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ORIGINAL ARTICLE

Orofacial lesions in treated southeast Brazilian leprosy patients: a cross-sectional study

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AIM: The aim of the present study was to clinically evaluate the oral mucosa lesions of leprosy patients during and after multi-drug therapy.

METHODS: Clinical examination, medical and dental history examination was performed in 100 leprosy patients.

RESULTS: The results revealed that 71 patients, 50 men and 21 women, exibited oral lesions. The most frequent lesions were: fissured tongue (18 cases), inflammatory papillary hyperplasia (16 cases), chronic atrophic candidiasis (10 cases), fibroma (10 cases), erythematous candidiasis (eight cases), and traumatic ulceration (seven cases).

CONCLUSION: We conclude that leprosy-related lesions are not present in patients undergoing treatment for leprosy, probably due to response to multidrug therapy.

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Keywords: leprosy; Hansen's disease; hanseniasis; fissured tongue; inflammatory papillary hyperplasia; chronic atrophic candidiasis

Introduction

Leprosy, Hansen's disease or hanseniasis was described by the Chinese in 600 BC and currently affects roughly 10–12 million people worldwide (Neville *et al*, 1995; World Health Organization, 2004). It is a chronic infectious disease caused by *Mycobacterium leprae* that mainly affects the skin, peripheral nerves, and the mucous membranes. Because it causes deformity in affected individuals, leprosy leads to major esthetic consequences and social problems (Brasileiro *et al*, 1994; Neville *et al*, 1995; Pönnighaus, 1995). Global leprosy detection reached a peak of 804 000 in 1998 and fell to around 621 000 in 2002. However, 10 countries at the end of 2003 still represent the major part of the global burden of the disease. These are Angola, Brazil, Central African Republic, Congo, India, Liberia, Madagascar, Mozambique, Nepal, and the United Republic of Tanzania. Brazil has the second highest number of registered cases in the world after India. Prevalence rates at the national levels are over four times the world elimination target (World Health Organization, 2004).

The disease commonly affects the face, leading to changes known as 'facies leontina'. Involvement of the oral mucosa has been reported in over 60% of patients with lepromatous leprosy, whereas in the tuberculoid and borderline forms oral lesions are rarely observed (Bucci *et al*, 1987; Sawyer *et al*, 1987; Brasileiro *et al*, 1994; Neville *et al*, 1995; Scollard and Skinsnes, 1999). Nasal manifestations may precede the skin and oral mucosa lesions (Neville *et al*, 1995).

No oral lesion is pathognomonic for leprosy; however, more advanced stages of the lesions lead to suspicion of the disease (Scheepers *et al*, 1993). Oral lesions present necrosing and ulcerating nodules that are generally asymptomatic (Kumar, 1988; Sharma *et al*, 1993; Laskaris, 1996). The main oral cavity sites of leprosy include the gingivae in the anterior portion of the maxilla, the hard and soft palate, the uvula, and the tongue.

In light of the high number of leprosy cases in Brazil, this disease is considered a major public health problem, and the aim of the present study was to clinically evaluate the oral mucosa lesions of leprosy patients during and after multi-drug therapy at the Dr Arnaldo Pezzuti Cavalcanti Hospital (São Paulo, Brazil) to estimate the current profile of oral manifestations associated with the development and treatment of this disease.

Patients and methods

Patients

One hundred leprosy patients undergoing treatment at the Dr. Arnaldo Pezzuti Cavalcanti Hospital were

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examined. Forty-four were inpatients (residing in the hospital-ward environment) and 56 were outpatients residing in leper colonies. All patients with any clinical form of leprosy were included. Patients who never had been examined by a medical team and did not have medical records were excluded.

The patients gave written consent, and were aware that there would be clinical oral examination.

Methods

The present study was conducted after analysis and approval by the Committee of Ethics of the Dr Arnaldo Pezzuti Cavalcanti Hospital.

The clinical oral examination was led by a professional well-trained in oral lesions, following a regimented and systematic protocol (extra- and intraoral physical examination). The clinical data obtained at the oral clinical examination, clinical interview and medical records of the patients were transferred to an individual chart. Data such as age, gender, race, birthplace, clinical form of the disease, supplementary examinations, type of treatment, current stage of treatment and sequelae of the disease were recorded.

