

# Case Report; Chronic Rhinitis: A Diagnosis Conundrum

Dr. Ayesha Shaikh<sup>1</sup>, Dr. Pravin Misal<sup>2</sup>, Dr. Vidya Rokade<sup>3</sup>, Dr. Harshad Galande<sup>4</sup>

<sup>1</sup>PG Resident Department of ENT, Smt Kashibai Navale General Hospital and Medical College, Narhe, Pune Maharashtra, India

<sup>2</sup>Assistant Professor, Department of ENT, Smt Kashibai Navale General Hospital and Medical College, Narhe, Pune Maharashtra, India

<sup>3</sup>Professor, Department of ENT, Smt Kashibai Navale General Hospital and Medical College, Narhe, Pune Maharashtra, India

<sup>4</sup>PG Resident, Department of ENT, Smt Kashibai Navale General Hospital and Medical College, Narhe, Pune Maharashtra, India

**Abstract:** Introduction: Chronic rhinitis is a disorder commonly seen by otolaryngologists. It is characterized by inflammation of the nasal mucosa, turbinates and septum. Chronic rhinitis symptoms are nonspecific and at times pose a diagnostic and therapeutic challenge for the physician. Leprosy is an infection that affects the mucous membranes of the respiratory tract and may manifest with nasal symptoms of chronic rhinitis, including nasal congestion, rhinorrhea, and intermittent epistaxis. Case Description: We present a case of 34years male patient having complaint of nasal obstruction and nasal crusting on further evaluation patient is diagnosed as pure neuritic lepromatous leprosy and started on fixed dose drug combination of drug and patient responded well. Conclusion: Patients with symptom of chronic rhinitis are commonly encountered in ENT OPD. In patients not responding to standard therapy, the exact diagnosis makes treatment baffling. In such cases it is important to consider possibility of other disease. Conditions like Leprosy makes the patient socially rejected causing depressive, suicidal thoughts along with other stigmas. Hence, patients should not be missed, a proper diagnosis and treatment aids patient for complete cure.

**Keywords:** chronic rhinitis, leprosy, M Leprae, nasal endoscopy

## 1. Introduction

Patient with complaint of Chronic rhinitis is a commonly encountered by ENT doctor. It is characterized by inflammation of the nasal mucosa, turbinates, and septum. Chronic rhinitis symptom is not specific and at times pose a diagnostic and therapeutic challenge for the otorhinolaryngologist. Many etiologies can result in chronic inflammatory changes of the nose, including allergies, systemic illness, chronic rhinosinusitis, and other environmental irritants [1]. In addition, rare infectious etiologies should be considered when evaluating patients with persistent symptoms of chronic rhinitis despite adequate medical treatment. Secondary atrophic rhinitis may be caused by granulomatous infections including leprosy, tuberculosis, and syphilis, comprise approximately 1% of the total cases [2].

Leprosy, or Hansen disease, is a slowly progressive infection caused by Mycobacterium leprae that affects the skin, eyes, peripheral nerves, and mucous membranes of the respiratory tract, including the nasal mucosa and other organs. Leprosy is frequently misdiagnosed, or the diagnosis delayed because clinicians do not suspect this disease. Nevertheless, the prevalence of leprosy remains high in endemic regions; worldwide, more than 200, 000 new leprosy cases are detected annually [3]. We report a case of leprosy that presented with nasal symptoms of chronic rhinitis.

## 2. Case Report

A 34yr old male, resident of Ambegaon, Businessmen by occupation, presented to the ENT outpatient clinic

september2022 with complaints of nasal obstruction, along with nasal crusting since 1year associated with fever and bilateral leg pain since 10 days. Symptoms started since last 1 year of complaint of decreased sensation over both leg along with bilateral leg swelling with history of unnoticed trauma. Patient give history of reduce sensation over both leg since 1yr for which private practioner started on tab prednisolone The patient denied any family history of leprosy. On physical examination, the vital signs were as follows: Body temperature, 97.8 F; blood pressure, 124/78 mmHg; heart rate, 68 beats per min; respiratory rate, 19 breaths per min. On general examination bipedal oedema and facial puffiness presen and on local examination nose shows deviated nasal septum to left with bilateral cavity was filled with crust and synchia present in left nasal cavity. Finding confirmed with diagnostic nasal endoscopy The remainder of the ENT examination was unremarkable



Figure 1 & 2: Shows the facial puffiness and bipedal oedema



Figure no 3 &4: Shows the diagnostic nasal endoscopy image for right and left nasal cavity

No abnormality was found in routine blood and urine analysis. CT PNS suggestive of C Shaped DNS (deviated nasal septum) with convexity to left. **Microbiological Investigation done on nasal crust like KOH, Gram stain:**

no organisms were isolated ZN stain shows acid fast bacilli. And histopathological examination s/o inflammatory allergic sinusitis

