

A Study on Tubercular Manifestations in Ear, Nose, Throat and Head & Neck Region

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Abstract

Background: The intent of the present study was to study in detail the ear, nose, throat and head and neck manifestations of tuberculosis in relation to its prevalence as per OPD & IPD registration, age distribution, sex distribution, socio-economic status, dietary habits, residential status, sites and presenting symptoms, and diagnostic tools, like sputum AFB, AFB in swabs from local lesion, Mantoux test, Fine Needle Aspiration Cytology, association with pulmonary tuberculosis and association with HIV infection.

Materials and Methods: This was a prospective study carried out in Dept. of E.N.T & Head and Neck surgery of M.K.C.G. Medical College, Berhampur conducted between October-2019 to October-2021. Written informed consent was obtained from all study participants.

Results: The most common site of TB of head and neck was found to be lymph nodes, next being larynx, hoarseness and cough being common presentations of laryngeal TB. It was more common in males than in females, and in patients of lower socio-economic status due to overcrowding, lack of awareness and low protein diet. FNAC is a reliable & very easy method to diagnose tuberculosis.

Conclusion: With high degree of suspicion, an early diagnosis can be made with the help of simple investigations & successful outcome depends on appropriate antitubercular therapy & timely surgical interventions whenever necessary.

Keywords: Tubercular Manifestations, Ear, Nose, Throat, Head & Neck Region

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Introduction

It is generally accepted that Mycobacterium tuberculosis gains access to human body through either inhalation or ingestion of bacteria through swallowed infected

sputum. It is to be expected, therefore that the organism should involve the passages through which it enters, namely nose, nasopharynx, larynx, trachea as well as oral

cavity including tonsils. Head and neck TB forms nearly 10% of extrapulmonary manifestations of the disease. [1]

Even though most of these forms of nonpulmonary tuberculosis are noninfectious, it does lead to considerable suffering and disability and certainly needs more attention than that given to it hitherto. There is much about these forms of tuberculosis which is not known at present. Very often in our country the diagnosis is presumptive. Moreover, the presentation of tuberculosis in ear, nose, throat and head and neck region can be easily confused with many other local and systemic diseases.

Considering the importance of tuberculosis affecting the extra-pulmonary organ like ear, nose, and throat in respect of its morbidity, epidemiological problem, clinical diversities and pathological confusion with other diseases, the "Study on tubercular manifestations in ear, nose throat & head and neck region" was undertaken in Dept. of ENT & HNS, of M.K.C.G. Medical College, Berhampur, the premier institute located in southern Odisha.

Aims and Objectives

The intent of the present study was to study in detail the ear, nose, throat and head and neck manifestations of tuberculosis in relation to its prevalence as per OPD & IPD registration, age distribution, sex distribution, socio-economic status, dietary habits, residential status, sites and presenting symptoms, and diagnostic tools, like sputum AFB, AFB in swabs from local lesion, Mantoux test, Fine Needle Aspiration Cytology, association with pulmonary tuberculosis and association with HIV infection.

Materials & Methods

The present trial was a prospective study carried out in Dept. of E.N.T & Head and Neck surgery of M.K.C.G. Medical College, Berhampur conducted between October-2019 to October-2021. Written

informed consent was obtained from all study participants.

Inclusion Criteria

All patients having symptoms suspected to be due to TB of ear, nose, throat, and head neck region.

Exclusion Criteria

- Non-compliant patients
- Moribund patients

Observations & Discussion

The present section deals with the observation and discussion part of the study. The various parameters of the study have been taken into consideration and computed in simple tabular form in order to compare with similar other studies on the topic done earlier.

Among 66,693 number of total patients coming to the Dept. of E.N.T. & Head and Neck surgery of M.K.C.G. medical college, Berhampur during period from October-2019 to October-2021, 109 number of patients were found to be affected by tuberculosis of ear, nose, throat, head and neck region.

The prevalence in the period of study was found to be 0.163%. The corresponding result found by K. Akber Khan et.al.(1998)[2] in Srinagar was 0.6%.

