Unmasking Hansen’s disease through an ophthalmologist’s eye

Navjot Singh Ahluwalia, Priyanka Choudhary, Rakesh Shakya, Aishwari Revankar

Key words: Corneal hypoesthesia, Hansen’s disease, Iris pearls, Lagophthalmos, Madarosis

Leprosy or Hansen’s disease (HD) is a chronic granulomatous inflammatory disease caused by intracellular, rod-shaped, acid-fast bacillus, Mycobacterium leprae (ML). The ML commonly affects cooler parts of the body like the skin, peripheral nerves, earlobes, mucosa of upper respiratory tract, testis, and eyes.

Within the eye, it usually affects the anterior segment, which has a relatively lower temperature and rarely involves the posterior pole. Ocular damage in leprosy occurs in four ways: (1) direct bacterial invasion, (2) facial and trigeminal nerve involvement, (3) hypersensitivity reactions, and (4) secondary infection.[1] Ocular manifestations include lagophthalmos, ectropion, entropion, trichiasis, dacryoadenitis, dacryocystitis, episcleritis, scleritis, punctate/avascular/interstitial keratitis, corneal anaesthesia/nerve beading/ulceration/opacity, iridocyclitis, iris atrophy, and nerve paralysis.[2]

A 56-year-old male presented to us with complaint of bilateral gradual painless progressive diminution of vision. He was covering his forehead with a cloth and was wearing a mask for protection from coronavirus. He was on oral methyl prednisolone 8 mg/day since 1 year for allergic skin disorder. On examination his best-corrected visual acuity was 1/60 and 2/60 in the right eye (RE) and left eye (LE) resp. Examination revealed papules and plaques on upper/lower lid skin with loss of lateral two-third eye lashes in both eyes (BE). There was lagophthalmos in LE with a lid gap of ~4 mm on gentle closure, no gap on forced closure, and a good bell’s phenomenon [Fig. 1b]. BE had superior corneal pannus [Fig. 2], decreased corneal sensations, absent exposure keratitis, and a quiet anterior chamber (AC). The iris had a normal pattern, absent posterior synchiae (PS) with multiple tiny round creamy white opaque spheres known as iris pearls (IP) scattered all over its surface bilaterally [Fig. 3]. Round, small sluggishly reacting to light pupils (SSRLP) having a poor dilatation with mydriatics were present in BE. Nuclear sclerosis grade 2 with posterior subcapsular cataract and peripheral cortical cataract was present bilaterally with IP over anterior lens capsule in RE [Fig. 3a]. On fundus examination, only faint red glow was seen. On removing the cloth and mask, loss of lateral two-third eyebrows, erythematous patch on cheeks, and a depressed nasal bridge were appreciable [Fig. 1a, b].

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Intraocular pressure (IOP) was 08 mm Hg in BE. Gonioscopy revealed open angles up to the scleral spur with multiple IP scattered in the angles in BE [Fig. 4a-d]. A pattern resembling a necklace or beads of a rosary was seen in the superior angle in RE [Fig. 4a]. BE nasolacrimal duct syringing was patent.

The patient was diagnosed as HD and was referred to a dermatologist. On systemic examination, multiple macules and hypoesthetic skin lesions [Fig. 1d], ear nodules [Fig. 1c], and thickened ulnar nerves were present. A positive slit skin smear (SSS) for acid fast bacilli (AFB) confirmed lepromatous leprosy (LL) and multidrug therapy for HD was started. Phacoemulsification (PE) with intraocular lens implantation with iris hooks was advised for RE followed by LE. AC paracentesis (ACP) performed before PE in RE was AFB negative. Post op fundus examination was normal in RE. For the LE, blinking exercises, lubricant eye drops with ointment at night time were prescribed.

**Discussion**

Loss of hair follicles of eyebrows and eyelashes (madarosis) is a common sign of HD. It usually starts temporally and progresses nasally as was in our case. Another sign, corneal hypoesthesia...
was present bilaterally with lagophthalmos and good bells phenomenon (LE) but without any corneal exposure and hence was managed conservatively.

IP are the diagnostic uveal manifestation of HD and pathognomonic of LL. They have been recognized in none among 250 patients, 1/890 patients, 2.02%, and 4.8% of leprosy patients in various studies. They are usually discovered mainly at the pupil portion around the collarette, in a pattern described as resembling a necklace or the beads of a rosary. However, such a pattern was instead seen in the superior angle of RE on gonioscopy [Fig. 4a], which to the best of our knowledge is the first ever to be reported. They may occur in a clinically uninfamed eye as seen in our case too.

In HD, pupils may be miotic, irregular, distorted, eccentric, with or without PS, and may have a sluggish or absent reaction. Our case had small, round pupils without any PS with a diminished reaction.

Lewallen et al. reported low IOP in a Hansen’s population as compared to controls. Low IOP is caused by a reduced aqueous production due to destruction and late atrophy of the ciliary body. Our case too had an IOP in single digits despite being on oral steroids.

Confirmation of the systemic disease is by the detection of bacilli on SSS or skin tissue biopsy. The diagnosis of lepromatous uveitis (LU) through skin, aqueous humor, and iris biopsy has been reported by Messmer EM et al. Michelson JB et al. and Campos et al. also reported the diagnosis of ML through ACP in bilateral LU. The diagnosis in our patient too was ultimately established by an AFB positive SSS, while the RE ACP was AFB negative.

HD is not frequently encountered by ophthalmologists in their clinics nowadays. A delay in diagnosis leads to more complications and sometimes blindness. Hence, ophthalmologists should be aware and have a strong index of suspicion of HD in the presence of above ophthalmic features, including unexplained SSRLP/low IOP along with skin lesions/ anesthesia, neurological involvement or nasal stuffiness.

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Conflicts of interest
There are no conflicts of interest.

References
1. Fytyche TJ. Role of iris changes as a cause of blindness in lepromatous leprosy. Br J Ophthalmol 1981;65:231-9.
2. Grzybowski A, Nita M, Virmond M. Ocular leprosy. Clin Dermatol 2015;33:79-89.
3. Chatterjee S, Chaudhury D.S. Pattern of eye diseases in leprosy patients of northern Ghana. Int J Leprosy 1964;32:53-63.
4. Emiru VP. Ocular leprosy in Uganda. Br Ophthalmol 1970;54:740-3.
5. Mnogo CE, Bella-Hiag AL, Ellong A, Achu JH, Nkeng PF. Ocular complications of leprosy in Cameroon. Acta Ophthalmol Scand 2001;79:31-3.
6. Michelson JB, Roth AM, Waring GO. Lepromatous iridocyclitis diagnosed by anterior chamber paracentesis. Am J Ophthalmol 1979;88:674-9.
7. Lewallen S, Hussein N, Courtright E Ostler HB, Gelber RH. Intraocular pressure and iris denervation in Hansen’s disease. Int J Lepr 1990;58:39-43.
8. Lewallen S, Courtright P, Lee Ho-Sung. Ocular autonomic dysfunction and intraocular pressure in leprosy. Br J Ophthalmol 1989;73:946-9.
9. Messmer EM, Raizman MB, Foster CS. Lepromatous uveitis diagnosed by iris biopsy. Graefe’s Arch Clin Exp Ophthalmol 1998;236:717-9.
10. Campos WR, Orefice F, Sucena MA, Rodrigues CA. Bilateral iridocyclitis caused by Mycobacterium leprae diagnosed through paracentesis. Indian J Lepr 1998;70:27-31.