

# Clinical Spectrum of Otorhinolaryngological Manifestations in Leprosy: A Retrospective Analysis from Jammu and Kashmir

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## Abstract

**Introduction:** Leprosy is a chronic infectious granulomatous disease caused by *Mycobacterium leprae*, also known as Hansen's disease. The disease affects the peripheral nervous system, skin, and mucous membrane. Dissemination and transmission of *M. leprae* are primarily from nasal mucosa of infected persons.

**Materials and Methods:** A record-based retrospective observational study was done in the Department of Dermatology and ENT, ASCOMS Hospital, Jammu, Jammu and Kashmir, to know the prevalence of otorhinolaryngological manifestations of leprosy using records of 49 leprosy patients retrieved for 5 years from 2013 to 2018.

**Results:** Forty-nine patients with 40 (82%) males and 9 (18%) females were included in the study having male-to-female ratio 4.5:1. A majority of the patients (47%) were in the age group of 20–40 years. Forty-seven (96%) patients had a multibacillary type of leprosy, while only 2 (4%) patients had paucibacillary leprosy. Seven (14%) patients showed reaction. Four (8%) showed type I and 3 (6%) showed type II reaction. Nasal manifestations were predominantly encountered among the otorhinolaryngeal manifestations. All the otorhinolaryngeal manifestations were in the multibacillary type of leprosy. The main nasal symptoms with which patients presented were nasal stuffiness (14%), crust formation (8%), and recurrent mild epistaxis (6%). On anterior rhinoscopy, mucosal changes (pale mucosa and edema) and nasal crusting were seen in 7 (14%) patients, atrophic concha was seen in 3 (6%) patients and ulceration of the septal perforation was seen in 2 (4%) patients. Saddle nose deformity was seen in 1 patient. Among the otological manifestations, two patients had erythematous nodules on pinna, while diffuse infiltration of ear lobules was noted in five patients. Labial edema was seen in two patients and nodular lesion on the lip in one patient.

**Conclusion:** Among the otorhinolaryngological manifestations, nasal involvement was the most commonly seen in leprosy patients. An otolaryngological examination should be routinely done in the diagnosed patients of leprosy.

**Key words:** Granulomatous disease, Leprosy, Pinnae, Rhinitis, Septal cartilage

## INTRODUCTION

Leprosy is an infectious granulomatous disease caused by *Mycobacterium leprae*. It is also known as Hansen's disease. The disease affects the peripheral nervous system, skin, and mucous membrane.<sup>[1]</sup> It is one of the oldest known diseases and still continues to be a health hazard in many countries, including India.<sup>[2]</sup> It is mostly prevalent in tropical and subtropical regions.

An annual new case detection rate of leprosy in India is estimated to be about 9.71/100,000 population.<sup>[3]</sup> India contributes about 60% of the new cases of leprosy globally as per the data on global leprosy figures.<sup>[4]</sup> Distribution of the disease in Indian states is not uniform. Jammu and Kashmir is a low endemic region and has controlled the prevalence, but its eradication is still a challenge. As per the NLEP figures, the annual new case detection rate in Jammu and Kashmir for the year 2015–2016 was 1.35.<sup>[5]</sup>

The disease manifests in its early form as loss of sensations on peripheral extremities such as hands and feet. It may also damage the skin, mucosa of the upper respiratory tract, reticuloendothelial system, and eyes if left untreated.<sup>[5]</sup> Otorhinolaryngological manifestations are more commonly seen in the lepromatous type of the

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disease. Nasal symptoms include nasal stuffiness, blood-stained discharge, and frank epistaxis. With the progression of the disease, patients may present with persistent nasal crusting, bleeding, atrophic rhinitis, septal perforation, and saddle nose deformity.<sup>[6]</sup> Pharyngeal globus, neck pain, and oral ulceration are oropharyngeal problems. Otolological manifestation includes otitis externa, ear pain, hypoacusis, tinnitus, and vertigo.<sup>[7]</sup>

The present retrospective study was undertaken to study the clinical spectrum of otorhinolaryngological manifestations in the patients of leprosy presenting to an urban tertiary care hospital in Jammu and Kashmir.

## MATERIALS AND METHODS

The present study is a record based retrospective observational study done in the Department of Dermatology and ENT of ASCOMS Hospital, Jammu and Kashmir. Records of all leprosy indoor and outdoor patients were retrieved for 5 years from 2013 to 2018 which included 49 patients reporting to the hospital. Data related to demography, detailed history and thorough clinical examination, smear result, and treatment given were collected for each patient. Patients were diagnosed clinically. The otorhinolaryngological examination included anterior rhinoscopy, otoscopy, oral examination, and indirect laryngoscopy, when indicated. Slit skin smear was performed in each case. Patients were classified as PB and MB according to WHO guidelines. The data collected were statistically computed using SPSS VERSION 17.0. Percentage and proportions were used for qualitative and nominal variables. Quantitative variables were expressed as mean  $\pm$  standard deviation.

## RESULTS

With a total of 49 patients, 40 (82%) were males and 9 (18%) were females [Figure 1]. Male-to-female ratio in the present study was 4.5:1. The mean age of the patients at presentation was  $39.6 \pm 4.2$  years with age ranging from 18 to 72 years. A majority of the patients (47%) were in the age group of 20–40 years followed by the age group of 40–60 years (35%). Five patients (8%) were in the age group of >60 years while 10% of patients were below the age group of 20 years. The spectrum of diagnosis was as follows: 15 patients were classified as borderline lepromatous leprosy, 13 as lepromatous leprosy, 12 as borderline tuberculoid, 2 as histoid leprosy, 4 as pure neuritic, and 3 as borderline leprosy.

