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Case Series

Laryngeal Involvement in Lepromatous Leprosy: A Retrospective Case Series

Somanath[1], Sapthami Satish[2], H M Abhijith[3], Ullas[4]

[1] Senior Resident, Department of ENT and Head and Neck, ESIC MC and PGIMER, Gulbarga, Karnataka, India.
[2] Assistant Professor, Department of ENT and Head and Neck, BMCH and RI, Chitradurga, Karnataka, India.
[3] Senior Resident, Department of General Surgery, BMCH and RI, Chitradurga, Karnataka, India.
ORCId- 0000-0002-9438-7773
[4] Assistant Professor, Department of ENT and Head and Neck, M R Medical College, Gulbarga, Karnataka, India

Corresponding Author:

Somanath

Senior Resident, Department of ENT and Head and Neck, ESIC MC and PGIMER, Gulbarga, Karnataka, India.
somanathkembhavi96@gmail.com

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ABSTRACT

Background: Leprosy, caused by Mycobacterium leprae, primarily affects the skin and peripheral nerves. Laryngeal involvement is uncommon and may remain unrecognized until significant airway compromise develops. The present study aims to describe the clinical spectrum, endoscopic findings, radiological characteristics, and outcomes of patients with laryngeal leprosy presenting to a tertiary care center.
Methods: A retrospective case series was conducted involving ten patients with histopathologically confirmed lepromatous leprosy and laryngeal involvement between January 2018 and December 2025. Demographic data, clinical presentation, laryngoscopic findings, imaging characteristics, histopathology, treatment, and outcomes were analyzed.
Results: Ten male patients with a mean age of 47.9 years (range 39–58 years) were included. Hoarseness was the most common symptom (100%), followed by dyspnea (60%) and dysphagia (40%). Cutaneous manifestations including leonine facies, madarosis, saddle nose deformity, and peripheral sensory loss were observed in all patients. Videolaryngoscopy demonstrated edema of the epiglottis, aryepiglottic folds, and false vocal cords in all cases. Vocal cord palsy was identified in six patients (60%). Computed tomography revealed varying degrees of supraglottic and glottic narrowing. Histopathological examination demonstrated granulomatous infiltration with numerous acid-fast bacilli on Fite-Faraco staining in all patients.
Conclusion: Laryngeal leprosy remains a rare but clinically significant manifestation of lepromatous disease. Persistent hoarseness and airway symptoms in patients with leprosy warrant detailed laryngeal evaluation. Early recognition facilitates timely multidrug therapy and may prevent irreversible airway complications.

Keywords: *Leprosy, Laryngeal Leprosy, Hoarseness, Airway Obstruction, Lepromatous Leprosy, Vocal Cord Palsy.*

INTRODUCTION

Leprosy is a chronic granulomatous disease caused by Mycobacterium leprae[1,2]. Despite significant reductions in disease burden worldwide, India continues to account for a substantial proportion of newly diagnosed cases[3]. The disease primarily affects the skin and peripheral nerves; however, systemic involvement may occur in advanced multibacillary disease.

Laryngeal involvement is an uncommon manifestation, predominantly encountered in patients with long-standing lepromatous leprosy[4]. The disease process generally begins in the supraglottic region and may progressively involve the epiglottis, aryepiglottic folds, false vocal cords, and true vocal cords[5,6]. Clinical manifestations range from mild hoarseness to life-threatening airway obstruction[7].

Due to its rarity and nonspecific presentation, laryngeal leprosy is frequently underdiagnosed[8]. This study presents a retrospective series of ten patients with histologically confirmed laryngeal leprosy and highlights the characteristic clinical and endoscopic features relevant to otolaryngologists.

MATERIALS AND METHODS

Study Design- Retrospective observational case series.
Study Setting- Department of Otorhinolaryngology at a tertiary care teaching hospital.
Study Period- January 2018 to December 2025.

Inclusion Criteria

1. Histopathologically confirmed lepromatous leprosy.
2. Evidence of laryngeal involvement on laryngoscopy and/or imaging.
3. Availability of complete clinical records.

