

Extra-pulmonary Tuberculosis in ENT: Clinical Manifestations and Overview

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ABSTRACT

Introduction

Tuberculosis (TB) is a chronic granulomatous, infectious and communicable disease caused by *Mycobacterium tuberculosis*. A prospective study of patients who presented to us, at a tertiary care hospital, primarily with TB of head and neck was done from June 2023 to July 2024. Patients were categorised into proper category of Anti Tuberculous Treatment (ATT) and were treated according to ATT regimen. The aim of this study was to increase awareness of the different presentations of head and neck tuberculosis (TB) and to discuss its diagnostic difficulties and to evaluate efficacy of treatment regimen. All patients were followed up at 3 months and 6 months after starting ATT. A total of 75 patients presented with primary head and neck TB during the study period.

Materials and Methods

Detailed history was obtained from all the patients. After obtaining history, a detailed clinical examination including General Examination, Systemic Examination and E.N.T. examination was done. All routine investigations were carried out. X ray chest, Sputum AFB and HIV Testing was done for all the patients. Relevant investigations were carried out according to presenting complaint. After diagnosis of Tuberculosis was made these patients were categorised into proper category of Anti Tuberculous Treatment (ATT).

Results

Most of these (80%) had cervical lymphadenopathy, 8 patients of tubercular otitis media, 3 patients had laryngeal TB, 2 patients had salivary gland tuberculosis, and there was 1 patient each of oral TB & TB perichondritis. 39 were females, and 36 were males. Maximum number of patients were from 21-30 years of age group. In 2 patients of TB otitis media, diagnosis was confirmed by histology of tissue removed during surgery. Patients completed category I AKT. Hearing was improved.

Conclusion

Diagnosing TB requires a high index of suspicion & proper tissue diagnosis. As the symptoms of EPTB in otorhinolaryngology are varied; hence, all otorhinolaryngologists should be aware of the manifestations of EPTB to suspect and diagnose/ rule out by specific investigations. Tuberculosis of the cervical lymph nodes is the commonest presentation followed by TB otitis media. Fine needle aspiration cytology (FNAC) is a reliable and easy way to diagnose TB. However, Histopathological examination is gold standard & newer diagnostic tests such as CBNAAT increases the yield of positive cases and should be used whenever required. In the larynx, true vocal cords were the commonest site affected and laryngeal TB need not be associated with lung TB or positive sputum always. Patients who have TB of head and neck must be investigated to exclude pulmonary or systemic TB. Category I ATT is effective.

Keywords

Extrapulmonary Tuberculosis; Prospective Study; CBNAAT; ATT; Tuberculous Otitis Media; Cervical Lymphadenopathy; TB Laryngitis

Tuberculosis (TB) is a chronic granulomatous, infectious and communicable disease caused by *Mycobacterium tuberculosis*. Tuberculosis usually attacks the lungs but can also affect other parts of the body. Worldwide, TB is second leading infectious killer after COVID-19. In 2022, an estimated 10.6 million

people fell ill with TB worldwide, including 5.8 million men, 3.5 million women & 1.3 million children. TB is

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present in all countries & age groups.¹

Mycobacterium tuberculosis (MTB), a slow-growing strict aerobic bacillus, causes TB, and the human body is the only natural reservoir. It is spread through airborne particles discharged into the air by a patient with infectious TB coughing, talking, or sneezing. The tubercle bacillus is an obligate aerobe which primarily affects tissues with high oxygen tension, such as the lungs. However, the bacillus can affect any body part, and extrapulmonary involvement is frequently secondary to pulmonary involvement. Among various extrapulmonary types of TB, ORL, H & N TB contributes to ~ 10% to 15% of the cases. It is an engaging field of exploration because of the different presentations and sites of involvement.²

The cervical lymph nodes are most commonly affected. Multiple, matted lymph nodes may be observed, and there may be bilateral lymph node involvement. The posterior triangle lymph nodes are involved in most cases.²

Tubercular otitis media commonly manifests as persistent otitis media with otorrhea, unresponsive to medical treatment, which is profuse, thick and purulent, and traditionally occurs painlessly. The otoscopic examination can additionally reveal thickened bulging tympanic membrane with loss of landmarks, or multiple perforations, followed by purulent otorrhea.³