Results

Among the 100 leprosy patients evaluated, 71 were men and 29 women. The general average age was 65 years; male patients presented an average age of 68 and females 63 years. Analysis of birthplaces shows that 80 patients were south-eastern Brazilians, six north-western, three north, one mid-western; nine were unable to reply. In an ethnic comparison, 65 were white Caucasian, 25 mulatto, and 10 African-American.

In relation to the clinical form of leprosy, 61 presented the lepromatous form, two patients had tuberculoid leprosy, two patients had indeterminate leprosy, and in 35 patients the form of the disease was not identified on the medical record.

The most widely used complementary examination for leprosy diagnosis was bacilloscopy (87 cases), followed by biopsy (21 cases). No type of laboratory examination had been performed in eight patients.

Regarding the treatment of the disease, 24 had completed treatment, four had abandoned the therapy, and 72 patients presenting negative bacilloscopy had medical records that failed to provide a date for completion of treatment. Of these 72 patients, 15 stated during the clinical interview that they were taking selfmedication for leprosy.

The medications used in the treatment of the disease in these patients were dapsone, rifampicin, clofazimine, vibramycin, sulphonamides, and thalidomide. The current therapeutic regimen was triple therapy (dapsone, rifampicin, and clofazimine).

Of the patients examined, 68 presented some kind of disabilities, among them all 'facies leontina' and collapse of the nasal pyramid, clawed hands, plantar ulcer ('mal perforant du pied'), amputations of fingers and toes, amputations of feet or legs.

Table 1 Distribution of oral lesions not associated with leprosy by sex

Lesion	Male	Female	Total
Fissured tongue	15 (14.7)	3 (2.94)	18 (17.64)
Inflammatory papillary hyperplasia	11 (10.78)	5 (4.9)	16 (15.68)
Chronic atrophic candidiasis	6 (5.88)	4 (3.92)	10 (9.8)
Fibroma	4 (3.92)	6 (5.88)	10 (9.8)
Furry tongue	9 (8.82)	- ` ´	9 (8.82)
Erythematous candidiasis	4 (3.92)	4 (3.92)	8 (7.84)
Traumatic ulcer	3 (2.94)	4 (3.92)	7 (6.86)
Macroglossia	4 (3.92)	2 (1.96)	6 (5.88)
Angular cheilitis	4 (3.92)	- ` ´	4 (3.92)
Macula nigra	3 (2.94)	1 (0.98)	4 (3.92)
Depapillated tongue	3 (2.94)	- ` ´	3 (2.94)
Hemangioma	2 (1.96)	_	2 (1.96)
Chewing of mucosa	1 (0.98)	1 (0.98)	2 (1.96)
Fordyce granules	1 (0.98)	- ` ´	1 (0.98)
Irritative hyperkeratosis	1 (0.98)	_	1 (0.98)
Unspecific chronic	1 (0.98)	_	1 (0.98)
inflammatory process			
Total	72 (72)	30 (30)	102 (100)

Values are expressed as n (%).

The results of the intraoral physical examination of the 100 patients showed that 71 patients presented oral lesions (Table 1). The main alterations observed were fissured tongue, inflammatory papillary hyperplasia, chronic atrophic candidiasis, fibroma, furry tongue, erythematous candidiasis, and traumatic ulcer. During the clinical interview, xerostomia was reported by 18 patients, bouts of recurrent aphthous ulcers by 11 and recurrent herpes simplex by nine. These conditions were not observed at the time of diagnosis.

Clinically, only one case of asymptomatic nodular lesion of granulomatous aspect and erythematous coloration was observed situated in the median region of the soft palate. It exhibited a smooth surface, a firm consistency and measured approximately 3 mm at its largest diameter. The main clinical hypothesis was reactivation of leprosy and syphilis. This patient was evaluated by the medical team at the hospital and the possibility of syphilis was rejected. An excisional biopsy of the lesion under local anesthesia was performed. The histopathologic diagnosis was a nonspecific chronic inflammatory process with plasmocytic predominance. Research into acid-fast bacteria was negative and the hypothesis of a reactivation of the disease was not confirmed. This patient is now clinically controlled with no signs of recurrence of the lesion.

