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Rhinological Evaluation In Leprosy

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Abstract

INTRODUCTION: Early diagnosis of leprosy is important to avoid associated deformities and disabilities. A thorough examination of the nares aids in the establishment of an early diagnosis. Prompt treatment provides an opportunity to prevent the nasal and myriad of other deformities caused by untreated leprosy.

AIM: To evaluate nasal involvement in untreated leprosy patients.

METHOD: In this prospective study a detailed evaluation was done on 75 untreated leprosy patients at the Department of Skin, V.D. and Leprosy with the help of the Department of ENT at GGG Hospital, Jamnagar.

RESULTS: The most frequently encountered findings were crusting (25.33%), hyposmia (21.33%), stuffiness (17.35) and recurrent epistaxis (14.66%); while deformities like perforation (9.3%) and saddle nose (12%) showed relatively lower proportions.

CONCLUSION: Nasal findings form a significant part of the clinical spectrum of leprosy and a prompt evaluation with therapeutic intervention helps in arresting the progression of the disease and prevents the occurrence of deformities.

Introduction

Leprosy (Hansen's disease) is a chronic infectious disease caused by mycobacterium leprae, affecting the peripheral nervous system, skin and mucous membrane.[1]

Clinical manifestations of leprosy are seen most commonly and prominently in the skin and nerves. When left untreated other organs of the body may be affected[2] manifesting symptoms and signs pertaining to the specific organ affected, mainly the mucosa of the upper respiratory tract, reticuloendothelial system, eyes, etc.

Clinical manifestations of leprosy show a wide range of variation from localized hypopigmented, hypoaesthetic patches to more severe forms like marked deformities, erythema nodosum leprosum and even death in later stages.
The classification of leprosy most widely used by research workers is the Ridley Jopling Classification and consists of a 5 group system: Tuberculoid (TT), Borderline Tuberculoid (BT), Mid-Borderline (BB), Borderline Lepromatous (BL) and Lepromatous Leprosy (LL).

The World Health Organization study group on chemotherapeutic treatment of leprosy classified leprosy into two types: Paucibacillary (PB- including TT, BT) and Multibacillary (MB- including BB, BL, LL).[3,4] Amongst the various systemic manifestations of leprosy; Otorhinological manifestations are common towards the lepromatous pole of disease. Unfortunately, it is not common to encounter Lepromatous leprosy at the earlier stage of disease, leading to persistent transmission, which is a public hazard as well as an unchecked progression of the disease to a deforming stage. However, there are two symptoms preceding skin lesions which may alert clinicians to possible early diagnosis of LL; these are nasal symptoms and oedema of legs. Nasal symptoms may be stuffiness; blood stained nasal/postnasal discharge, and epistaxis in the early stage. Hyposmia may be a common complaint. As the disease progresses to a later stage, there is persistent crusting, bleeding, atrophic rhinitis, septal perforation and saddle nose deformity in the very late stage.

This delineates the important fact that meticulous examination of the nasal and oral cavity should be a part of every examination of the leprosy patient especially when suspecting BL or LL form of leprosy.

Furthermore, investigations on nasal mucosa[5] and nasal mucus[6] in untreated LL patients show that droplet infection (by coughing, talking, sneezing) plays a very important and major role in transmission of disease; especially in overcrowded conditions; because nasal secretions contain numerous bacilli. Hence, early and adequate detection and treatment of LL assumes greater importance as the standard MDT (Multi-Drug Therapy) renders these patients rapidly non-infective.[7]
Diagnosis of leprosy is usually made on the basis of ZN stain, clinical findings, slit skin smear examinations and histopathological findings of skin biopsy, if needed.

Demonstration of Mycobacterium leprae on microscopy of nasal discharge or skin scrapings of nasal mucosa or histopathology of nasal mucosa confirms the diagnosis in cases where diagnosis is uncertain.

Aims & Objectives: To study the proportion and clinical presentation of nasal involvement in untreated leprosy patients.

Methods

The study was performed at the Department of Dermatology, M. P. Shah Medical College, Jamnagar, India in cooperation with the Department of Otolaryngology; during a period of two years from March 2010 to February 2012.

A total of 75 newly diagnosed, untreated leprosy patients were included in the study. Patients having a previous history of incomplete treatment, patients with lepra reaction and an indeterminate type of leprosy were excluded from the study.
Patients were informed about the nature of the study and written consent was taken individually. The age group of selected patients were between 11-65 years; among which 51 were males and 24 were females.

