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**Original Article**

# Orofacial Lesions in Treated Central Indian Leprosy Patients : A Cross Sectional Study with Review of Literature

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**Abstract**

**Objective :** The goal of this study was to evaluate the orofacial lesions in treated leprosy patients.

**Patients and methods :** 160 treated patients at Maharogi Seva Samithi, Warora were examined clinically.

**Results :** Of 160 patients studied, 140 (87.5%) was of lepromatous types, 100 patients presented with depressed nasal bridge, 64 presented with hypopigmented macules on face. Intraoral examination revealed tongue abnormalities as a most common finding, with fissured tongue being the commonest feature.

**Conclusion :** We conclude that though active lesions of leprosy are not present, manifestations such as fissured tongue may remain in treated leprosy patients.

**Key words :** Orofacial lesion, Leprosy, Central India.

## Introduction

*Mycobacterium leprae* was first established by Armeur Hansen in Norway in 1874 as a cause of leprosy. Leprosy is a chronic infectious and granulomatous disease that mainly affects the skin, peripheral nerves and the mucous membranes (Kustner et al 2006). The organism has a low infectivity, and exposure rarely results in clinical disease. Although the exact route of transmission is not known, the high number of organisms in nasal secretions suggests that in some cases the initial site of infection may be the nasal or oro-pharyngeal mucosa (Costa et al 2003).

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Historically, two main clinical presentations are noted, and these are related to the immune reaction to the organism. Currently, leprosy is classified into two separate categories, paucibacillary and multibacillary. Extensive form of multibacillary type corresponds well to lepromatous type and exhibits ill defined, hypo pigmented macules or papules on the skin that, with time, becomes thickened. Face is a common site of involvement and the skin enlargements can lead to distorted facial appearance (Leonine facies). Nerve involvement leads to sensory loss, which begins in the extremities and spreads to the most of the body (Neville et al 2005). While, oral involvement has been reported to occur in 19% to 60% of lepromatous patients, it is rarely seen in the tuberculoid and the less common variants (Lighterman et al 1962).

The aim of the present study was to clinically evaluate the orofacial lesions of treated leprosy patients at the Maharogi Seva Samithi Hospital (Warora, India).

## Patients and Methods

### Patients

One hundred and sixty leprosy patients at the Maharogi Seva Samithi were selected by simple random sampling technique. All the patients were in-patients and were included irrespective of the type of leprosy. The written consent was taken from the patient for the clinical examination of the oral cavity and for publication of photographs. Patients, who were not examined and treated, were excluded from the study.

### Methods

The study was conducted after analysis and approval by the committee of ethics of the Maharogi Seva Samithi Hospital and DMMIS Sawangi (M) Wardha. The study was conducted over a period of 3 days. The oral examination was preceded by a systematic general and extra-oral examination. A proforma for recording various findings was filled up for every patient. The proforma contained a separate column for the various orofacial manifestations observed in leprosy patients.

## Results

Among the 160 leprosy patients evaluated, 122 were men and 38 were women. The average age of the whole sample was 47.99 years. While the average age of the males was 48.09 years, the average age of the females was 47.89 years. Out of the 160 patients, 140 patients (87.5%) presented with lepromatous form, 14 patients (8.75%) presented with tuberculoid form and remaining 6 patients (3.75%) were affected with intermediate type of leprosy. The common investigative modality utilized was skin scrapings followed by microscopic examination. All the patients had undergone multi drug regimen therapy as per the WHO guidelines.

Of the patients examined, 100 presented depressed nasal bridge, 64 presented with hypopigmented facial cutaneous macules and 84 presented with deformities of fingers and toes. On intra-oral examination, tongue abnormalities were most common. The observations were: fissured tongue in 34 patients (21.25%), depapillated tongue in 10 patients (6.25%), coated tongue in 4 patients (2.5%) and crenated tongue in 2 patient (1.25%). Deviation of tongue on protrusion was also noted in a couple of patients. Other abnormalities noted were shrunken uvula in 6 patients (3.75%), oral submucous fibrosis in 8 patients (5%) and leukoplakia in 2 patients (1.25%), in habitual of betalnut and tobacco

nodular or papular lesions were not observed in the oral cavity.

**Discussion**

The most permanent and destructive lesions of the face are those of the facial bones. Facies leprosa includes atrophy of anterior nasal spine, atrophy and recession of the alveolar processes of the maxillae, and endonasal inflammatory changes (Moller-Christensen et al 1952, Subramaniam et al 1983).

In our study, at least 62.5% of the patients presented with the characteristic facial manifestations of leprosy. They included depressed nasal bridge, hypopigmented macules and areas of thickening of skin (Fig. 1).

