

OCULAR LESIONS IN LEPROSY

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Summary

Out of 100 cases of leprosy studied for ocular complications, 46 were suffering from lepromatous leprosy and 54 from non-lepromatous leprosy; 72 were males and 28 females. The patients were in the age group of 13-70 years, with the maximum incidence (45%) in fifth decade of life. The mean duration of leprosy was 11.8 years, with a range between 4 and 36 years.

Single or multiple ocular lesions were found in 84% of patients. Impaired or absent corneal sensation (70%) was the most frequently seen ocular lesion in this study, followed by madarosis of eye brows and eye lids (56%), anterior uveitis (21%), lagophthalmos (19%), ectropion of lower lid (8%) and scleral lesions (4%) etc. Uniocular blindness was observed in 8% of patients. Periodical check up of all leprosy patients for any ocular involvement is essential in order to detect and treat the eye complications in early stages.

Ocular involvement in leprosy is not uncommon. The mechanism of eye changes varies with the type of leprosy. In lepromatous leprosy, all structures of the eye may be affected with lepromatous granulation, either singly or simultaneously, leading to changes depending on the site of affection (keratitis, iridocyclitis, episcleritis, scleritis etc.) and severity of the disease. Madarosis, partial or complete, and cutaneous lesions in the form of infiltration and nodules over the eye brows and eye lids are also found in lepromatous leprosy. In non-lepromatous leprosy, the changes observed are mainly neural and the clinical findings in the eye are secondary to affection of fifth or seventh cranial nerve or both.

There is wide variance in the occurrence of eye complications in leprosy in our country, as reported by various authors at different times. The difference in the prevalence is possibly due to selection variation of patients and to geographical pattern of the general incidence of the disease. In the present communication, the authors report the prevalence of ocular complications seen in 100 leprosy patients admitted in leprosy ward of Govt. General Hospital, attached to Rangaraya Medical College, Kakinada.

Material and Methods

One hundred consecutive patients of leprosy were examined for ocular complications in a period of 2 years from October 1978 to September 1980. After taking the history, visual acuity was recorded on Snellen's charts. Anterior segment of the eye (conjunctiva, sclera, cornea, anterior chamber, iris, pupil and lens) and ocular adnexa

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(eye brows, eye lids and lacrimal sac) were examined with torch light and binocular loupe. The patient was asked to close the eye lids and any exposure of the eye ball due to incomplete closure of the lids (lagophthalmos) was noted. Then the corneal sensation was tested with a fine cotton wick to detect the involvement of ophthalmic division of trigeminal nerve. Intraocular pressure was tested digitally. Finally, the fundus was examined, in all the cases, after dilating the pupils with 10% drosyn (phenyl ephrine) drops. Slit lamp examination and Schiotz tonometry were done whenever needed.

Age and sex of the patient, duration and type of leprosy, and ocular findings were recorded in a proforma. Eye diseases not related to leprosy, such as pterygium, senile cataract and refractive errors were not included in this study. All the patients were given necessary medical treatment for the eye complications and surgery was done whenever indicated.

Observations

Out of 100 patients examined, 72 were males and 28 were females. 46 were suffering from lepromatous leprosy and 54 from non-lepromatous leprosy. The patients were in the age group of 13-70 years, with the maximum incidence (45%) in fifth decade of life (Table 1).

The mean duration of leprosy was 11.8 years, with a range between 4 and 36 years. In majority of the patients, both eyes were affected. Single or multiple ocular lesions were found in one or both eyes of some of the patients. Ocular complications were found in 84% of patients, the lesions being more common in lepromatous leprosy patients (40 out of 46, 86.9%) than in non-lepromatous ones (44 out of 54, 81.4%). Of all the parts of eye, cornea (81%) was found to be most commonly affected, followed by eye brows and eye lids and uveal tract (Table 2).

Discussion

Ocular complications usually do not occur in the first few years of the disease; the longer the duration of the disease, the commoner are the ocular lesions in leprosy. This is probably because of the longevity of the patients' life due to modern drug therapy and the disease spreads to other organs in the body mostly in the later stages. Moreover, repeated acute reactive phases of the disease also affect the eyes along with the other organs in the body.