Exclusion Criteria

1. Incomplete records.
2. Alternative causes of laryngeal pathology such as malignancy, tuberculosis, fungal infection, or trauma.

Data Collection

The following variables were reviewed:
Demographic characteristics, Clinical presentation, Cutaneous manifestations, Laryngoscopic findings, CT neck findings, Histopathological features, Treatment administered, Clinical outcomes

RESULTS

Demographic Characteristics- A total of ten patients were identified. All patients were male with a mean age of 47.9 years.

Clinical Presentation- Symptom Number (%) Hoarseness- 10 (100%) Dyspnea- 6 (60%) Dysphagia-4 (40%) Dysphonia - 10 (100%) Stridor -2 (20%) Cutaneous Findings All patients exhibited features suggestive of advanced lepromatous disease: Leonine facies (figure 1), Madarosis, Saddle nose deformity, Ear nodules, ulceration, toe deformity (figure 2) and Distal sensory impairment.

Endoscopic Findings (figure 3)- Epiglottic edema- 10 (100%) Aryepiglottic fold thickening -10 (100%), False vocal cord edema-10 (100%) Vocal cord palsy-6 (60%), Glottic narrowing-10 (100%).

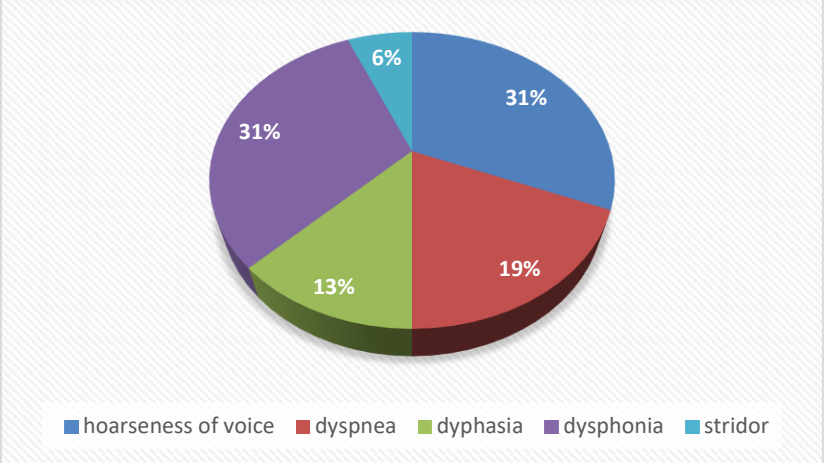

Chart 1: Clinical Presentation of cases.

Radiological Findings, Contrast-enhanced CT neck demonstrated:
Thickened epiglottis, thickened aryepiglottic folds, Supraglottic narrowing, Variable glottic compromise, three patients demonstrated severe airway narrowing (figure 4).

Histopathological Findings, Biopsy specimens revealed:

Dense subepithelial inflammatory infiltrates, Foamy macrophages, Granulomatous inflammation (figure 5). Numerous acid-fast bacilli on Fite-Faraco staining.

Histological confirmation was obtained in all patients.