Each patient was analyzed meticulously by taking detailed clinical history, complete physical examination and examination of Acid Fast Bacilli (AFB) smears from skin.

A special emphasis was put on the presence or absence of various nasal symptoms, namely stuffiness, crust formation, epistaxis, hypo or anosmia, or signs like perforation or saddle nose deformity. For further evaluation of nasal complaints and therapeutic treatment, patients were referred to the Department of ENT. The anterior rhinoscopy and nasal endoscopic examination was performed when considered necessary.

In all 75 cases, slit skin smears were obtained and stained with modified Ziel Nielson (ZN) stain technique for demonstration of Acid Fast Bacilli (AFB).

Results

Among the 75 untreated leprosy patients taken into our study, the youngest patient was an 11 years old female, while the oldest patient was a 68 year male. The maximum number of patients (53.33%) belonged to the age group of 30-50 years (See Table 1). Twenty-four of the patients were female (32%) and 51 were male (68%) (See Table 2). This is almost consistent with M:F ratio of 2:1 seen in India[8] as well as in agreement in de Abreu, et al.[9] and Boggild, et al.[10]

Table 1. Age distribution in leprosy patients

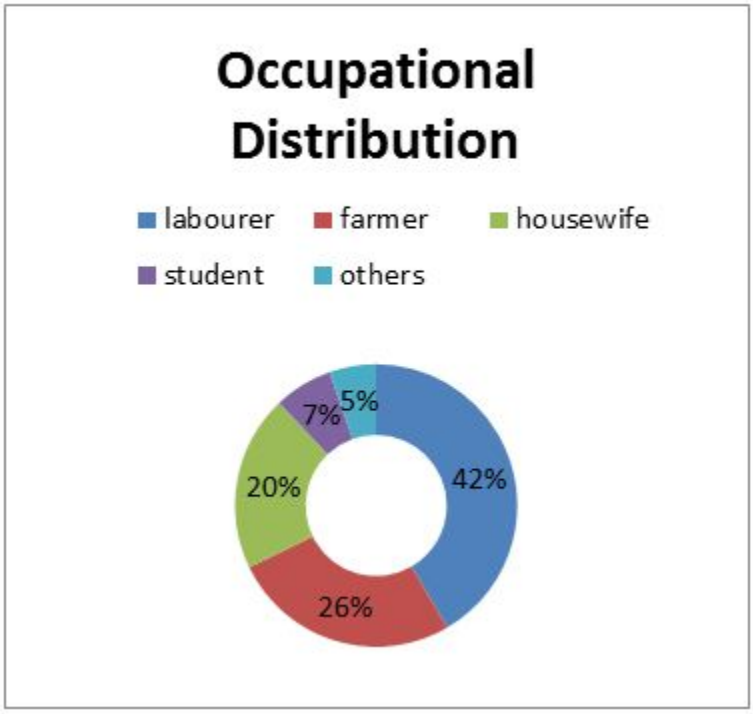
Age (in years)	No. of patients	percentage
10-20	08	10.66%
20-30	14	18.66%
30-40	22	29.33%
40-50	18	24%
50-60	09	12%
60-70	04	5.3%

Table 2. Sex distribution in leprosy patients

Sex	no. of patients	Percentage
Male	51	68%
Female	24	32%

The majority of patients (41.33%) were laborers; followed by farmers (26.66%), housewives (20%), students (6.66%) and others (See Figure on Right).

Figure 1. Occupational distribution in leprosy



The history of leprosy in any family member or other close contact was positive only in 12 patients (16%), this is in agreement with Boggelid, et al.[10] See Table 3 below.

Table 3. Family contact history

Family Contact History	No of Patients	Percentage (%)
Present	12	16
Absent	63	84

In our evaluation of the clinical types of leprosy according to the Ridley-Jopling classification; the maximum number of patients, 31 (41.33%) belonged to Borderline Tuberculoid (BT) leprosy; while Borderline Lepromatous (BL) and Lepromatous Leprosy (LL) accounted for 20 (26.66%) patients and 14 (18.66%) patients, respectively. There were only 6 (8%) patients with Tuberculoid (TT) leprosy and 4 (5.3%) patients with Mid-Borderline (BB) leprosy. See Table below for Distribution of Types of Leprosy.

