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THE SILENT AIRWAY: A CASE REPORT OF PROGRESSIVE LARYNGEAL RHINOSCLEROMA

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ABSTRACT

Rhinoscleroma is a rare, chronic granulomatous infectious disease caused by Klebsiella rhinoscleromatis, primarily affecting the nasal cavity and nasopharynx. Although the disease predominantly involves the upper respiratory tract, extension into the larynx and trachea is uncommon and may lead to significant airway compromise. Due to its indolent progression, variable clinical presentation, and resemblance to other granulomatous conditions, diagnosis is often delayed. Laryngotracheal involvement poses an additional diagnostic and therapeutic challenge and is associated with increased morbidity.

We report a rare case of rhinoscleroma in a 19-year-old female presenting with nasal obstruction and hoarseness of voice, later found to have subglottic and posterior pharyngeal involvement. Histopathological examination confirmed the diagnosis. The patient responded favourably to prolonged antibiotic therapy with tetracycline and rifampicin. This case highlights the importance of early recognition, thorough endoscopic evaluation, and histopathological confirmation in atypical presentations of rhinoscleroma.

KEYWORDS: Rhinoscleroma; Laryngeal involvement; Subglottic stenosis; Granulomatous disease; Case report

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INTRODUCTION

Rhinoscleroma is a chronic, slowly progressive granulomatous infection caused by Klebsiella rhinoscleromatis, a Gram-negative, encapsulated bacillus 1. First described in the late 19th century, the disease remains endemic in certain developing regions, particularly in parts of Africa, Central America, Eastern Europe, the Middle East, and South Asia2. Poor socioeconomic conditions, overcrowding, and limited access to healthcare contribute to its persistence.3

The disease predominantly affects the nasal cavity (95–100% of cases), followed by the nasopharynx1. Involvement of the larynx, trachea, bronchi, and rarely the orbit or middle ear occurs through contiguous spread4. Laryngotracheal involvement is rare but clinically significant, as it may lead to progressive airway obstruction, hoarseness, dysphonia, and in severe cases, life-threatening respiratory compromise.5

Rhinoscleroma progresses through three distinct stages: catarrhal (atrophic), granulomatous (proliferative), and sclerotic (fibrotic) 6. The indolent nature of the disease and nonspecific symptoms often delay diagnosis6. The condition can mimic tuberculosis, Wegener's granulomatosis, fungal infections, leprosy, and malignancy.7

This report describes an unusual case of rhinoscleroma with laryngeal extension in a young female, emphasizing the clinical presentation, diagnostic challenges, endoscopic findings, histopathology, and successful medical management.

CASE REPORT

A 19-year-old female presented to the Otorhinolaryngology outpatient department with complaints of progressive nasal obstruction and hoarseness of voice for six months. The nasal obstruction was insidious in onset, gradually progressive, and predominantly left-sided. Hoarseness developed over the past three months and was associated with mild dysphonia.

There was no history of stridor, dyspnoea, fever, epistaxis, weight loss, dysphagia, or chronic cough. There was no history suggestive of tuberculosis, trauma, or prior nasal surgery. The patient belonged to a rural background with low socioeconomic status.

On Clinical Examination, anterior rhinoscopy revealed congested, friable nasal mucosa in the left nasal cavity with crusting and irregular granulomatous tissue over the inferior turbinate, nasal floor, and septum and stenosis (Fig No.1). Posterior rhinoscopy showed narrowing of the posterior choana. Diagnostic nasal endoscopy confirmed granulomatous lesions with mucosal thickening and scarring.

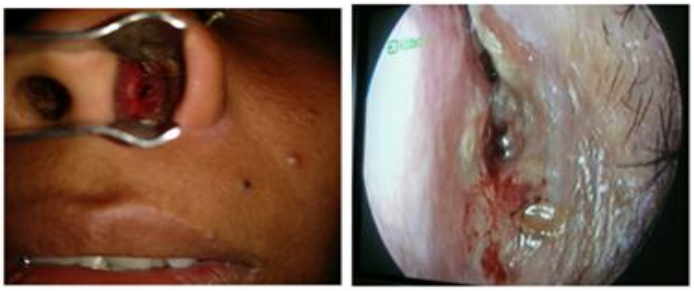

Figure No. 1- Left Nasal Cavity on Anterior Rhinoscopy showing granulations and stenosis of Nasal cavity