A similar study in Finland by Elina Nohrstrom *et al.*(2007)[3] showed the incidence to be 0.6/100,000 per year.

In the present study 81cases (74.3%) were found to have tubercular lymphadenopathy, 14 cases (12.84%) have tuberculosis of larynx, 5 cases (4.58%) of oral cavity, 4 cases (3.67%) of skin of head & neck region, 3 cases (2.75%) of ear and 2 cases (1.83%) were found have tuberculosis of thyroid.

This study is in congruence with the study done by Kishore C. Prashad *et al.*(2007)[4] which showed prevalence of tubercular lymphadenitis to be 73.3% ; laryngeal tuberculosis to be 14.5%; tuberculosis of

oral cavity to be 5% and that of ear to be 2.4%.

The study done by K. Akber Khan *et al.*(1988) [2] showed the prevalence of tubercular lymphadenopathy to be 79.9% ; tuberculosis of larynx to be 8.3%; that of middle ear to be 1.96% ; lupus vulgaris of skin of head and neck to be 2.96%.

The study of Bhat Nalini *et al* (2006), [5] among 117 patients showed tubercular cervical lymphadenopathy in 95% cases, laryngeal TB in 2 patients(1.68%) and one patient each of oropharynx and ear i.e. (0.84%).

Table 1: Age incidence of tuberculosis of tuberculosis on different parts (ear, nose, throat, head & neck)

Age group	Lymph node	Larynx	Oral cavity	Skin	Ear	Thyroid	Total	(%)
0-10	12	-	-	2	-	-	14	12.85%
11-20	43	-	-	2	-	-	45	41.28%
21-30	15	3	-	-	-	-	18	13.76%
31-40	5	4	-	-	1	-	10	6.4%
41-50	2	5	3	-	2	1	13	11.9%
51-60	2	1	2	-	-	1	6	8.25%
>60	2	1	-	-	-	-	3	4.5%
Total	81	14	5	4	3	2	108	

The age incidence of tuberculosis of cervical lymph nodes to be maximum in 11-20 yrs. age group, incidence of laryngeal tuberculosis maximum in 21-30, 31-40 and 41-50 year age group. 3 cases of oral cavity tuberculosis was found in 41-50 year age group & 2 cases among 51-60 yr. age group. Two cases of TB of skin were found in 0-10 & 11-20 year age group. One case of TB of ear was found in 31-40 yr. age group and one case of thyroid tuberculosis was found each in 41-50 and 51-60 yr. age group.

The study of Kishore C. Prasad *et al* (2007) showed the incidence of tuberculosis of head and neck to be 24.24% in 21-30 yrs, 22.43% in 31-40 yrs and 17.58% in 41-50 yr. age group respectively.

According to Yokoyama J. *et al*(1999), [6] historically tubercular lymphadenitis has been more common in children and young adults but the peak age has now shifted to 20-40 yrs.

The present study is also in congruence with the study of B.C. Jha *et al*(2001)^[7]

which showed commonest age group of tubercular cervical lymphadenopathy is 11-20yrs age group and is also in par with study of P. Kumar Biswas *et al* (2007) who found peak incidence of tubercular adenitis in second and third decade.

The incidence of laryngeal TB in present study is maximum among patients of 21-50 yrs. which is supported by various studies like Nimesh. P Parikh (1987), who reported highest number of patients in the same age group in a study of 100 cases. It is also in agreement with the opinions of Wilson (1942), Ormerod(1950), Wetkyn-Thomas (1853), Negus(1853), Birrel & Farquharsen(1968), Killis(1971), Kacker *et al*(1971) and Singh (1971).

The incidence of TB of ear in the present study is in the 4th and 5th decade of life which is in congruence with observation of Singh *et al*(1971) according to whom it occurs in the age group of 20-40yrs.

The incidence of tuberculosis of head and neck in males in 70 cases and females in 29 cases with male: female ratio as 2.413 : 1.