Table 4. Distribution of patients according to type of leprosy (Ridley Jopling Classification)

Clinical Type	No. of patients	Percentage (%)
Tuberculoid (TT)	06	8
Borderline tuberculoid (BT)	31	41.33
Mid-borderline (BB)	04	5.3
Borderline lepromatous (BL)	20	26.66
Lepromatous (LL)	14	18.66

Table 5. Presence of nasal symptoms in leprosy

Nasal symptoms	No. of patients	Percentage (%)
Present	30	40
Absent	45	60

All 75 patients were evaluated for nasal symptoms and signs of Leprosy. Thirty-five patients (40%) had nasal symptoms. (See Table 5 above.)

The most commonly encountered nasal finding was crust formation which was found in 19 patients (25.33%), followed by hypo/anosmia in 16 (21.33%). A total of 13 (17.33%) had a complaint of stuffiness, 11

patients (14.66%) had episodic epistaxis while 7 (9.3%) had perforation of the nasal septum. The grossly visible deformity in the form of saddle nose was encountered in 9 patients (12%) -- See Table 6 below.

Table 6. Distribution of nasal signs and symptoms in leprosy

Nasal symptoms/signs	No. of patients	Percentage (%)
Stuffing	13	17.33
Crusting	19	25.33
Epistaxis	11	14.66
Hypo/anosmia	16	21.33
perforation	07	9.3
Saddle nose deformity	09	12

Table 7. Distribution of nasal findings according to type of leprosy

Nasal findings	Number of patients (percentage)				
	TT	BT	BB	BL	LL
Stuffing	0	0	0	7 (35%)	6 (42.8%)
Crusting	O	0	0	13 (65%)	6 (42.8%)
Epistaxis	0	0	0	6 (30%)	5 (35.7%)
Hypo/anosmia	0	0	0	8 (40%)	8 (57.1%)
Perforation	0	0	0	0	7 (50%)
Saddle nose	0	0	0	0	9 (64.28%)

In patients with Lepromatous Leprosy; the most frequent finding was saddle nose in 9 (64.28%), hypo/anosmia in 8 patients (57.1%), perforation in 7 patients (50%), followed by stuffiness and crust formation in 6 (42.8%) patients and epistaxis in 5 patients (35.7%) -- See Table 7 above.

In contrast, the presentation in BL leprosy showed crust formation as the most frequently encountered nasal finding in 13 patients (65 % of BL), followed by hypo/anosmia in 8 patients (40%), stuffiness in 7 patients (35%) and episodic epistaxis in 6 patients (30%). No patient with BL leprosy showed perforation or

saddle nose deformity; reaffirming the fact that these findings are typical stigmata associated with Lepromatous Leprosy. Nasal findings were seen in 100% of LL patients while only 16 patients (80%) of BL leprosy patients showed nasal complaints -- See Table 7 above.

AFB sear positivity was obtained in 26 (34.66%) cases; amongst which 14 cases were of LL type (100% of LL) and 12 cases of BL type (60% of BL) leprosy. Negative smears were found in all of the patients that had other forms of leprosy -- See Table to right.

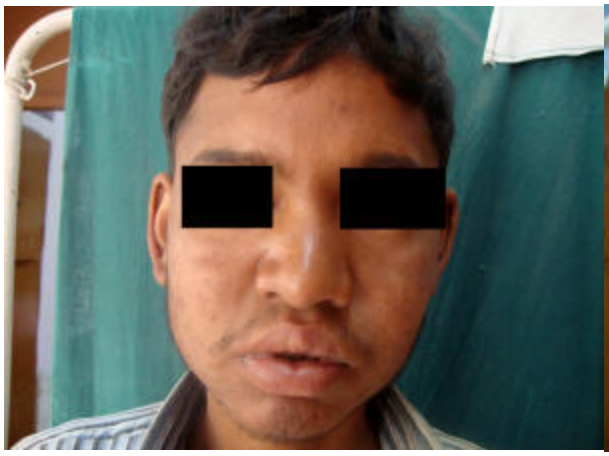
Table 8. AFB Smear positivity in leprosy

Type of leprosy	Total no. of cases	No. of smear positive cases	Percentage
Tuberculoid (TT)	9	0	0
Borderline tuberculoid (BT)	26	0	0
Midborderline (B)	6	0	0
Borderline lepromatous (BL)	20	12	60% of BL
Lepromatous (LL)	14	14	100% of LL

