

## Bilateral lagophthalmos in leprosy: is it a rare phenomenon ?

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Received : 15.07.2010 Accepted : 08.09.2010

Lagophthalmos is one of the well known complications of leprosy due to involvement of the facial nerve. Herein, we report three cases of bilateral lagophthalmos due to leprosy which presented to us within a span of just three months. In all these cases, lagophthalmos was not the presenting complaint and it was detected by the treating doctor during examination. This report is being presented to highlight the importance of cranial nerve examination in all cases of leprosy as at times early changes of lagophthalmos may go unnoticed by the patient.

**Key words :** Bilateral lagophthalmos, Leprosy, Cranial nerve examination

### Introduction

The commonest cranial nerve affected in leprosy is facial nerve (Antia et al 1966, Kumar et al 2006); however, bilateral involvement is extremely uncommon, seen in less than 1% of all cases with facial nerve palsy (Keane 1994). Bilateral facial paralysis is most often seen in Gullian Barre syndrome and may also occur in sarcoidosis, brain stem encephalitis, basal meningitis, diabetes mellitus, amyloidosis and connective tissue diseases (Beal and Stephen 2008). Leprosy which is one of the common causes of nerve dysfunction can cause facial paralysis leading to bilateral lagophthalmos. Herein, we report three such cases.

### Case 1

A 42-year-old male, presented to the Department of Dermatology during the month of August 2009

with complaints of pain, redness and watering from both the eyes since one month. On questioning, he was found to be a known case of leprosy and defaulter of MDT. On examination, there were bilaterally symmetrical hypoesthetic, erythematous, edematous, shiny infiltrated plaques on the malar area of face. A similar plaque with satellite lesions measuring about 5X6 cm was present on the left arm. Both supraorbital, greater auricular, ulnar, lateral popliteal and posterior tibial nerves showed moderate to gross thickening with mild to moderate tenderness. Bilateral lagophthalmos with Bell's phenomenon was noted on trying to close the eyes (Figure 1). Ophthalmological examination revealed corneal erosions. A slit-skin smear was positive with a BI of 1+. Skin biopsy showed features suggestive of borderline tuberculoid leprosy. The patient was started on MDT along with prednisolone in a dose

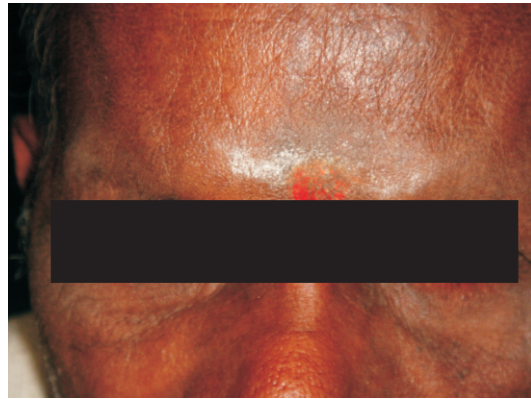


**Figure 1 : Bilateral lagophthalmos with Bell's phenomenon.**

of 1 mg/kg body weight. Eye care and physiotherapy was advised.

#### **Case 2**

A 60 year old male presented to our Department in the month of September 2009 with tingling and numbness over the face and swelling of the upper lip of 2 years duration. On examination, there was a diffuse hypopigmented, hypoanesthetic area over the malar region along with madarosis. Swelling of the upper lip with anaesthesia was also seen (Figure 2). Both supraorbital, ulnar, lateral popliteal and posterior tibial nerves were grossly to moderately thickened with mild tenderness. Ophthalmological examination revealed bilateral lagophthalmos with Bell's phenomenon and few corneal erosions. Nerve



**Figure 2 : Bilateral lagophthalmos with thickened supraorbital nerves.**



**Figure 3 : Bilateral lagophthalmos.**

conduction studies showed complete denervation of the facial nerve. Skin biopsy was suggestive of borderline tuberculoid leprosy. The patient was started on MDT along with systemic steroids. Physiotherapy and regular eye care was advised.

#### **Case 3**

Within a month of reporting of the first two cases a 65-year-old male, a known case of leprosy presented with deformities of both hands and feet and ulcer over the left forefoot. On questioning, he gave history of inability to close

both his eyes which he had developed during the course of the disease. He had been on irregular treatment with dapsone monotherapy for a duration of 3 years. On examination, no obvious hypopigmented or hypoaesthetic patches were seen. Anaesthesia of both the hands and feet in a glove and stocking distribution was present. Resorption of the fingers and toes with flexion deformities and a trophic ulcer over the left forefoot was present. Both ulnar, lateral popliteal and posterior tibial nerves showed cord like thickening. Bilateral lagophthalmos with Bell's phenomenon was seen (Figure 3). The patient was treated for trophic ulcer along with MDT and advised about the regular care of eyes, hands and feet.

### Discussion

The zygomatic branch of the facial nerve supplies the orbicularis oculi muscles which is responsible for eye closure. In leprosy, this branch is affected where it assumes a superficial course i.e. the forehead, the zygomatic arch and the mandible. The initial dysfunction is usually weakness of eye closure due to damage to the branches coursing over the zygoma and the orbital rim. With progression of the facial nerve lesion, complete lagophthalmos and ectropion of the eyelids develop and eye lashes may turn inward, abrading the cornea and leading to scarring and ulceration. Bilateral lagophthalmos due to leprosy has been frequently reported in the literature (Inamadar and Palit 2003, Singal et al 2006, Khandpur et al 2009). Kumar et al (2006) and Wani et al (2009) in their study of cranial nerves in leprosy have found the incidence of bilateral lagophthalmos to be 33% and 13% respectively.

The interesting features of our report are: (i) all the three cases presented in a span of just three

months (ii) history of either inappropriate or inadequate treatment was present in all the three cases and (iii) lagophthalmos was not the presenting complaint in all our patients and it was detected during examination only.

From review of literature and findings of our report, it can be concluded that lagophthalmos in leprosy may not be a rare phenomenon, provided it is looked for in all cases of leprosy by the treating doctor as at times subtle deformities may go unnoticed. However, further larger studies are needed to substantiate this observation of ours.

### References

1. Antia NH, Divekar SC and Dastur DK (1966). The facial nerve in leprosy. I. Clinical and operative aspects. *Int J Lepr Other Mycobact Dis.* **34**: 103-117.
2. Beal MF and Stephen LH (2008). Trigeminal neuralgia, Bell's palsy and other cranial nerve disorders. In: Harrison's Principles of Internal Medicine, 17th edn, Vol II (Fauci, Braunwald, Kasper et al, eds), McGraw Hill, USA, pp 2584-2585.
3. Inamadar AC and Palit A (2003). Bilateral facial palsy in Hansen's disease. *Lepr Rev.* **74**: 383-385.
4. Keane JR (1994). Bilateral seventh nerve palsy: analysis of 43 cases and review of the literature. *Neurology.* **44**: 1198-1202.
5. Khandpur S, Robertson SJ and Rao PSS (2009). Ocular morbidity in leprosy patients with lagophthalmos. *Indian J Lepr.* **81**: 1-4.
6. Kumar S, Alexander M and Gnanamuthu C (2006). Cranial nerve involvement in patients with leprosy neuropathy. *Neurol India.* **54**: 283-285.
7. Singal A, Vij A and Pandhi D (2006). Lepromatous Leprosy with bilateral facial nerve palsy with hyperthyroidism. *Indian J Lepr.* **78**: 291-296.
8. Wani AA, Gupta V and Jan N (2009). A clinical study of cranial nerve involvement in leprosy. *Egyptian Dermatol Online J.* **5**: 3.