Involvement of the eyes is one of the most serious complications that may occur in this disease, and if neglected may eventually result in blindness. The eye complications may be due to direct spread of lepromatous lesions from face and nose to the eye,

TABLE 1
Showing age and sex distribution

Age in years	Lepromatous leprosy		Non-lepromatous leprosy		Total
	Males	Females	Males	Females	
11 — 20	1	—	2	1	4
21 — 30	3	2	6	5	16
31 — 40	9	3	8	5	25
41 — 50	19	3	16	7	45
51 — 60	3	1	2	1	7
61 — 70	2	—	1	—	3
Total	37	9	35	19	100

TABLE 2
Showing various ocular lesions in 100 cases of Leprosy*

Ocular lesions	Lepromatous leprosy	Non-lepromatous leprosy	Total
<i>Eye brows : (54)</i>			
Madarosis	27	7	34
Infiltration	12	4	16
Nodules	4	—	4
<i>Eye lids : (52)</i>			
Madarosis	18	4	22
Nodules	2	—	2
Thickening of upper lid	—	1	1
Ectropion of lower lid	2	6	8
<i>Lagophthalmous</i>			
Unilateral	3	10	13
Bilateral	2	4	6
Moderate	3	8	11
Severe	2	6	8
<i>Conjunctiva : (6)</i>			
Chronic conjunctivitis	4	2	6
<i>Cornea : (81)</i>			
Impaired sensation	13	26	39
Absent sensation	10	21	31
Band shaped keratopathy	3	1	4
Exposure keratitis	1	3	4
Corneal ulcer	1	2	3
<i>Sclera : (4)</i>			
Episcleritis	3	—	3
Scleritis	1	—	1
<i>Uveal tract : (24)</i>			
<i>Iridocyclitis</i>			
Unilateral	4	3	7
Bilateral	8	6	14
Acute	1	1	2
Chronic	11	8	19
Iris pearls	1	—	1
Ciliary staphyloma	2	—	2
Unilateral blindness	5	3	8
No ocular lesions	6	10	16

* Single or multiple lesions were present in some of the patients

direct infection of the eye ball with lepra bacilli, sensitisation of the tissues to the presence of lepra bacilli elsewhere in the body as seen in ENL reaction, or secondary to involvement of facial and/or ophthalmic division of trigeminal nerve.

The prevalence of ocular complications in this study (84%) is the highest so far reported in the literature from our country (11% by Ebenezer¹, 11.3% by Acharya², 25% by Somerset and Dharmendra³, 46% by Balakrishnan⁴, 69% by Gupta⁵, 70% by Saxena and Dwivedi⁶, and 80% by Dutta et al⁷).

The general prevalence of leprosy, as per the cases registered in different districts of Andhra Pradesh, is stated to be hyper endemic in East Godavari district (20.9 per 1000)⁸. Majority of the leprosy patients admitted in the General Hospital was referred from other hospitals, and belonged to low socio-economic group, many of them neglecting their disease without taking regular treatment. Many of them were suffering from the disease for many years (mean duration of leprosy was 11.8 years), and had single or multiple system complications. Probably, all the factors play a role in the high prevalence of ocular involvement observed in this study.

Madarosis of the eye brows and eye lids was more frequently seen in lepromatous patients than in non-lepromatous cases. Totally, madarosis was seen in 16 cases (14 in lepromatous and 2 in non-lepromatous patients). Cutaneous infiltration over the eye brows, and nodules over the eye brows and eye lids were seen in patients during erythema nodosum leprosum reaction of the disease.

Thickening of tarsal plate of upper lid in the left eye, giving the appearance of ptosis (Fig. 1) was seen in a 13 years old girl suffering from non-lepromatous leprosy of five years'

duration. The patient also had contracture of fingers of both hands. There was no involvement of Vth or VIIth cranial nerves on either side. The biopsy taken from the tarsal plate showed fibrovascular connective tissue infiltrated with chronic inflammatory cells. To the best of our knowledge, such a condition has not been described so far in the literature. The exact aetiopathogenesis of this condition in the above case is not known.