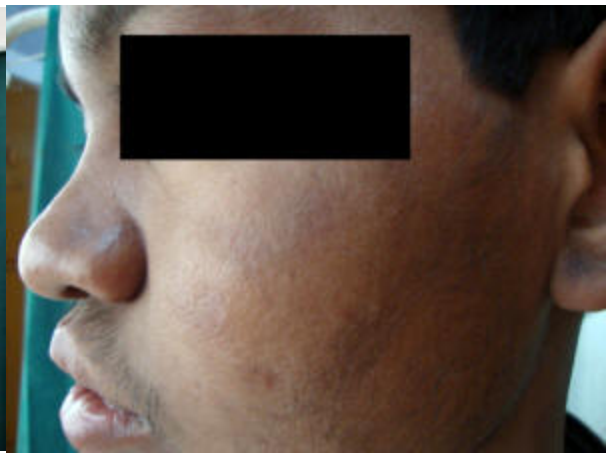
Discussion

Regarding the head and neck structure, the nose is the most affected area [11] and examination of the nose can be quite helpful in the early diagnosis of leprosy, especially when nasal symptoms are present along with suspicious cutaneous lesion.[12]
In our study, the majority of patients (53.33%) belonged to the 30-50 year age group. 34 patients (45.33%) had duration of disease/symptoms for more than 9 months; indicating a significant delay on the part of patients in seeking advice.

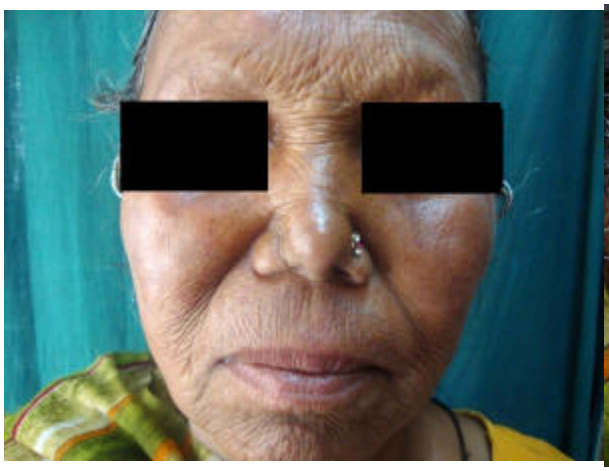
The late nasal manifestation such as perforation (7 patients) and saddle nose (9 patients) were found exclusively in patients with lepromatous leprosy with duration being greater than 9 months. This further highlights the need for early diagnosis of leprosy and proper ENT examination of patients. Patients with positive nasal findings usually showed more than one positive finding e.g.: Stuffiness with anosmia. In our study, the major complaints were crusting (25.33%), hyposmia (21.33%), stuffiness (17.33), and recurrent epistaxis (14.66%).



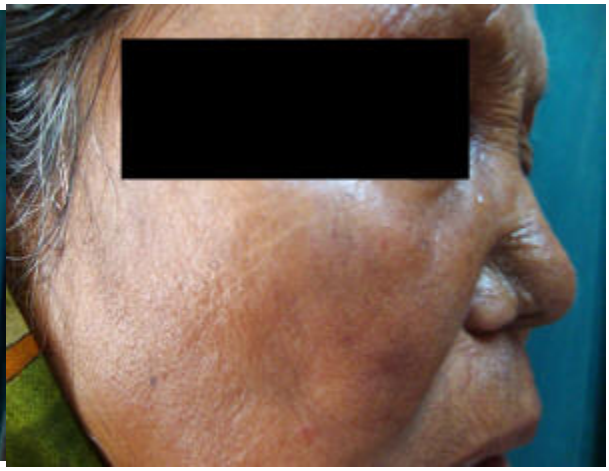
Patient 1: A patient with lepromatous leprosy (LL) showing saddle nose deformity.



