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Otorhinolaryngology Tuberculosis: Clinical Presentation and Diagnostic Difficulties

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Abstract

All body tissues are affected by tuberculosis, albeit some are more frequently than others. The most prevalent kind of tuberculosis, accounting for around 80% of cases, is pulmonary tuberculosis. Even though it is one of the less common types of extrapulmonary tuberculosis, the otorhinolaryngeal area nevertheless presents a substantial clinical and diagnostic difficulty. Only five out of 121 patients with suspected otorhinolaryngology tuberculosis over a three-year period had Mycobacterium tuberculosis illness, with cervical adenitis excluded. 7 more people had tuberculosis that was histologically verified. Only one patient had concurrent pulmonary tuberculosis that was detected in the sputum. We examine the many clinical and laboratory features of otorhinolaryngology tuberculosis that could aid in the diagnosis of this uncommon but significant kind of extrapulmonary tuberculosis.

Keywords: Endobronchial tuberculosis; Head and neck infections; Otorhinolaryngeal; Diagnostic; Pulmonary tuberculosis.

Introduction

Although Mycobacterium tuberculosis infection can affect any body tissue, pulmonary tuberculosis infection is by far the most prevalent kind of infection, accounting for around 80% of all tuberculosis cases (TB). The most typical symptom of extrapulmonary TB is lymphadenitis. The clinical issue of otorhinolaryngeal region tuberculosis is unusual but not unheard of. Except for cervical lymphadenitis, laryngeal tuberculosis is the most prevalent otorhinolaryngeal manifestation of TB. According to earlier studies, between 25 and 30 percent of individuals with otorhinolaryngeal TB also have concurrent pulmonary TB. However, reports of patients without pulmonary tuberculosis infection have been made since 1990. The next most frequent symptom in this group is middle ear and mastoid air cell tuberculosis. An early identification of tuberculosis in this area is crucial since its symptoms and signs can resemble cancer [1].

Many doctors overlook TB when making a differential diagnosis for a variety of otorhinolaryngeal symptoms, which can lead to incorrect diagnoses and subpar care. In addition, the prevalence and scope of tuberculosis have grown as a result of AIDS and other immunosuppressive conditions or therapies. The presence of a chronic/caseating granuloma on histopathology or a positive mycobacterial smear and culture are the key criteria used to diagnose tuberculosis (TB). We provide our clinical and laboratory experience with the clinical presentation, diagnosis, and treatment of tuberculosis of the otorhinolaryngeal region because there are a fair number of differential diagnoses for a clinical presentation of the disease [2].

Materials and Methods

This was a retrospective examination of the samples from the otorhinolaryngeal region that the Christian Medical College, Vellore, Otorhinolaryngology Department sent to the Mycobacteriology Laboratory of the Microbiology Department between 2007 and 2009. In Tamil Nadu, South India, there is a sizable teaching hospital for tertiary care. The Central Tuberculosis Division (CTD), New Delhi, the Revised National Tuberculosis Control Program (RNTCP), and the Government of India have granted the Mycobacteriology Laboratory accreditation as a culture and drug susceptibility testing (DST) laboratory. At the outpatient clinic of the Otorhinolaryngology Department at the Christian Medical College and Hospital, patients with signs and symptoms of TB of the otorhinolaryngeal region underwent a thorough clinical evaluation [3].

To get a biopsy for a histopathological or microbiological diagnosis, these individuals underwent operations. To evaluate the patient's overall health, blood tests such the ESR and total and differential white blood cell counts were performed. This study excluded patients with cervical adenitis. Hoarseness, odynophagia, and dysphagia are frequently prevalent symptoms, along with appetite reduction and weight loss. Examining the vocal cords with an indirect laryngoscope or fibrotic laryngoscope frequently reveals generalised erythema and granulomatous or polypoid abnormalities [4]. However, in contemporary clinical practise, the traditional clinical signs of laryngeal tuberculosis are infrequent, and a biopsy is necessary to confirm the diagnosis and rule out a malignancy. Under general anaesthesia, a micro laryngoscopy and biopsy were performed on the individuals suspected of having TB. Samples are sent for susceptibility testing, mycobacterial culture, and histopathology analysis. The most frequent symptoms these patients come with are nasal blockage and bloody rhinorrhoea. It could be accompanied by headache and frank epistaxis [5].