Fig. 1 Showing normal upper lid in right eye, thickened upper lid giving the appearance of ptosis in the left eye, and contracture of both hands.

In this study, lagophthalmos was seen more commonly in non-lepromatous leprosy (14 out of 54 cases, 25.9%) than in lepromatous type (5 out of 46 cases, 8.7%). Balakrishnan⁴ has reported 1.8% of lagophthalmos in lepromatous leprosy patients. In severe cases of lagophthalmos, there was associated ectropion of lower lid and/or exposure keratitis. Among 19 cases of lagophthalmos, unilateral total palsy of facial nerve was observed in 3 cases (Fig. 2).

Scleritis was seen in a 50 years old man suffering from lepromatous leprosy of 8 years duration (Fig. 3). There was associated chronic iridocyclitis with hypopyon. The eye was blind due to seclusio pupillae and secondary



Fig. 2 Showing lagophthalmos in both eyes with total palsy of facial nerve on the left side.

glaucoma which are well known complications of chronic iridocyclitis. Episcleritis was seen in 3% of patients and one among them was suffering from erythema nodosum leprosum reaction. Acharya² has reported 6.7% incidence of episcleritis in leprosy patients.



Fig. 3

Showing chronic iridocyclitis with hypopyon and scleritis at 4 o'clock position in the left eye.

The incidence of anterior uveitis seen in the present study (21%) is slightly lower than 25% reported by Acharya². Iridocyclitis was more common in lepromatous leprosy (12 out of 46, 26%) than in non-lepromatous

leprosy (9 out of 56, 16.6%) cases. A much lower incidence of the same in lepromatous leprosy patients (17%) has been reported by Balakrishnan⁴, whereas Dutta et al⁷ have reported almost equal incidence of anterior uveitis in both types of leprosy (15% in lepromatous and 17% in non-lepromatous) patients. Iris pearls were seen in one case of chronic iridocyclitis in our study, while Acharya² has reported the same in 2.2% of the cases. Unilateral ciliary staphyloma (Fig. 4) was seen in 2 cases of chronic iridocyclitis with associated secondary glaucoma.

Total blindness in one eye was noted in 8% of patients in this study. The causes were severe lagophthalmos resulting in exposure keratitis, corneal ulcer (which later perforated) in one case of non-lepromatous leprosy, and occlusio and seclusio pupillae, secondary glaucoma due to chronic iridocyclitis in five cases of lepromatous leprosy and 2 cases of non-lepromatous leprosy. Acharya² has reported blindness in 10% of lepromatous leprosy and 3% of tuberculoid leprosy patients having ocular involvement.

Somerset and Dharmendra³ have stated that in India, severe blindness is probably seen in only 1% of leprosy patients, though the incidence of less severe loss of vision must be considerable. The most common cause of

Fig. 4

Showing black raised area around the limbus (ciliary staphyloma) in the left eye in a case of chronic iridocyclitis.



blindness in lepromatous leprosy is iridocyclitis with its sequelae and exposure keratitis due to lagophthalmos leading to ulceration of the cornea in non-lepromatous type. It is however, the various sequelae of perforated corneal ulcer in the latter group that lead to complete loss of vision and total blindness of eye.

Involvement of posterior segment of the eye in leprosy is rare. However, Balakrishnan⁴ has reported choroiditis, retinal pearl and optic neuritis in lepromatous leprosy cases. No fundus lesions were found in our study.

It was observed that some patients were not aware of the eye diseases that they were suffering from, and hence not taking any treatment, as in patients with lagophthalmos and chronic iridocyclitis which are of insidious onset and not causing acute eye problems. But their sequelae like corneal ulcer and secondary glaucoma are dangerous and result in blindness, if not treated in time. Therefore, it is essential that all patients with leprosy should be examined periodically for ocular involvement, even though they may not complain of eye problems; so that the eye complications can be detected in the early stages and timely treatment given preventing possible blindness.

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