The oral lesions in leprosy develop insidiously, are generally asymptomatic and

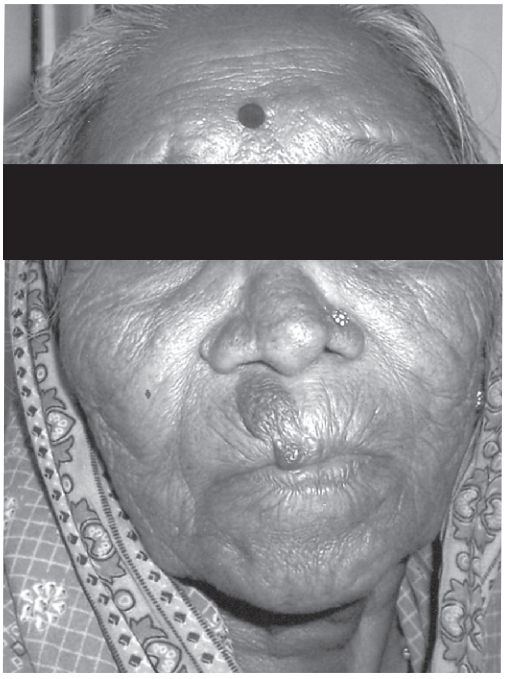

Fig. 1 : Appearance of depressed nasal bridge and hypopigmented macules.

are secondary to nasal changes (Girdhar and Desikan 1979, Bucci et al 1987). According to Aarestrup et al (1995), various anatomical regions are affected by leprosy and the oral-maxillofacial region has marked pathological features during the evaluation of the disease. Amongst the intra oral regions the premaxillary gingiva, hard and soft palate, uvula and the tongue have been shown to be more commonly involved (Kumar et al 1988, Nunez 1998). Out of these, hard palate seems to be the most frequently affected (Reichart et al 1976, Hubscher et al 1979, Bucci et al 1987). *M. leprae* prefers temperature a little below the body temperature for its multiplication. Based on this fact, a pathophysiologic mechanism is postulated for oral involvement : a nasal lesion with obstruction of the airflow leads to oral breathing (mouth breathing). This causes a decrease in the intra-oral temperature mainly in sites near air intake, the anterior areas facilitating the harboring of bacillus (Rendall et al 1976, Scheepers 1998). Affected soft tissue initially appears as yellowish to red, sessile, firm, enlarging papules that develop ulceration and necrosis, followed by attempted healing by secondary intention. The sequence of changes, as it occurs in oral mucosa in leprosy patients is congestion, infiltration, nodule formation, possible ulceration, atrophy and scarring. Important medical and odontologic complications may follow the involvement of the oral and nasal mucous membrane and the bones of the face in leprosy (Scollard and Skinsnes 1999). In the advanced stages, there may be deformities and functional alterations, such as fibrosis and retraction of the soft palate or perforation of the hard palate, with serious disturbances in phonation and nasal regurgitation of food (Girdhar and Desikan 1979). Scheepers et al

(1993) postulate that erythema nodosum leprosum (or reaction type II) is an important cause for destruction, perforation and deformation of the palate and uvula, alerting one to the need for more effective treatment of that condition. As it causes permanent deformity in affected individuals, leprosy leads to major esthetic consequences and social problems (Scheepers et al 1993). Girdhar and Desikan (1979) in their study of the mouth in untreated leprosy patients reported some striking features about the tongue. They had encountered nodules and fissures on the dorsal aspect of the tongue. They had also mentioned that papules and nodules were observed on the palate, tonsillar pillars, gingiva and buccal mucosa. However, the uvula was destroyed or scarred. But the studies conducted by Santos et al (2000) on patients undergoing multi drug therapy did not reveal any characteristic oral lesions of leprosy. Martins et al (2007) also conducted a study on patients undergoing treatment in southeast Brazil and revealed that there were no oral lesions, characteristic of leprosy. But in our study, tongue and uvula exhibited changes characteristic of leprosy though the patients were treated. Fissured tongue (Fig. 2) was observed in 34 patients (21.25%) and shrunken uvula was observed in 6 patients (3.75%). As papules, nodules or ulcerations were not found, the above findings indicate the lasting impression of the disease rather than an active infection source or the failure of the treatment. The other oral lesions detected in this study such as depapillated tongue, coated tongue, oral submucous fibrosis and leukoplakia do not demonstrate an association with leprosy. Some authors have stressed the epidemiologic importance of manifestation of oral lesions as an infection

Fig. 2 : Appearance of deep fissures in the tongue.

source, as viable bacilli have been detected in these lesions by histopathological examination through smears and by rinsing of the oral cavity (Scheepers et al 1993). However, we did not observe any active lesions of leprosy in this study. The reduced number or absence of patients exhibiting oral manifestations of leprosy is attributed to the efficacy of the multidrug therapy carried out in recent times, in addition to the early diagnosis of the disease. However, thorough oral examination should be done in all the leprosy patients irrespective of whether treated or not. As a matter of fact, oral health goes beyond good teeth. WHO (2006) regards oral health as integrated in general health condition and an essential to well being and quality of life, having close relation to speech, chewing, swallowing and social contact.

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