In laryngeal TB, the presenting symptoms generally encompass change in voice, difficulty in swallowing, loss of weight, and loss of appetite.⁴ Fiberoptic laryngoscope examination shows diffuse erythema/edema of the vocal cords with surface irregularity with white tubercles occasionally.⁵

Patients with nasal TB complain of nasal obstruction and blood-stained nasal discharge. The commonest site is the antero-inferior part of the nasal septum, referred to as the Kiesselbach plexus. In anterior rhinoscopy, a pale, dull mucosa with perforation of the nasal septum can be observed.²

Tuberculosis of tonsils is an extremely rare variety of extra-pulmonary tuberculosis which frequently simulates the tonsillar malignancy, especially in elderly individuals. Secondary form is more common than primary one, and

in present day, contact with the infected sputum or saliva in a case of sputum smear positive pulmonary tuberculosis is the main source of the disease. Chronic or recurrent tonsillitis with enlarged tonsils and sore throat is the main clinical presentation. As it is very difficult to differentiate it from tonsillar malignancy on clinical ground, histopathological examination of the tissue is must for the diagnosis of tonsillar TB. Antitubercular therapy is adequate for its successful resolution.⁶



Fig. 1. Patient with left posterior triangle Tuberculous lymphadenitis.

The oral cavity is an infrequent site of involvement by TB. This is probably due to protective role of saliva. Infection in the oral cavity is usually acquired through infected sputum coughed out by a patient with open pulmonary TB or by hematogenous spread. The tongue is the most common site of involvement & accounts for nearly half the cases. The lesions are usually found on the tip, borders, dorsum, & base of tongue. They may be single or multiple, the lesions may or may not be painful. Other sites of involvement include the floor of mouth, soft palate, anterior pillars, & uvula. Secondary

involvement of the draining lymph nodes may occur. Majority of these patients also have pulmonary TB.⁷

Salivary Gland Tuberculosis:

Tubercular sialadenitis is most frequently seen in immunosuppressed patients. Diagnosis of this disease is difficult.⁸ Although fine needle aspiration cytology is useful in diagnosis, excisional biopsy is often required. Polymerase chain reaction for mycobacterium tuberculosis is a reliable diagnostic tool, and if available, it should be performed before surgical intervention to enable differential diagnosis of a salivary gland tumour.⁹

The most common presenting symptom is a slowly growing painless mass. Patients may also present with mild pain over the swelling. Acute presentation is rare, wherein the patient presents with a swelling below the angle of mandible associated with severe pain. Associated pain is often attributed to dental infection.⁹

This study was conducted basically with the aim to study demography of the disease, to identify various clinical manifestations of EPTB in head & neck region, to increase the awareness of this disease, to evaluate diagnostic efficacies and to study treatment regimen efficacy at tertiary health care centre.

Materials and Methods

This was a prospective study of 14 months starting from June 2023 July 2024. Patients attending E.N.T. OPD at tertiary care centre with ENT manifestations of Tuberculosis were selected as the subjects for the study.

Inclusion criteria:

- All Patients presenting to ENT OPD with suspected clinical diagnosis of EPTB irrespective of age & gender.
- Patients proven to have EPTB by standard evaluation methods like CBNAAT, USG, CT Neck, FNAC, Pus C&S, Excision biopsy of neck node, Trucut biopsy of swelling, Vocal cord biopsy.

- Patients with proven EPTB, whose treatment has not been started yet.

Exclusion criteria:

- Patients presenting with acute attack of neck lymphadenitis of less than 3 weeks.
- Patients not willing to participate in the study.
- Proven patients of EPTB who are on treatment with ATT & who are defaulters.
- Patients not willing for follow up visits.
- Patients who are with immunocompromised status.
- Patients who are with multisystem TB involvement.

Detailed history was obtained from all the patients. After obtaining history, a detailed clinical examination including General Examination, Systemic Examination and E.N.T. examination was done.

All routine investigations were carried out. *X ray chest, Sputum AFB and HIV Testing* was done for all the patients. Relevant investigations were carried out according to presenting complaint. After diagnosis of Tuberculosis was made these patients were categorised into proper category of Anti Tuberculous Treatment (ATT).

