

## Oral Involvement in Borderline Tuberculoid Leprosy: Report of a Case with Review of Literature

### Abstract

Leprosy is a chronic infectious granulomatous disease caused by *Mycobacterium leprae*, primarily affecting the skin and the peripheral nerves. Variable involvement of internal organs and mucosa has been reported with incidence ranging from 19% to 60%, more commonly seen in lepromatous spectrum of leprosy (LL and BL). We report a case of borderline tuberculoid (BT) leprosy presenting with oral mucosal lesions involving the gingival mucosa and lower lip.

**Keywords:** *Borderline leprosy, oral involvement, periodontitis*

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### Introduction

Leprosy is a chronic, granulomatous, multisystem disease with predominant involvement of the skin and the peripheral nerves. The lesions have a preference for cooler areas of the body. Involvement of oral mucosa is more commonly seen in multibacillary spectrum and has been reported uncommonly in borderline tuberculoid spectrum of leprosy.<sup>[1]</sup> The most common oral involvement in leprosy is infiltration of the hard palate followed by soft palate, tongue, lip, and gingival and buccal mucosa.<sup>[1]</sup> Mucosal lesions can have varied morphological presentations ranging from papulo-nodules, loss of papilla of the tongue, ulceration to diffuse infiltration, gingivitis, and periodontitis.<sup>[2]</sup>

### Case Report

A 21-year-old male resident of Delhi presented to the dermatology outpatient department with three hypopigmented and well-defined plaques over the face. The lesions had gradually increased in size to attain their current sizes of about 6 × 3 cm on left cheek, 2 × 2 cm on chin and 2 × 3 cm on right cheek [Figure 1a and 1b] for the past one year.

On examination, the surface of the lesions was smooth with loss of hair, reduced sweating, mild atrophy, and erythema. On sensory testing, hypoesthesia was

demonstrated in the cutaneous lesion. There was no nerve to patch. The oral cavity showed bright red swollen gums with shiny mucosa involving the upper and lower gingival tissue and swelling of the lower lip along with fissuring [Figure 2]. Mucosal lesions were associated with bleeding on trivial trauma. Examination of all the peripheral nerves was non-contributory. Peripheral sensations and motor examination were normal. Orthopantomogram of the upper and lower jaws to look for any bony involvement was normal. Slit skin smear, done from cutaneous lesion as well as earlobe using Ziehl–Neelsen staining, was negative for acid-fast bacilli (AFB).

Punch biopsy from the skin lesions stained with hematoxylin and eosin (H and E) demonstrated epithelioid cell granulomas with admixture of lymphocytes and Langhan's giant cells [Figure 3]. Fite–Faraco staining did not show AFB. A punch biopsy from the oral mucosa stained with H and E demonstrated granulomatous infiltration of the epithelioid cells and lymphocytes in submucosa which was consistent with borderline tuberculoid (BT) leprosy. Fite–Faraco stain did not show AFB [Figure 4].

On clinico-histopathological correlation, a diagnosis of BT Hansen's disease was made and the patient was started on multibacillary multidrug therapy (rifampicin [600 mg monthly

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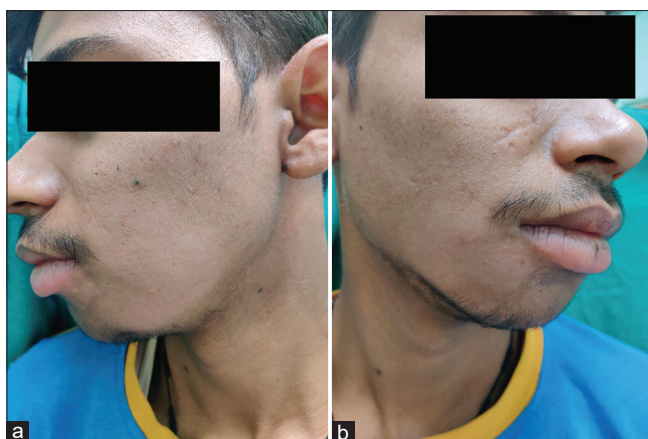


Figure 1: (a and b) Presence of three well-defined, hypoesthetic, hypopigmented plaques of sizes of about 6 × 3 cm (left cheek), 2 × 2 cm (chin) and 2 × 3 cm (right cheek)



Figure 2: Bright red swollen gums involving the upper and lower gingival tissue and swelling of the lower lip with fissuring

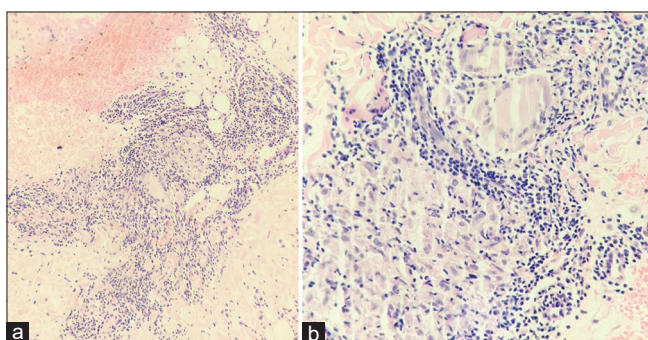


Figure 3: (a and b) Hematoxylin and eosin (H and E) section from cutaneous lesion of face demonstrated epithelioid cell granulomas with admixture of lymphocytes and Langhans' giant cells in figure a and b respectively