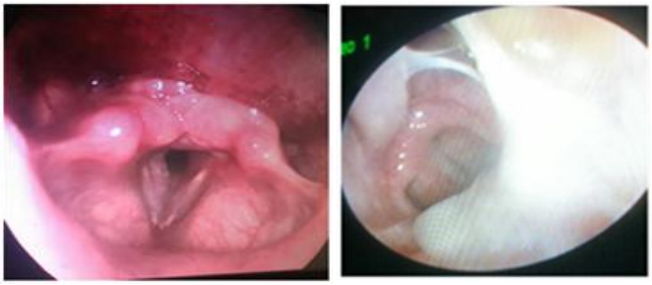

Figure No. 2- Glottic and Subglottic involvement

Hopkin's Rod examination of larynx revealed restricted mobility of vocal cords and subglottic mass causing partial airway narrowing (Fig. No. 2). Routine haematological investigations were within normal limits. ESR was mildly elevated. CT scan of the nose, paranasal sinuses, and neck revealed mucosal thickening in the nasal cavity with narrowing of the choana and subglottic soft tissue thickening without cartilage destruction. A biopsy was taken from the nasal and subglottic lesion. Histopathology revealed dense chronic inflammatory infiltrate, Presence of characteristic Mikulicz cells (large foamy macrophages containing bacilli), Russell bodies (plasma cells with immunoglobulin inclusions) which are diagnostic of Rhinoscleroma.

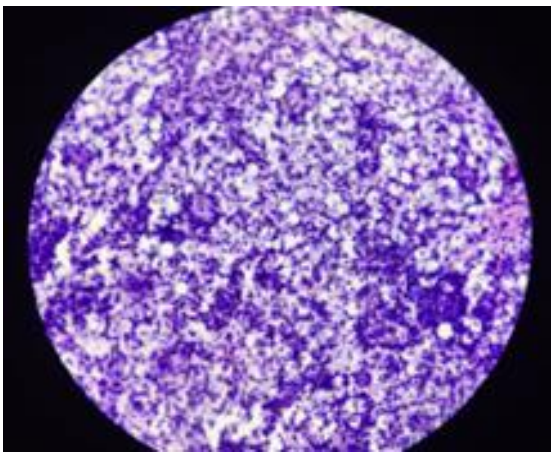

Figure No -3 Shows Characteristic Mikulicz cells.

The patient was started on Oral tetracycline 250 mg three times daily, Rifampicin 600 mg once daily for 8 weeks.
Regular endoscopic follow-up showed gradual regression of granulomatous tissue and improvement in airway patency. The patient reported marked improvement in nasal obstruction and voice quality (Fig No. 4 and 5). No surgical intervention was required.

Figure No. 4 - Left Nasal Cavity- Post Treatment

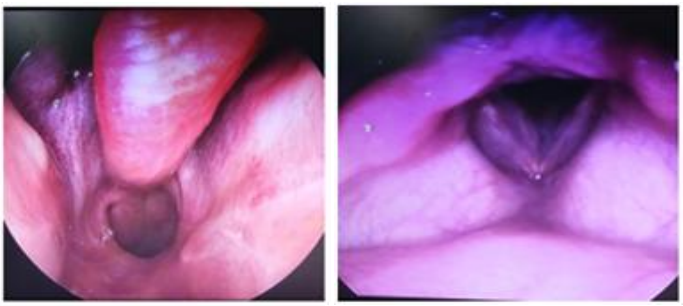

Figure No. 5- Post Treatment improvement in Posterior Choana and Subglottic Involvement

DISCUSSION

Rhinoscleroma is a chronic granulomatous disease with a predilection for the nasal mucosa 8. Laryngeal involvement occurs in approximately 15–20% of cases but is often under-recognized.9 Klebsiella rhinoscleromatis survives intracellularly within macrophages, leading to chronic inflammation10. The organism induces formation of Mikulicz cells, which are pathognomonic 10.

Progressive fibrosis leads to cicatrization and airway narrowing.11 Disease progresses through 3 stages - Catarrhal stage: Nonspecific rhinitis, crusting, foul discharge. Granulomatous stage: Nodules, granulations, mucosal thickening. Sclerotic stage: Fibrosis, stenosis, deformity 9. Our patient presented in the granulomatous to early sclerotic stage. Laryngeal disease typically affects the supraglottis and subglottis8. Subglottic involvement can mimic subglottic stenosis of other etiologies. Hoarseness and dysphonia are early signs.8.

Differential Diagnosis 1,2,4,10 includes Tuberculosis, Wegener's granulomatosis (GPA), Fungal granuloma, Leprosy, Sarcoidosis, Malignancy. Histopathology is essential to differentiate these conditions. Definitive diagnosis relies on identification of Mikulicz cells and Russell bodies. Culture is difficult and often not required if histology is diagnostic. Long-term antibiotic therapy is the mainstay11 Tetracyclines, Rifampicin 1, Ciprofloxacin 1, Streptomycin (historically). Duration ranges from 6 weeks to several months. Our patient was given Tetracycline 250 mg three times daily, Rifampicin 600 mg once daily for 8 weeks. Our patient improved with antibiotic therapy no surgical intervention was needed. Surgical management is reserved for fibrotic stenosis or airway compromise.11. Early diagnosis and adequate antibiotic therapy prevent progression. Recurrence can occur if treatment is inadequate.

CONCLUSION

Rhinoscleroma with laryngeal involvement is rare but potentially serious. Chronic nasal symptoms associated with hoarseness should raise suspicion. Thorough endoscopic evaluation and histopathological confirmation are essential. Early and prolonged antibiotic therapy can lead to excellent outcomes and prevent airway complications.

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