For clinical evaluation, the patients were divided into two groups of multibacillary (MB) and paucibacillary (PB). Forty-seven (96%) patients had a multibacillary type of leprosy, while only 2 (4%) patients had paucibacillary leprosy. Forty-

two (86%) patients showed no reaction. Among the rest of the patients, 4 (8%) showed type I and 3 (6%) showed a type II reaction. None of the patients in the study had any history of contact with any known patient of leprosy.

All the otorhinolaryngeal manifestations [Tables 1] were in the multibacillary type of leprosy (lepromatous and borderline lepromatous type). Main ENT complaints with which patients presented were nasal stuffiness (7), crust formation (4), and recurrent mild epistaxis (4). On anterior rhinoscopy, mucosal changes (pale mucosa and edema) and nasal crusting were seen in all the seven patients, atrophic concha was seen in three patients, and ulceration of the septal mucosa without destruction of the septal cartilage was seen in two patients. Saddle nose deformity was seen in one patient. Labial edema was seen in two patients, while nodular lesion was seen on the lip in one patient. Nodules on pinna were seen in two patients, while diffuse thickening and infiltration of ear lobule were seen in five patients.

## DISCUSSION

Diagnosis of leprosy is teamwork of dermatologists, otolaryngologists, pathologists, and bacteriologists. ENT examination of a suspicious dermal lesion should be routinely included as the nose is the most affected part of the leprosy patients. Once the nasal mucosa is affected, it can easily spread to the upper respiratory tract. Early diagnosis of the mucosal lesion can help in the early detection and treatment of this infectious disease. Suspicious dermal lesion supplemented with mucosal alteration of nose increase the degree of suspicion, thus helping an early diagnosis of leprosy.<sup>[7]</sup>

This is the first time such a study has been done in Jammu and Kashmir to observe the prevalence of otorhinolaryngological manifestation in leprosy patients.

In our study, the majority of the patients were males (82%). Males are more susceptible to contracting the disease due to more mobility and migration, thus coming in contact of an infected person. Most of the patients were young adults in the age group of 20–40 years (47%). A review of the clinical

**Table 1: Prevalence of otorhinolaryngological manifestations in leprosy**

Otologic manifestations	Diffuse infiltration of pinna (10%) Nodular lesions on earlobe (4%)
Rhinological manifestations	Pale mucosa and edema (14.2%) Nasal crusting (14.2%) Atrophic concha (6.1%) Ulceration of the septal perforation (4.2%) Saddle nose deformity (2%).
Oral cavity manifestations	Labial edema (4%) Nodular lesion on lips (2%)

spectrum of the disease showed that maximum patients, that is, 29 (59%) were in the borderline group (BB+BT+BL). This observation is comparable to the studies done by Thakker and Patel,<sup>[8]</sup> Sharma and Sharma,<sup>[9]</sup> and Moorthy *et al.*<sup>[10]</sup> In our study, 96% of the patients were in the multibacillary (MB) group, while only 4% were in paucibacillary (PB) group.

In our study, 8% of cases showed type 1 reaction and 4% showed type 2 reaction. Thaker and Patel<sup>[8]</sup> reported lepra reaction in 9.6% of the cases, of which 3.2% showed type 1 reaction and 6.4% showed type 2 reaction. Another study by Kalla and Salodkar<sup>[11]</sup> reported a lepra reaction in 11.1% of cases.

The earliest nasal mucosa changes are edema, submucosal granulomatous infiltration, and hypersecretion. On anterior rhinoscopy, nodular infiltration with crust formation and blood-stained discharge is seen. The disease advances to ulceration of the nodules, scar formation, and septal perforation. The classical triad of saddle nose, septal perforation, and atrophic rhinitis is usually seen in the advanced disease.<sup>[12,13]</sup>

In our study, the main ENT symptoms with which patients presented were nasal, including nasal stuffiness, nasal discharge, and bleeding. None of the patients had any otological or laryngeal symptoms. One study reported nasal obstruction, crust formation, and recurrent epistaxis as common findings in their study.<sup>[7]</sup> In the present study, anterior rhinoscopy, mucosal changes (pale mucosa and edema), and nasal crusting were seen in all the 7 (14.2%) patients, atrophic concha was seen in 3 (6.1%) patients, and ulceration of the septal perforation was seen in 2 (4.2%) patients. Saddle nose deformity was seen in 1 (2%) patient. Silva *et al.*, in a study of 80 patients, reported septal perforation in ten patients, atrophy of nasal concha in 18 patients, and saddle nose deformity in three patients. Saddle nose deformity was reported most commonly associated to the leprosy by a study done by Farina in 1991.<sup>[14]</sup>

Other areas of upper respiratory tract are seldom involved nowadays due to early detection and availability of multidrug therapy. In our study, labial edema was seen in two patients, a nodular lesion on the lip in one patient, nodules on pinna in two patients, and infiltration of ear lobules in five patients. Therefore, although most patients present to the dermatologists, clinical alteration of upper respiratory tract supplements in making the diagnosis. Otorhinolaryngologist should be well aware of the specific clinical features associated with leprosy so that appropriate

precautions (wearing gloves and masks) are taken while examining these patients.

## CONCLUSION

Leprosy is a worldwide public health problem. Usually, the skin and peripheral nervous system are affected, but mucosal involvement is also seen with the progression of the disease. Nasal involvement is the most commonly seen ENT manifestation in the patients of leprosy. Nasal epithelium of untreated multibacillary leprosy patients contribute to the shedding of *M. leprae* into the environment and contacts of untreated MB cases are at risk for contact with *M. leprae*. An otolaryngological examination must be routinely done in all the diagnosed leprosy patients to identify the otolaryngological morbidities and prevent the sequelae. A high index of suspicion and needful investigation is required as a leprosy patient may first present to the otolaryngologist with complaints such as recurrent epistaxis.

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