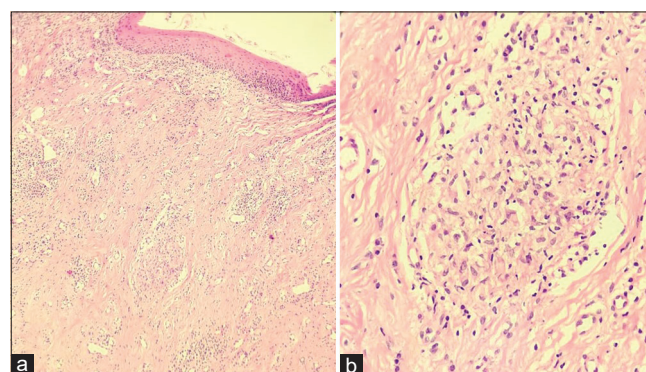


Figure 4: (a and b) A biopsy from the oral mucosa stained with H and E demonstrated granulomatous infiltration of epithelioid cells and lymphocytes in submucosa consistent with borderline tuberculoid leprosy (40 × and 100×) in figure a and b respectively

supervised dose], clofazimine [300 mg monthly supervised dose; 50 mg daily dose] and dapsone [100 mg daily dose]) as per recommendations by the World Health Organization (WHO).<sup>[3]</sup> On follow-up, there was gradual improvement in the mucosal lesions with reduced swelling.

## Discussion

Leprosy is a granulomatous disorder caused by *Mycobacterium leprae* with variable involvement of the oral mucosa (19%–60%).<sup>[4]</sup> Oral involvement is more common in multibacillary disease and rare in borderline tuberculoid spectrum. There was a single case report by Sairam *et al.*<sup>[5]</sup> on oral lesions occurring in BT leprosy involving the maxillary and mandibular gingiva, buccal mucosa, palatal mucosa, labial and lingual regions with sputum smear showing AFB positivity, which could possibly denote a multibacillary spectrum of disease. In our patient, oral involvement was in the form of swollen gums with shiny mucosa involving the upper and lower gingival tissue and swelling of the lower lip along with fissuring and these lesions were associated with decreased sensitivity to pain and bleeding on trivial trauma with no symptoms of any systemic involvement. Scheepers *et al.*<sup>[1]</sup>

found the hard palate to be the most frequent site of oral involvement in leprosy, followed by the soft palate, labial maxillary gingival, tongue, lips, buccal maxillary gingival, labial mandibular gingival, and the buccal mucosa. The clinical spectrum of presentation of oral involvement varies from nonspecific enanthem of palate and congestion to more specific lesions like generalized papulo-nodular sub-mucosal infiltrates and ulcers.<sup>[4]</sup> Lip involvement can present as macrocheilia, flat-topped nodules, and microstomia.<sup>[4]</sup> Commonly described lesions on the tongue include multiple superficial ulcers, mild glossitis, loss of papillae, chronic atrophic candidiasis and fissured tongue, and, rarely, orofacial granulomatosis.<sup>[6]</sup> Involvement of the gums may be in the form of gingivitis, periodontitis, and periodontoclasia.<sup>[7]</sup> Gums appear swollen with shiny and purplish mucosa and bleed easily with decreased sensitivity to pain.<sup>[7]</sup> Reports on dental involvement are limited with three different types of leprotic involvement of the teeth: specific pulpitis, dental anomalies, and periapical granulomas. Martí *et al.*<sup>[8]</sup> described poor dental and periodontal health in a leprosy patient which was unrelated to the presence of facial destruction or the type

of leprosy. In untreated and advanced stage of the disease, it can lead to gross disfigurement due to ongoing fibrosis, functional abnormalities like difficulty in eating and swallowing and dental anomalies. Atrophy of the anterior nasal spine, maxillary alveolar process, and endonasal inflammatory infiltrate constitutes facies leprosa. Diagnosis is usually histopathological with epithelial atrophy and infiltration of macrophages, lymphocytes, and plasma cells predominantly seen in lepromatous leprosy.<sup>[9]</sup> The mainstay of treatment is multidrug treatment according to the spectrum of the disease by Sairam *et al*<sup>[5]</sup> reported oral mucosal involvement in BT Hansen's disease, as described above.

To conclude, leprosy is a multisystem disease and oral mucosal examination should be an integral part in the examination of a leprosy patient and should not be missed as it can be a harbor of high bacillary load with high disease transmission potential.

#### ***Declaration of patient consent***

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

#### ***Conflicts of interest***

There are no conflicts of interest.

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