According to category of Anti Tuberculous Treatment, these patients were treated by respective regimen. All patients were followed up at 3 months and 6 months after starting Anti Tuberculous Treatment.

Results

The present study was an observational study conducted in Department of ENT of Civil Hospital Ahmedabad. This study was inclusive of 75 patients of tuberculosis of ENT region, evaluated from June 2023 to July 2024.

1. Age (years) Distribution of Patients:

In our study out of 75 patients, 8 patients (10.6%) were in less than 10 years age group, & 2 patients (2.6%) belonged to more than 60 years of age.

Maximum number of patients were in 21-30 years range, 24 (32%), with mean age of 26.25 years.

2. Gender Distribution of Cases:

Out of total 75 patients, 36 (48%) were males, 39 (52%) were females.

3. Distribution of Cases According Nature of Lesion:

Table I: Distribution of cases according to site of involvement

SITE OF LESION	NUMBER OF CASES	PROPORTION
TB lymphadenitis	60	80%
Tuberculous otitis media	8	10.6%
Laryngeal TB	3	4%
Salivary gland TB	2	2.6%
Oral TB	1	1.4%
TB Perichondritis	1	1.4%

4. Distribution of Cases According Clinical Symptoms:

Table II : Presenting complaints with proportions in patients of TBOM.

PRESENTING COMPLAINTS	NUMBER OF PATIENTS	PERCENTAGE %
Ear discharge	8	100
Decreased hearing	3	37.5
Facial weakness	0	0
Giddiness	0	0

● Ear :

Among 8 patients of tubercular otitis media major presenting complaint was chronic ear discharge. Discharge was profuse, mucopurulent, non blood stained, non foul smelling and not relieved on different antibiotics for about 2 months followed by decreased hearing. While no patient presented with facial weakness & giddiness.

On examination, external auditory canal showed mucopurulent discharge which was cleaned. Tympanic membrane showed multiple perforations with pale middle ear mucosa. Pure Tone Audiometry was s/o moderate conductive hearing loss. These findings along with history of persistent discharge not responding to antibiotics arose the suspicion of Tuberculous Otitis Media.

Under all aseptic precautions, pus swab was taken and sent for examination and came out to be Positive for ZN stain and AFB. Thus diagnosis of Tuberculous Otitis Media was confirmed.

● Nose :

In present study, out of 75 patients of EPTB of ENT, no patient of nasal TB was found.

● Larynx :

In all 3 patients of TB laryngitis, change of voice or hoarseness of voice was major presenting complaint.

● Neck :

In Neck following presenting complaints were seen :

Painless neck swelling : 48 (80%) out of 60 patients.

Painful neck swelling: 12 (20%) out of 60 patients.

Discharging sinus : 8(13.34%) out of 60 patients.

Out of 60 patients of tubercular lymphadenitis, majority were presented with painless neck swelling (80%) followed by painful neck swelling (20%).

● Oral TB :

Out of 75 patients of EPTB, 1 patient was diagnosed as

case of oral TB. She presented with chronic non healing painful ulcer over palate.

5. Constitutional Symptoms:

Fever was seen in 63 (84%) out of 75 patients. Weight loss was seen in 45 (60%) out of 75 patients.

6. Methods of diagnosis of various forms of EPTB:

Microbiological diagnosis: 24 cases

Cytopathological diagnosis: 37 cases

Histopathological diagnosis: 67 cases

7. Treatment Outcome of Various EPTB Patients :

Out of 75 patients, 71 were cured, 3 patients had relapse of disease and 1 was lost to follow up.

As per treatment operational guidelines 2016 (WHO), histopathological diagnosis is deemed accurate hence the sensitivity & specificity of FNAC & microbiological analysis is calculated taking histopathology as the gold standard.

Discussion

Tuberculosis, “Captain of all these men of death”, as referred to by John Bunyan in the 18th century is still the biggest health challenge of the world. It is known that 1.5% of India’s population is affected with tuberculosis. Extra-pulmonary involvement can occur in isolation or along with a pulmonary focus as in the case of patients with disseminated tuberculosis (TB). EPTB constitutes about 15-20% of all cases of tuberculosis in immunocompetent patients.¹⁰

The present study of is an observational study conducted in the Department of Otorhinolaryngology in Civil hospital Ahmedabad. The study included 75 patients, coming to ENT OPD with suspected signs and symptoms of tuberculosis were included in the study and subjected to various diagnostic evaluations, the results of which were extrapolated to an assortment of bio-statistical analysis.