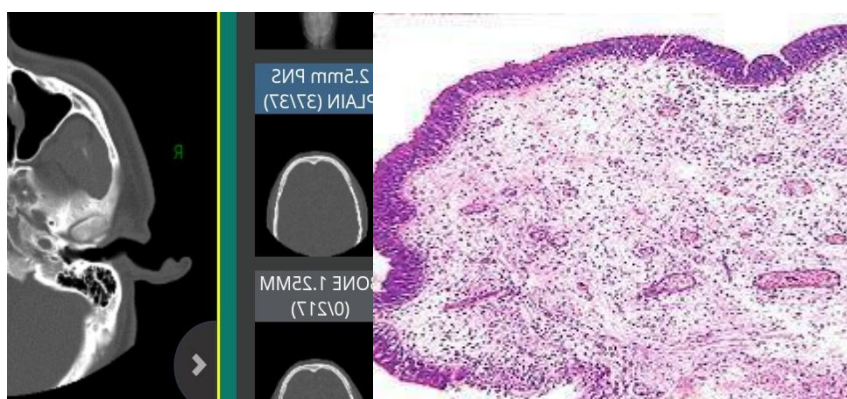


Figure 5: CT PNS S/O DNS TO RIGHT Figure no 6 HPE s/o allergic rhinosinusitis

On further evaluation of patient, s complaints like tingling sensation over leg and decrease sensation over leg, leg pain and bipedal oedema Medicine and orthopedician Reference was done. Further investigations were done as describe below to reach diagnosis. 2D ECHO was **s/o Non obstructing Hypertrophic Cardiomyopathy**. Xray LS spine was with in normal limit. NCV (nerve conduction velocity): **s/o axonal neuropathy. Sensory > motor**. Lower limb > upper limb mononeuropathy multiplex. As patient was also given history of reduce sensation Dermatology reference done to rule out granulomatous disease. Slit skin smear advised shows AFB.

on multidrug therapy Rifampicin 600mg once a month, Clofazimine 300mg once a month followed by 50 mg daily, Dapsone 100mg daily. Patient follow up for months he responded well to treatment.

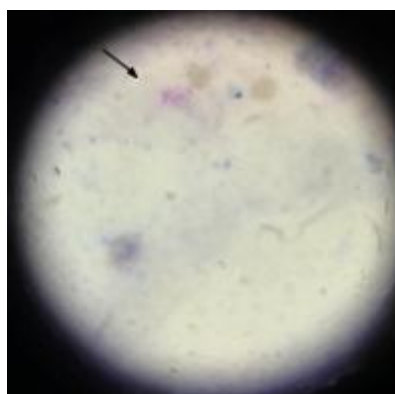


Figure 7: Show slit skin smear show Acid fast bacilli

Combined with the patient’s medical history, the final diagnosis was pure neuritic hensens disease Patient is started

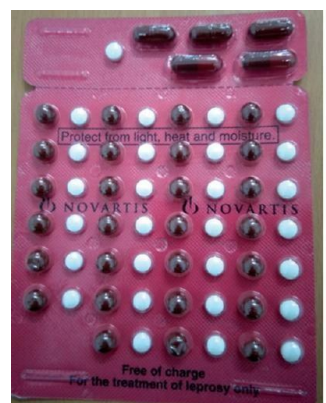


Figure 8: Fixed dose drug composition for leprosy treatment

### 3. Discussion

Leprosy is chronic granulomatous disease caused by an obligate, intracellular aerobic, rod shaped carbol fuchsin - positive acid - fast bacillus, Mycobacterium leprae. The bacteria have tropism for skin, peripheral nerves, and the upper respiratory tract. Leprosy is classified into two types, tuberculoid and lepromatous. According to the World Health Organization, leprosy is classified into “paucibacillary” (low