This study is in congruence with the findings of K.C. Prasad (et al (2007) (M=64.45%, F=34.55%), K. Akber Khan et al (1998) (M=50.4%, F=49.5%), N. Choudhury et al (2005)[8] (M=63.63%, F=33.33%).

As per Rajat Bhatia et al (2008)[9] the incidence of laryngeal tuberculosis among males & females is in the ratio which supports the findings of present study (9cases of laryngeal TB in males and 5 cases in females).

The incidence of TB of ear, nose, throat, head and neck to be maximum (51%) in class-IV of Kuppuswamy's modified socio-economic status scale.

The incidence of TB of ear, nose, throat, head and neck to be maximum (51%) in class-IV of Kuppuswamy's modified socio-economic status scale.

The observation is in accordance with that of K. Akber Khan et al(1988) which showed the incidence of 44.1% in lower socio-economic status people.

It is also in congruence with observation of Ormred (1950), Milling (1953) & Kaker et al (1971).

TB of ear, nose, throat, head & neck is more common in patients who are non-vegetarian. The incidence is 19.26% & 80.73% among high-protein diet and low protein diet patients respectively.

This coincides with the opinion of Ormred (1948), who quoted that, tuberculosis of larynx is inversely proportional to high protein intake.

The incidence of tuberculosis of ear, nose, throat, head and neck in relation to residential status is a bit higher in rural population (55.96%) than urban population. Because of the lack of awareness early diagnosis and treatment is not possible in rural areas, that is why incidence is high. Also, the varied presentation of this form of TB which requires high degree of clinical suspicion and diagnosis in rural set up difficult which adds to the problem.

But in the present series a sizable percentage (44%) belong to urban areas. This incidence can be explained by the fact that, the lower socio-economic group, who constitute the bulk of present study, live in slums, where there is every chance of infection from a case of pulmonary TB by close contact.

Table 2: Showing clinical presentation in aural tuberculosis

Clinical feature	No. of patients	Percentage (%) of total no. of aural TB patients
Chronic ear discharge	2	66.6%
Hearing loss	3	100%
Perforation of tympanic membrane	1	33.3%
	2	66.6%
Pale granulation in middle ear	3	100%

The hearing loss and pale granulation tissue in middle ear in 100% cases, chronic discharge & multiple perforation in 66.6% cases and single perforation in 33% cases in the present study.

The discharge in cases of tuberculous otitis media is watery, it becomes thick and purulent by secondary infection (Coates & Schenck, 1961; Wilson, 1962 and Harbert

& Riordan, 1964). The discharge may be thick scanty and odourless (Shambaugh, 1967). It may be initially scanty, but later becomes profuse, apparently painless and purulent or mucopurulent (Marlowe, 1972).

Marlowe (1972) stated that, there is severe conductive deafness in cases of tuberculous otitis media due to dense fibrous tissue scarring in middle ear after healing.

Eggston et al (1947) had found the hearing to reduce to a substantial degree than in ordinary otitis media. Shambaugh (1967) and Pulec and Kinney (1973) also opined that the disproportionate hearing loss is suggestive of tuberculous otitis media. Conductive hearing loss is a feature, but sensorineural loss may also accompany if labyrinth becomes involved (Harbert & Riordan, 1964, Ballengr, 1969 and Sinha, 1972).

Singh (1971) found multiple perforation in 40 percent cases and big central perforation in 20 percent cases which is in congruence with the finding in the present study. Multiple perforation of the tympanic membrane is the classical sign of tuberculous otitis media (Eggston et al, 1947 and Shambaugh, & 967). But, this feature is not always seen as the small perforations coalesce to a larger perforation (Stone, 1967; Mawson, 1967 and Lederer, 1973). This large perforation is usually seen in the anterior part of the lower half of tympanic membrane (Sinha, 1972 and Sahu and Davidson, 1974).