● Age :

The most commonly affected age group is 21-30 years (32%) followed by 11-20 years age group (21%). The mean age of affected patients in this study is 26.25 years.

In Yashveer et al,¹¹, the most commonly affected age group is 21-30 years followed by 11-20 years. Sample size was of 113 proven cases of tuberculosis of Head & Neck region.

In Jha et al,¹² the age of the patients ranged from 9 months to 62 years with a mean age of 23.7 years. The frequently affected age group by the disease in this study was 11-20 years (41%) followed by 21-30 years (36%).

VK Arora et al.¹³ portrayed that the frequently affected age group is 15-24 years (8%). The study group was of 2849 EPTB cases.

Akkara et al.¹⁴ reported that the peak incidence was noted in the 30s in their patient population, while Ricciardiello et al. reported that the mean age at diagnosis was 16.5 years.

Chavan et al.¹⁵ reported the peak incidence in age group 11-40 years of age.

Akkara et al.¹⁴ had 230 cases of EPTB, out of which 211 had TB of the ENT region.

Ricciardiello et al.¹⁶ study included 323 cases presenting ENT localization of TB.

Table III : Comparison of present study (age group) with various studies.

	NUMBER OF PATIENTS (%)	AFFECTED AGE GROUP (YEARS)
Our Study	32	21 - 30
Chavan et al.	75	11 - 40
Yashveer et al.	46	21 - 30
Jha et al.	41	11 - 20

But no age is bar, as we have seen cases as young as 5 years and as old as 62 years.

- Gender :

In our study male to female ratio is 1: 1.08 exhibiting female preponderance. Female predilection has been reported in other studies as well. Male to female ratio was found to be 1:1.13 by Jha et al.,¹² 1:1.2 by Dandapat et al. and 1:13 by Subrahmanyam, 0.90:1 by Gupta et al.¹⁷

Table IV : Comparison of present study (male: female) with various other studies.

	MALE : FEMALE
Our study	1:1.08
Gupta et al.	0.90:1
Jha et al.	1:1.13
Dandapat et al.	1: 1.2

In our study, most of the patients have constitutional symptoms, fever was observed in 84% patients, while weight loss was observed in only 60% patients. Though in a series of 100 patients, Patel et al.¹⁸ observed weight loss in 77% and fever in 73% cases. Similarly, Dandapat et al. also noted weight loss in 85% and fever in 40% of their patients.

Table V: Comparison of present study (constitutional symptoms) with other studies.

STUDY	FEVER	WEIGHT LOSS
Our study	84%	60%
Patel and Mehta et al.	73%	77%
Dandapat et al.	40%	85%

- Tuberculous Lymphadenitis:

TB lymphadenitis of the cervical region is the most typical manifestation of EPTB. In our study, 80% of the cases presented with Tuberculous Lymphadenitis. Similarly, in Akkara et al.¹⁴ the incidence of tubercular lymphadenitis is 87.4% followed by the middle ear (2.8%), larynx (1.4%), and nasal cavity (0.5%). In a study by Bokare et al.⁷ out of 170 patients studied, they found 164

patients (96.4%) of Cervical TB lymphadenitis, 5 patients (2.9%) of laryngeal TB and 1 patient (0.6%) of Tuberculous otitis media.

In the study by Ricciardiello et al.,¹⁶ the most common site was the cervical lymph nodes (94.12%), followed by the larynx (4.33%) palatine tonsil (0.62%), oral cavity (0.31%), middle ear (0.31%), and nasal cavity (0.31%). Thus, all studies report that the cervical lymph nodes are the most commonly affected site.

Table VI: Comparison of present study (TB lymphadenitis) with other studies.

STUDY	TB LYMPHADENITIS (%)
Our study	80%
Chavan et al.	89.5%
Bokare et al.	96.4%
Akkara et al.	87.4%
Ricciardiello et al.	94.12%

In our study, the most frequently involved nodes are level V (48%) followed by supraclavicular nodes (8%).