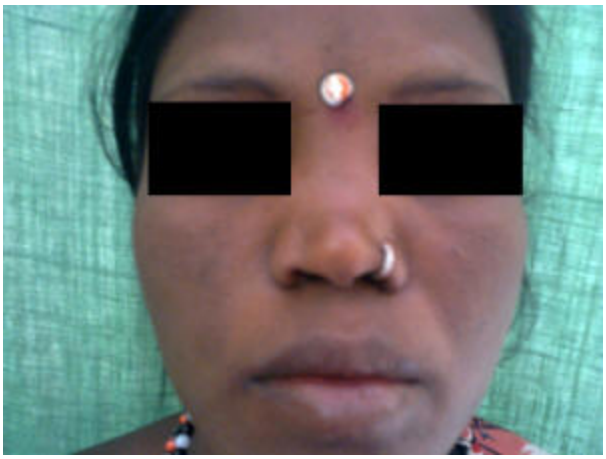
Patient 1: A patient with lepromatous leprosy (LL) showing saddle nose deformity.



Patient 2: A patient with lepromatous leprosy(LL) showing saddle nose deformity. The patient also shows typical Leonine facies & Madarosis (loss of eyebrows) seen in leprosy and had complaints of Anosmia & recurrent Epistaxis.



Patient 2: A patient with lepromatous leprosy(LL) showing saddle nose deformity. The patient also shows typical Leonine facies & Madarosis (loss of eyebrows) seen in leprosy and had complaints of Anosmia & recurrent Epistaxis.



Patient 3: A patient of Lepromatous Leprosy (LL) with Saddle nose deformity. The patient also had a complaint of Stuffiness.

The early diagnosis of leprosy is imperative, since prompt management of nasal manifestations along with prompt institution of multi-drug therapy, significantly reduces the progression of the disease, Nasal deformities such as perforation/collapse of the nasal septum (saddle nose) can then be avoided. Management of nasal symptoms includes regular alkaline douching, removal of crusts, as well as corrective surgeries in cases with established nasal deformities.

Conclusion

The study concludes that leprosy patients show nasal symptoms in a significant proportion and evaluation of nasal manifestations helps not only the individual by decreasing associated morbidity in the form of deformities, but also the community; by giving the clinician a chance to halt further transmission of disease.

References:

1. Definition, Epidemiology and World Distribution. In: Jopling WH, McDougall AC. Handbook of leprosy 5th ed. New Delhi. CBS Publishers. 1996 3-4.

2. Katoch KV. Leprosy: systemic aspects. In: Valia RG, Valia A. IADVL Textbook of Dermatology, Vol II , 3rd ed, Mumbai. Bhalani Publications. 2008 2070-71.

3. World Health Organization. Chemotherapy of leprosy for control programs. WHO Technical Report Series 847. Geneva WHO. 1994. View Article

4. Modified Guidelines on MDT Regimen to be followed under NLEP, Director General Health Services (leprosy). Nirman Bhavan. New Delhi. 1997.

5. Barton RP. Olfaction in leprosy. J Laryngol Otol. 1974 Apr;88(4):355-61. View Abstract

6. Pedley JC. The nasal mucus in leprosy. Lepr Rev. 1973 Mar;44(1):33–35. View Abstract

7. Bahadur S, Thaker A. Specific Chronic Infections. The nose and paranasal sinuses(part 13). In: Gleeson M, Browning GG, Burton MJ, Clarke R, Hibbert J, Jones NS. Scott Brown's Otorhinology, Head & Neck Surgery. Vol 2, 7th ed; Great Britain. Hodder Arnold Publications. 2008 1463-4.

8. Noordeen SK. Robert C. Hastings. Epidemiology of Leprosy. leprosy India 45:17-18.

Noordeen SK. The epidemiology. In: Hastings, Robert C. (Ed.) Leprosy. 2.ed. Edinburgh: Churchill Livingstone: 29-34. 1994.

9. de Abreu MA, Michalany NS, Weckx LL, Neto Pimentel DR, Hirata CH, de Avelar Alchorne MM. The oral mucosa in leprosy: a clinical and histopathological study. Braz J Otorhinolaryngol. 2006 May-Jun;72(3):312-6. View Abstract

10. Boggild AK, Correia JD, keystone JS, Kain KC. Leprosy in Toronto: an analysis of imported cases. CMAJ. 2004 170:55-9. View Article

11. Giselle Mateus da Silva, Lucas Gomes Petrocinio, Jose Antonio Patrocinio, Isabela Maria Barnardes Goulart. Otorhinolarynologic evaluation from leprosy patients protocol of a National Reference center. International Archives of Otorhinolaryngology. 2008 12:1. View Article

12. Talhari S, Neves RG, Hansenias. 3rd edition: Tropical. 1997