No cases of oral manifestation of leprosy lesions were detected in this study.

Discussion

The results of this study showed that 68% of the patients that were examined presented some kind of sequelae from leprosy. Additionally, 24 patients had completed the treatment, whereas 72, although presenting negative bacilloscopy, have no records of treatment completion. This is a population of elderly leprosy patients whose diagnosis for the disease was established

many years ago (an average of 30 years ago). They suffered from physical, psychological and social alterations, have been treated in hospital, and are currently released from hospital and/or are being clinically controlled. Although these patients seem to have been cured from the infection, most still carry disfigurements that by current standards indicate that their diagnosis was belated and/or their treatment was inadequate. These results reflect the profile of leprosy patients in this State hospital, which is a center for the diagnosis and treatment of leprosy patients.

No oral manifestations of leprosy were observed in the present study. This result is in line with the findings of Santos *et al* (2000) who assessed 175 patients, also from south-eastern Brazil, undergoing multidrug therapy that also showed no oral manifestations of leprosy. However, in several other studies the presence of oral manifestation of leprosy was found in various percentages. Scheepers *et al* (1993) verified 187 patients undergoing treatment for leprosy and observed oral manifestations of the disease in only 37 cases. Interestingly all these cases were of lepromatous form in women.

The oral lesions detected in this study such as fissured tongue, inflammatory papillary hyperplasia, chronic atrophic candidiasis, fibroma, furry tongue, erythematous candidiasis, and traumatic ulcer do not demonstrate an association with leprosy. The current results regarding an elderly Brazilian population support the studies of other populations where the incidence of oral mucosal conditions in elderly people was related to age, sex and the wearing of dentures (Lin *et al*, 2001; Jainkittivong *et al*, 2002; Mumcu *et al*, 2005; Triantos, 2005; Correa *et al*, 2006).

Fucci da Costa *et al* (2003) evaluated 26 patients with leprosy: 69% exhibited oral clinical alterations and 50% of them showed histopathologic features in areas with no lesions. In the two cases in which specific lesions were found, the hard palate was the site of involvement. The areas of involvement in order of frequency were the soft palate, the uvula and the hard palate, tongue, gum and lips. Both patients with oral lesions had lepromatous leprosy, and had more numerous bacilli in the palatal lesions than in their cutaneous biopsies, which is unusual.

Some authors have emphasized the epidemiologic importance of manifestation of oral lesions as an infection source, as viable bacilli have been detected in these lesions by histopathologic examination through smears and by rinsing of the oral cavity (Scheepers *et al*, 1993). However, in this study we observed just one lesion with clinical manifestation of leprosy. The hypothesis of oral manifestation of leprosy and syphilis was rejected by medical team and laboratory examinations. The lesion was totally removed and no sign of recurrence was observed. Perhaps it was a kind of reactive chronic lesion due to the use of a malfunctioning removable prosthetic apparatus.

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 decades, in addition to the early diagnosis of the disease. After the discovery of sulphonamides and other medications, such as dapsone and clofazimine, the bacillus could be inactivated and the contagious phase of the disease finishes after 6 weeks and at the end of the regimen the patients are clinically cured.

We agree with Fucci da Costa *et al* (2003) that attention should be given to the oral manifestations of leprosy, because detection and treatment of these lesions can prevent the spread of the disease.

Some authors have suggested that oral lesions occur mainly in lepromatous leprosy patients in whom the disease is active and within the first 5 years of the course of the disease (Southam and Venkataraman, 1973; Fucci da Costa *et al*, 2003). Bearing in mind that many patients seek treatment sooner, the oral manifestations will likely not even occur.

Given that the group of patients evaluated in the present study was made up of individuals whose average time from diagnosis of the disease was 30 years, and that none was currently undergoing multidrug therapy, we can conclude that the disease was inactive or even that the individuals were cured. This justifies the absence of oral leprosy lesions.

However, the oral cavity should always be carefully examined because in non-treated patients oral lesions can be observed, indicating the maintaining of lepra reaction.

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