In the Oishi et al.¹⁹ study, the most commonly affected cervical lymph node was the supraclavicular node (60%), followed by the internal jugular node (26.7%), whereas, according to the report by Bruzgielewicz et al.,²⁰ the internal jugular node (57.7%) and submandibular node (42.3%) were the only affected nodes.

Table VII: Comparison of present study (most commonly involved LN group) with other studies.

STUDY	LEVEL OF NODE INVOLVED	NUMBER OF CASES
Our study	Level V	48%
Bokare et al.	Level V	65%
Akkara et al.	Level V	88%

Male to female ratio for peripheral lymphadenopathy in our study was 1:1.4. Fontanilla et al.^[21] in their study had found the same ratio.

Similarly, male to female ratio of 1:1.2 was noted by²² and Nidhi et al.²³ in the studies done in Indian population.

Male predominance was noted by Bezabih et al.²⁴ where they found male to female ratio of 1.3:1. They found the peak incidence of tuberculous lymphadenitis in the age group of 30-40 years. In our study, the peak incidence was in the age group of 21-30 years.

In a study conducted by Singh & Tiwari,²⁵ the peak incidence was in the 20-30 years age group.

In Khan et al.²⁶ study, incidence of co-existing pulmonary TB is 11.4%.

Iguchi et al.²⁷ study revealed 14.3% of their cases with pulmonary TB.

In Nidhi et al.²³ study, the incidence of the pulmonary disease is 27.3%.

In the current study, none of the patients were seropositive, However, Akkara et al.^[14] study revealed 2% of their cases had co-existing HIV. The incidence of HIV positivity in patients with TB lymphadenitis has been reported around 8 %

- The result of Ultrasonography in Extra-Pulmonary TB cases:

In our study, 7 cases (10%) showed Suppurative Lymphadenitis. In this group, the lymph nodal status was unilateral and single node being involved. There were only 3 cases which showed multiple nodal afflictions.

According to Desa, the three features which help to establish the diagnosis of tuberculous lymphadenitis are multiplicity, matting, and caseation.

In Yashveer et al.¹¹ although patients having multiple matted nodes form the largest group (47%), the number of patients having single discrete node was quite significant (32%).

Abscess and sinus formation were most common in the supraclavicular group of the lymph node. The number of patients having cervical abscess or sinus is 8 (13%) in our study. Yashveer et al.¹¹ had 5% of their cases with cervical abscess.

Fine needle aspiration cytology is well established diagnostic tool in the assessment of cervical masses. In developing countries, where the tuberculous infection

is typical, the presence of granulomatous features on cytology is highly suggestive of tuberculosis.

In our study. We found it a handy diagnostic tool to identify the patients with tuberculous lymphadenopathy positively. It obviates the need for excisional biopsy most of the patients. Similar views were expressed by others. Mantoux test and ESR were useful adjuncts in helping to make the diagnosis.

Most common cytological pattern noted in our study was granulomatous inflammatory lesions (37%),

In Singh & Tiwari et al.²⁵ study, epithelioid granuloma with caseous necrosis (32.84%) followed by granuloma without caseous necrosis (30.9%) were the prominent cytological features.

A study by Handa et al.²⁸ in patients of tuberculous lymphadenitis reported a combination of well-formed epithelioid cell granulomas, giant cells, and caseous necrosis in 34% cases, epithelioid cell granulomas but no caseous necrosis in 12% cases, and only caseous necrosis not associated with granulomas, in 26% cases.

While in a study by Gupta et al.,¹⁷ epithelioid clusters with or without Langhans giant cells with necrosis was most commonly observed a cytological pattern in 50.35% cases.

In the present study, we diagnosed 89% of the cases based on histopathological examination.

Similarly, Lee et al.²⁹ reported that they often diagnosed EPTB based on histopathological findings, including evidence of typical caseous granuloma and positive acid-fast stain.

It has been suggested that the paucibacillary nature of tissue other than sputum compromises the diagnosis rate in TB.³⁰

- Ear Tuberculosis :

The tuberculous affliction of the ear is one of the rarer manifestations. It accounts for 10.6% of EPTB cases in the present study.

In a study Sharma et al.^[31] 69 cases had the manifestations of TB in the ENT region. These included patients with tuberculous cervical lymphadenopathy

Table VIII: Comparison of present study (ear TB) with other studies.

