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# **Original Research**

## **Evaluation of Ocular Involvement in Patients with Hansen's Disease**

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#### ABSTRACT:

**Background**: This study was conducted for Evaluation of Ocular Involvement in Patients with Hansen's Disease. **Material and methods**: This study was conducted to assess the ocular findings of subjects with Hansen's disease. The study comprised of 20 subjects with Hansen's disease. The subjects had been informed about the study procedure and were asked to give consent. All the subjects gave consent andhad been included in the study. The demographic findings and incidence of ocular findings had been estimated. Also, the patients were investigated for the type ocular findings and the results had been tabulated. Statistical analysis had been conducted using SPSS software. **Results:** In this study, it was found that ocular findings were present in 60% of subjects with Hansen's Disease and were absent in 40% cases. Among 12 cases with ocular manifestations, 9 were males and 3 were females. Out of 12 cases, photosensitivity was the most common ocular finding seen in 5 cases. Burning sensation was seen in 1 patient. Lacrimation and blurred vision were the complaints of 4 and 2 subjects, respectively. **Conclusion:** Out of 20 cases with Hansen's disease, ocular findings were seen in 12 cases, of which the most common finding had been photosensitivity, other findings included blurred vision, lacrimation and burning sensation.

Keywords: Hansen's disease, Ocular, Photosensitivity

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#### **INTRODUCTION**

Leprosy, clinically referred to as Hansen's disease (HD), is a persistent infectious disease caused by the bacterium Mycobacterium leprae. Transmission occurs through the respiratory secretions of untreated individuals, thereby affecting those who have prolonged and close contact with them.<sup>1,2</sup>

The disease predominantly affects the skin, peripheral nerves, and ocular structures, and it is noted for having the highest rate of eye involvement among bacterial diseases in humans.<sup>3</sup> As of the end of 2018, the global prevalence of HD was recorded at 0.24 cases per 10,000 individuals, with 208,619 new diagnoses reported worldwide. The nations with the highest incidence rates include India, Brazil, and Indonesia, accounting for 57.7%, 13.7%, and 8.2% of all new cases, respectively, in 2018.<sup>4,5</sup>

The ocular signs and symptoms of HD can be caused by primary bacterial infection of ocular tissues by the bacillus–whether by direct inoculation or by hematogenic, neural (facial and trigeminal nerves), or lymphatic dissemination–and also by immune reactions including erythema nodosum leprosum (ENL).<sup>6</sup>

This study was conducted for Evaluation of Ocular Involvement in Patients with Hansen's Disease.

#### MATERIAL AND METHODS

This study was conducted to assess the ocular findings of subjects with Hansen's disease. The study comprised of 20 subjects with Hansen's disease. The subjects had been informed about the study procedure and were asked to give consent. All the subjects gave consent andhad been included in the study. The demographic findings and incidence of ocular findings had been estimated. Also, the patients were investigated for the type ocular findings and the results had been tabulated. Statistical analysis had been conducted using SPSS software.

#### **RESULTS** Table 1: Incidence of ocular findings

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Incidence	Number of cases	Percentage
Absent	08	40
Present	12	60
Total	20	100

In this study, it was found that ocular findings were present in 60% of subjects with Hansen's Disease and were absent in 40% cases.

#### Table 2: Gender-wise distribution of subjects

Gender	Number of cases (n=12)	Percentage
Males	09	75
Females	03	25
Total	12	100

Among 12 cases with ocular manifestations, 9 were males and 3 were females.

### Table 3: Type of ocular manifestation among subjects with Hansen's disease

Type of ocular manifestation	Number of cases	Percentage
Lacrimation	04	33.33
Blurred vision	02	16.67
Photosensitivity	05	41.67
Burning sensation	01	8.33
Total	12	100

Out of 12 cases, photosensitivity was the most common ocular finding seen in 5 cases. Burning sensation was seen in 1 patient. Lacrimation and blurred vision were the complaints of 4 and 2 subjects, respectively.

#### DISCUSSION

A significant portion of vision impairment resulting from HD is either preventable or treatable. Nevertheless, individuals suffering from HD seldom receive evaluations from ophthalmologists. The World Health Organization's classification system for disabilities associated with HD includes a specific category for assessing ocular involvement among the three designated organs (eyes, hands, and feet).<sup>7</sup>

Although training manuals exist, it is unfortunate that in many programs, ocular issues are frequently overlooked or addressed only superficially. In 2016, the WHO introduced its Global Leprosy Strategy 2016–2020: Accelerating towards a leprosy-free world, aimed at revitalizing initiatives to manage the disease and avert disabilities.<sup>8</sup>

This strategy emphasizes the importance of minimizing visible deformities, referred to as grade 2 impairments (G2I), which encompass conditions such as lagophthalmos, iridocyclitis, corneal opacity, and severe visual impairment (vision: < 6/60; inability to count fingers at 6 meters).

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In this study, it was found that ocular findings were present in 60% of subjects with Hansen's Disease and were absent in 40% cases. Among 12 cases with ocular manifestations, 9 were males and 3 were females. Out of 12 cases, photosensitivity was the most common ocular finding seen in 5 cases. Burning sensation was seen in 1 patient. Lacrimation and blurred vision were the complaints of 4 and 2 subjects, respectively.

Pavezzi PD et al<sup>9</sup>identified the prevalence of ocular involvement in patients with HD at two specialist referral centers for treatment of the disease. A crosssectional study was conducted with ophthalmological evaluations of patients with HD from June 2017 to June 2018. Diagnostic ocular findings, corrected visual acuity, and refractive error were described. Findings were correlated with patients' clinical and epidemiological variables. A total of 86 patients were evaluated, with a mean age of 50.1 years, predominantly males (59.3%), and with multibacillary HD (92%). The prevalence of ophthalmologic changes was 100% and the most common were dysfunction of the Meibomian glands (89.5%) and dry eye syndrome (81.4%). Cataracts were observed in 22 patients (25.6%), but best corrected visual acuity was normal or near normal in 84 patients (97.7%) and there were no cases of bilateral blindness. Patients with some degree of physical disability had more ophthalmological alterations, involving both the ocular adnexa (p = 0.03) and the ocular globe (p =0.04). Ocular involvement is common in patients with Hansen's disease, reinforcing the importance of ophthalmologic examination in the evaluation and follow-up of these patients.

Casella MB et al.<sup>10</sup> The objective of this study was to identify the prevalence of ocular involvement in patients with leprosy at two specialist referral centers for treatment of the disease. A cross-sectional study was conducted with ophthalmological evaluations of patients with leprosy from June 2017 to June 2018. Diagnostic ocular findings, corrected visual acuity, and refractive error were described. Findings were correlated with patients' clinical and epidemiological variables. A total of 86 patients were evaluated, with a mean age of 50 years, predominantly males (59.3%), and with multibacillary leprosy (92%). The prevalence of ophthalmologic changes was 100% and the most common were dysfunction of the Meibomian glands (89.5%) and dry eye syndrome (81.4%). Cataracts were observed in 22 patients (25.6%), but best corrected visual acuity was normal or near normal in 84 patients (97.7%) and there were no cases of bilateral blindness. Patients with some degree ofphysical disability had more ophthalmological alterations, involving both the ocular adnexa (p=0.001) and the ocular globe (p=0.03).Ocular involvement are common in patients with leprosy, reinforcing the importance of ophthalmologic examination in the evaluation and follow- up of these patients.

#### CONCLUSION

Out of 20 cases with Hansen's disease, ocular findings were seen in 12 cases, of which the most common finding had been photosensitivity, other findings included blurred vision, lacrimation and burning sensation.

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