Patients who had granular nasal and nasopharyngeal lesions after evaluation performed a rigid nasal endoscopy and a biopsy of the lesion. Both samples for histopathology analysis and samples for mycobacterial culture and susceptibility testing are supplied. The tissue sections were stained with haematoxylin-eosin stains for the histopathological evaluation. Chronic granulomatous inflammatory exudates, whether or not they were caseated, were pathognomonic of tuberculosis. Using a sterile homogenizer, tissue samples that were

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submitted to the Mycobacteriology section were ground [6]. The ground material's smear microscopy was assessed using the WHO/RNTCP method and fluorescence aura mine "O" method. Inoculating the material into Lowenstein-Jensen (LJ) media after the material had been digested and decontaminated using a modified Petroff's procedure. 1% percentage of M. tuberculosis isolates underwent drug susceptibility testing. M. tuberculosis isolates were tested for drug sensitivity to isoniazid, rifampin, streptomycin, and Ethambutol using the 1% proportion technique on LJ [7].

Discussion

One of the most prevalent granulomatous illnesses that affect the otorhinolarynx is tuberculosis (TB). The incidence of tuberculosis has dramatically decreased since the development of anti-tuberculosis chemotherapy, but extra pulmonary TB (EPTB), especially primary otorhinolaryngeal TB, is on the rise as a result of human immunodeficiency virus (HIV). Only 5 of the 121 individuals in our series over a period of three years had TB, and the remaining 7 had histology alone that was very suggestive of tuberculosis. Peripheral TB was concurrent in just 1 case [8].

This demonstrates how challenging it is to diagnose EPTB cases with laboratory proof. The symptoms of TB in the otorhinolaryngeal area might match those of other infectious and non-infectious medical diseases, making clinical identification difficult. There are several chronic diseases that need to be distinguished from laryngeal tuberculosis, including syphilis, leprosy, fungal infections, and illnesses that are not infectious, such as neoplasm, Wegener's granulomatosis, and sarcoidosis. Due to the distinctive histological images that each of these disorders presents, this is possible through a histopathological study [9].

In the past, coincidental pulmonary TB has been linked to some types of otorhinolaryngeal tuberculosis, particularly laryngeal and middle ear tuberculosis. Only one of our patients with histopathology-proven laryngeal tuberculosis also had coexisting pulmonary tuberculosis, which is consistent with more recent studies. Our patients were primarily affected by primary otorhinolaryngeal TB. People with HIV are significantly more likely to develop or redevelop TB, especially extrapulmonary TB. Studies have linked otorhinolaryngeal TB to HIV infection, but in our study, no individuals with otorhinolaryngeal TB that was confirmed by histopathology or culture had HIV infection. ESR readings greater than 10 mm have been linked to TB. The mean ESR in our patients with otorhinolaryngeal tuberculosis that had been verified by culture or histopathology was 20 cu mm/hour. During the first diagnostic workup of TB patients, the nonspecific inflammatory measure known as erythrocyte sedimentation rate (ESR) is frequently employed [10].

Smear microscopy to find acid fast bacilli and culture are employed in the microbiology lab for diagnosis. These samples are frequently AFB smear negative because they are paucibacillary in nature. Although the organism can develop on solid culture media (such as the agar- or egg-based Middle Brook 7H10 or 7H11 medium) for up to 6 weeks, growth typically happens on liquid culture media within 7 to 21 days. Testing for drug susceptibility also requires culture. On the other side, molecular methods, such the polymerase chain reaction, can frequently produce results in 24-48 hours and detect DNA or RNA from samples with substantially faster turnaround times than culture [11].

All 12 of the patients in our series who had either M. tuberculosis culture-proven or histopathology suggestive of TB were referred to their respective directly observed treatment short-course (DOTS) clinics and treated in accordance with the Revised National Tuberculosis Programme (RNTCP) Guidelines on category I treatment with four drugs intensive phase for two months with isoniazid, rifampicin, pyrazinamide, and Ethambutol In our country, patients with pulmonary tuberculosis are increasingly at risk for developing multidrug-resistant tuberculosis (MDR-TB). All of the patients in our series have so far had drug-susceptible M. tuberculosis infections. The mainstay of extra pulmonary tuberculosis treatment is still anti-tuberculosis chemotherapy, and surgery's major function is to make an early diagnosis and start an early course of treatment [12].

Conclusion

Although the otorhinolaryngeal manifestations of tuberculosis are less frequent than in the past, a high index of suspicion is still required due to the disease's similarities to other chronic pathological conditions, especially head and neck cancers and other chronic infectious and non-infectious conditions, in terms of clinical presentation and appearance. Additionally, these otorhinolaryngeal subsites extra pulmonary extra scrofula lesions are typically paucibacillary. Without pulmonary tuberculosis, primary otorhinolaryngeal tuberculosis can manifest. The cornerstone of the diagnosis is still a positive mycobacterial culture and a characteristic histological appearance. We advise sending representative biopsies of all samples from suspected instances of otorhinolaryngeal tuberculosis for histological analysis as well as mycobacterial culture and sensitivity. It is necessary to conduct studies to examine the role of newer, quicker laboratory techniques for an earlier and more precise diagnosis of extra pulmonary tuberculosis.

Conflict of interest

None

Acknowledgments

None

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