Figure 1: Leonoid facies

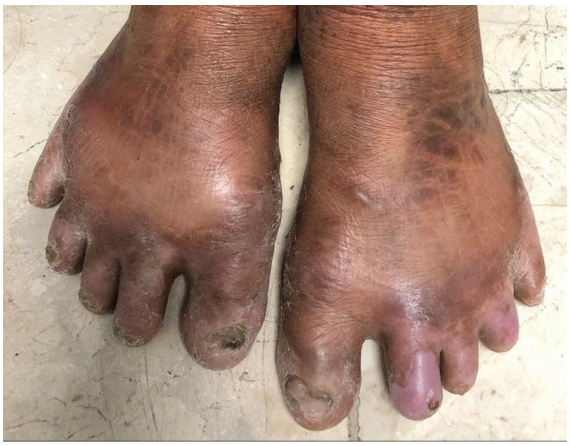

Figure 2: Deformities affected feet

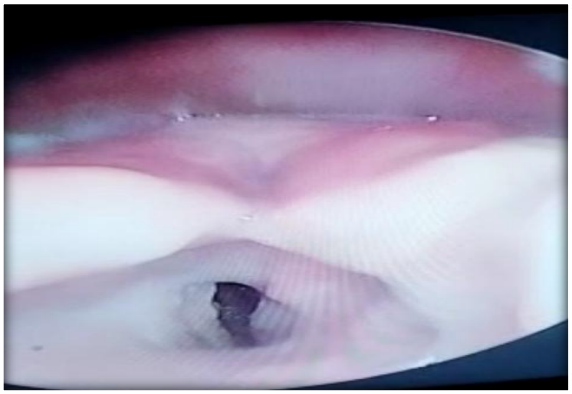

Figure 3: Video Laryngoscopic picture

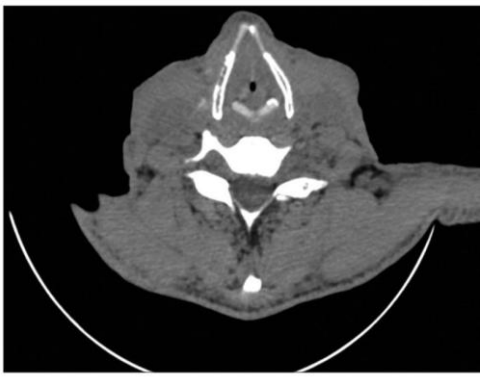

Figure 4: NCCT neck

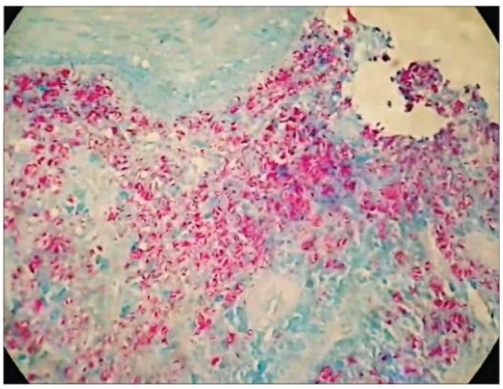

Figure 5: Histo-Pathological image

DISCUSSION

Laryngeal involvement in leprosy was more common in the pre-multidrug therapy era, with reported incidence ranging from 6% to 75% in advanced lepromatous disease[3]. The supraglottic region is particularly vulnerable because of its lower temperature, which favors proliferation of M. leprae. In the present series, hoarseness was the universal presenting complaint. Similar findings have been reported in previous studies where dysphonia represents the earliest symptom of laryngeal infiltration. Progressive edema and fibrosis may eventually result in airway compromise.

Video Laryngoscopy consistently demonstrated involvement of the epiglottis and aryepiglottic folds. Vocal cord palsy was observed in 60% of patients, highlighting the potential severity of laryngeal disease.

Once the patients got diagnosed, their airway was secured with tracheostomy tubes. Later they started with lepromatous multi-drug treatment as per protocol and asked for follow-up.

The differential diagnosis includes:
Laryngeal tuberculosis Sarcoidosis Granulomatosis with polyangiitis Amyloidosis Laryngeal malignancy Histopathological confirmation remains the diagnostic gold standard.

Early diagnosis is essential because prompt multidrug therapy can halt disease progression and reduce the risk of airway obstruction.

CONCLUSION

Laryngeal leprosy is a rare but important manifestation of advanced lepromatous disease. Hoarseness in patients with cutaneous signs of leprosy should raise suspicion for laryngeal involvement. Flexible laryngoscopy, CT imaging, and histopathological confirmation are crucial for diagnosis. Early recognition and treatment can prevent significant morbidity and airway compromise.

DECLARATIONS

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Conflict of Interest
The authors declare no conflict of interest.

Ethical Approval
Institutional Ethics Committee approval was obtained for retrospective review of patient records.

Informed Consent
Waived due to retrospective study design.

Author Contributions
All authors contributed to study conception, data collection, analysis, manuscript preparation, and final approval.

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