quantity) and “multibacillary” (large quantity) based on the number of skin lesions and proliferation of bacteria. [1] The spectrum of leprosy is classified in five types, from the limited tuberculoid and borderline tuberculoid cases to the more extensive mid border line, borderline lepromatous, and lepromatous cases. *M. leprae* selectively invades and damages peripheral nerves, causing anatomic deformities and motor and sensory deficits. Leprosy is usually diagnosed by anesthetic skin lesions and peripheral neuropathy, and it is confirmed by the presence of acid - fast bacilli in skin smears or tissue biopsies. *M. leprae* can not cultured on artificial media. Perineural and endoneural inflammation are distinctive histologic features of diagnostic value when the acid - fast organisms are not identified. The respiratory tract is more often involve in the lepromatous leprosy. The nose is the initial entry point for the bacilli via air droplets, and it is usually the initial site of the disease, with mild involvement at initial stage. Suzuki et al found that more than 90 percent of their treated ex - lepromatous leprosy patients reported complaint of nasal dryness, nasal obstruction, and crusting [2]. Other common nasal complaints include nasal obstruction, epistaxis, crusting, ozaena, hyposmia, and nasal septal perforation. In advance intranasal disease, mucosal nodules ulcerate and may become secondarily infected or may spontaneously heal, leading to destruction of the nasal septum, nasal anesthesia, and hyposmia or anosmia. The classic triad of saddle nose, septal perforation, and atrophic rhinitis seen in advanced leprosy is attributable to the ability of the bacillus to locally invade and destroy the nasal cartilage and septum [3 - 6]. The paranasal sinuses can also be infected and serve as reservoirs for the reactivation of disease. The ethmoidal sinus is most commonly involved, and is reported to be infected in up to 80 percent of cases [7]. The diagnosis of condition is made by clinical examinations and obtaining a thorough history, however, confirmation of disease is achieved by microscopic examination and histopathological studies of the skin and mucosal biopsies [1, 2, 8]. Current standard treatment includes the use of three drugs, rifampicin, clofazimine, and dapsone. The multidrug therapy according to the WHO - MDT regimen (1997) aims to effectively eliminate the disease in the shortest time to prevent resistance [1]. Quality of life in this group of patients is extremely important as the disease causes after - effects including saddle nose deformity, nasal septal perforation, and atrophic rhinitis. Complications that can greatly affect quality of life [9]. Medical treatment should precede any surgical procedure, however, a combination of endoscopic sinus surgery and maxillary sinus irrigation can reduce the nasal symptoms of leprosy patients with chronic rhinosinusitis and atrophic rhinitis, thus, greatly improving quality of life [2]. Menger et al reconstructed an ex - leprosy patients' noses with saddle deformity using an external approach and achieved improved functional and aesthetic outcomes in most patients. Atrophic rhinitis is a debilitating nasal condition characterized by progressive atrophy of the nasal mucosa, paradoxical congestion crusting, and foul smelling nasal discharge (ozaena). Therefore, the triad of thick crusting of the nasal mucosa, foul odor, and nasal discharge should raise a suspicion of the diagnosis. The etiologies of primary atrophic rhinitis remains unclear. However, secondary atrophic rhinitis is usually caused by sinus surgery (90%), radiation (2.5%), trauma (1%),

granulomatous disease (1%), and infection (1%) [10]. Chronic granulomatous disease such as leprosy, syphilis, tuberculosis, sarcoidosis, and Wegener's granulomatosis are known to be associated with atrophic rhinitis [15]. As majority of the proposed treatments are inconclusive with poor patient satisfaction, the treatment of chronic rhinitis remains debatable. The treatments include for chronic rhinitis as nasal hygiene with regular intranasal irrigation of sodium bicarbonate solution, topical aminoglycoside therapy, and normal saline solution [15, 7]. For the present patient, the authors prescribed sodium bicarbonate solution nasal irrigation. This produced marked improvement in the patient symptoms of nasal dryness, crusting, and congestion. Tissue biopsy for histopathologic examination, cultures, and nasal endoscopy should be obtained for unusual nasal findings, such as persistent mucosal inflammation, crusting, turbinate or septal ulceration, nasal masses, submucosal nodules and extra - sinus manifestations such as diplopia, trigeminal hypoesthesia, decreased visual acuity, epiphora, proptosis, skin lesions, and peripheral neuropathy [11]. In our case, a young man was diagnosed with pure neuritic lepromatous leprosy as an incidental finding from a biopsy and crust obtained during a diagnostic nasal endoscopy for assessment of chronic rhinitis

Nasal congestion increased nasal secretion, mucosal ulceration, and epistaxis were present as a result of the local invasion to the nasal mucosa by *M. leprae*. Skin lesions were identified, and a history of peripheral neuropathy was obtained. The diagnosis of leprosy is frequently delayed by an average of 2 to 5 years outside endemic areas, since most clinicians are not familiar with the disease [12]. Even the endemic areas of India and Brazil report a delay in diagnosis by 1 - 2 year, and 55% to 65% of patients in these endemic areas have nerve damage at the time of diagnosis [13, 14]. Otolaryngologists should consider leprosy in the differential diagnosis of patients with nasal symptoms and presumptive chronic rhinitis who do not respond adequately to standard therapies. Increased awareness and prompt diagnosis of the disease will minimize potential morbidities and disability.

#### 4. Conclusion

Leprosy has been reported as eradicated in the majority of the developing countries. Nevertheless, it remains a major public health hazard as new cases are still being reported. The present case report emphasizes the importance that Patients with chronic rhinitis which commonly encountered in ENT OPD. In patients not responding to standard therapy, the exact diagnosis makes treatment baffling. In such cases it is important to consider possibility of other disease. Conditions like Leprosy makes the patient socially rejected causing depressive, psychiatric illness along with other stigmas. Hence, patients should not be missed, a proper diagnosis and treatment aids patient for complete cure.

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