Pale granulation tissue in the middle ear, which is exuberant and recurrent should alert for the possibility of tuberculosis (Wilson, 1962). The same view is also expressed by Eggston et al, 1947: Harbert

& Riordan, 1964; Shambaugh, 1967 and Lederer, 1973).

In the present study hoarseness and cough was the presenting complain in most of the laryngeal tuberculosis (85.71%) followed by pain and dysphagia in 21.42% of cases.

The present observation is in accordance with the study of Kishore C. Prasad et al (2007) [4] who observed hoarseness in almost all cases and Kaker et al (1971) who observed hoarseness in 78.9% cases.

Cough was the presenting symptom in 85.71% along with hoarseness, pain or dysphagia which is almost similar to the observation of Kaker et al (1971) who found it to be 98.5%.

21.42% of patients among 14 patients of TB of larynx presented with pain & dysphagia each which is similar to the findings of Kishore et al (2007) according to whom pain was found in 20.8% cases and odynophagia was seen in 12.5% cases.

90.8% of the patients showed Mantoux test positive and 9.2% patients showed the test negative.

The test result is in congruence with K. Akber khan et al (2002) [2] as per whom the result is positive in 96% cases.

Table 3: Association of tuberculosis of ear, nose, throat, head & neck region with pulmonary tuberculosis

Findings	No. of patients	% Among total patients (109)
Chest X-ray suggestive of pulmonary TB	26	23.85%
Sputum +ve for AFB	13	11.92%
Both sputum & CXR suggestive	5	
Total no. of PTB cases	34	31.19%

The incidence of pulmonary TB among patients of TB of ear, nose, throat, head and neck region in the present study was 31.19%, out of which 26 cases had chest X-ray suggestive of pulmonary TB and in 13 cases sputum was tested positive for AFB & 5 cases had showed both the tests suggestive of pulmonary TB.

The present study was in congruence with the findings of Kishore C. Prasad et al (2007) [4] who found the same to be 24.2% and K. Akber Khan (1988)^[2] according to whom, the incidence was 28.9% & Bhat Nalini et al (2006) [5] who found it to be 30%.

Table 4: Showing association of tuberculosis of ear, nose, throat, head and neck region with HIV infection

Observation	No. of cases
+ve for HIV	27
Total no. of patients	109
Percentage (%)	24.77%

In the present study, among total no. of 109 patients presenting with tuberculosis of ear, nose, throat, head and neck, 27 patients tested positive for HIV.

The incidence in present study was 24.77% which was in congruence with the study of Kishore C. Prashad et al(2007) [4] who found it to be 30%.

Table 5: Showing findings of fine needle aspiration cytology (F.N.A.C.) as a diagnostic tool in patients with tubercular lymphadenopathy

FNAC Findings	No. of Patients
Suggestive	73
Non-suggestive	8
Total no. of patients of TB lymphadenopathy	81

The above study shows in 73 patients out of total 81 patients of tubercular lymphadenopathy, [8,9] FNAC was suggestive of tubercular aetiology (Langhans giant cells, Epitheloid cells & caseous necrosis)

So the efficacy of FNAC in diagnosing TB in lymphnodes in present study was 90.12%, which is in congruence with the findings in the study of Kishore C. Prashad et al (2007) [4] (92%), Maharajan M. et al(2009) [10] (94%) and B.C. Jha et al(2001) (85.7%). [7]

The studies of K. Akber Khan et al(1988) showed it to be 70%. Lau et al(1990) also noticed similar experience with the reliability of FNAC in diagnosis of tubercular lymphadenopathy.

Deepjyoti V. Gadre(1991) [11] found it to be 56%. In the present study 8 cases of lymphadenopathy were found negative for tubercular pathology in FNAC. These includes the cases where the disease was established by histopathological study after excision of lymphnode and examination of pus from the pre-auricular abscess for AFB. [12]

Conclusion

With high degree of suspicion, an early diagnosis can be made with the help of simple investigations & successful outcome depends on appropriate antitubercular therapy & timely surgical interventions whenever necessary.

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