of leprosy, predominantly in lepromatous type. With the increasing duration of leprosy, prevalence of ocular involvement and also increased. All patients with lepra reaction in the study group, showed ocular manifestations. Ocular involvement is confined to anterior segment. Lesions in the posterior segment are not seen. Most common ocular manifestation observed is madarosis Lagopthalmos, corneal involvement and Uveal involvement comprise the common sight threatening lesions.

ACKNOWLEDGEMENT

We sincerely thank Dr. P. Ramaprasad MD, Principal, Kurnool Medical College, Kurnool and Dr. Narendranath Reddy, MS, superintendent of regional eye hospital, Kurnool and Dr.K. Bharanikumar Reddy MD, (Ophthal) for allowing us to utilize the hosipital records in preparation of this article.

BIBLIOGRAPHY

1. Lewallen, Paul Courtright. An overview of ocular leprosy after 2 decades of nultidrug therapy.[1] International ophthalmology clinics – world blindness. Sep 2004, Vol-47;No. (3):87-99.
2. Sihota. Tandon Disease of the uveal tract chapter 17. Parsons disease of the eye 20th edition. New Delhi Elsivier 2007; 239-72.[2]
3. Thompson Allardice et al, Patterns of ocular morbidity and blindness in leprosy: Leprosy review Vol77(2) June 2006.[3]
4. Park K. Epidemiology of communicable diseases. Park's Textbook of preventive and social Medicine 17th edn. Jabalpr: M/S Banarasidas Bhanot Pblishers, 2002;242-253.[4]
5. Noordeen SK. The Epidemiology of Leprosy. In: Hastings RC. Ed. Leprosy. 2nd edn., Edinburgh London Madrid Melbourne New York and Tokyo: Churchill Livingstone, 1994;3-10.[5]
6. Job CK. Pathology of leprosy. In: Hastings RC. Ed. Leprosy. 2nd edn., Edinburgh London Madrid Melbourne New York and Tokyo: Churchill Livingstone; 1994; 193-224.[6]
7. Van.C.Joffrio. Ocular Leprosy. In: Hastings RC. Ed. Leprosy. 2nd edn., Edinburgh London Madrid Melbourne New York and Tokyo: Churchill Livingstone; 1995. P. 353-365.[7]
8. Sir.Steward Duke Elder, Bacterial Uveitis, System of Ophthalmology, vol IX, diseases of uveal tract; 285-291[8]
9. Wani M.S, SAbia Rashid M.S Ocular Manifestations in Leprosy A Clinical Study; JK- Practitioner 2005; 12 (I): 14-17.[9]
10. Jerry A Shields; George O; Waring and Luis G Monte: American J Ophthal 1974,77,880-890.[10]