STUDY	TB OTITIS MEDIA
Our study	10.6%
Bokare et al.	0.6 %
Akkara et al.	2.8%
Sharma et al.	1.4%

(91.3%), laryngeal TB (4.3%), tuberculous otitis media (1.4%), nasal TB (1.4%) and oral tuberculosis.

Though the classical description of TBOM has been multiple tympanic membrane perforations with painless ear discharge and disproportionate sensorineural hearing loss, in the present study, the findings were also of post-aural swelling and abscess formation with otitis media. The diagnosis was done when pus was sent for gram's & AFB staining and granulations from the middle ear sent for histopathological examination.

TBOM has also been known to be associated with PTB up to 32 %, but it was not seen in our study. 1 of the cases presented with post-aural abscess and a normal tympanic membrane.

The incidence of facial palsy in TBOM has been reported in the contemporary literature to be up to 35% and recovery even after successful treatment has been variable. HPE of diseased tissue from the ear is the surest way to confirm the diagnosis of TBOM. Detection rates of AFB have been reported to be in the order of 5-35%. AKT with or without surgery can cure TBOM effectively.^[30] our cases had complete cure with category I AKT, with 2 patients diagnosed after ear surgery.

- Laryngeal Tuberculosis (LTB):

Dysphonia is the most typical presenting complaint, also being a prominent feature in laryngeal TB. 3 of our patients were detected with laryngeal TB. A study done by Akkara et al. shows cases with laryngeal affliction complained of hoarseness, and pain was not a chief complaint.¹⁴ As per reports in the literature, 1 % of cases

of PTB have LTB, and 100 % of cases of LTB have PTB.

Table IX: Comparison of present study (TB laryngitis) with other studies

STUDY	TB LARYNGITIS
Our study	4 %
Bokare et al.	2.9%
Akkara et al.	1.4%
Chavan et al.	4.5%

In a study conducted by Nupur Nerurkar et al.^[32] out of 34 suspected cases of TB laryngitis, seen over a period of 3 years viz. 2009 to 2011, 13 were proved to have TB laryngitis.

The variation in incidence could be attributed to the difference in geographical distribution, nature of the population (native/migrant), socio-economic status and the expertise of the department conducting the study.

Besides, the predisposing factors (H/o smoking) and the presenting complaints (dysphonia and pain) are suggestive of carcinoma in Patients with laryngeal TB, even the histology may mimic carcinoma due to epithelial hyperplasia.³²

Though it has been reported that hoarseness usually responds to AKT, the fibrotic healing of the tuberculous lesions may lead to long term compromise of voice. Again, AKT has proven to be effective; but surgery may be required in cases of airway compromise due to the active disease process or scarring in cured cases.

- Nasal Tuberculosis :

Nasal TB is a very rare entity even in countries with high disease load. We have not detected even a single case. There is a definite preponderance of females in all reported literature though no reasons have been ascribed to it. Mean age in the case series by Kim et al.³³ was 31 years. However, cases as old as 89 years have been reported. Reports of concomitant PTB range from 0 to over 75 %.

The complaint of bloody nasal discharge is reported by Dixit et al.³⁴ in their case report. Akkara et al.^[14] Study had a case of nasal mass with sinus involvement. However, the most characteristic feature of nasal tuberculosis is septal involvement with perforation resulting in external nasal deformity.¹⁴ A high index of suspicion is the only key especially since there can be different differential diagnosis. AKT has been reported to be sufficiently effective in achieving complete cure.

- Salivary Gland Tuberculosis :

The various manifestations of submandibular gland TB are :

1. Acute: an acute inflammatory lesion such as suppurative sialadenitis is rare.
2. Subacute: this is the most common type of manifestation. Majority of patients present in this form.
3. Chronic: chronic asymptomatic masses tend to grow slowly over years and often get confused with a benign neoplasm.⁸

In our study among 75 patients, 2 (2.6%) were diagnosed as submandibular salivary gland tuberculosis.

Both patients responded well to antitubercular therapy and surgery was avoided.

- GeneXpert :

In a study by Raja et al. of 67 patients of tubercular lymphadenitis, In GeneXpert M tuberculosis/RIF assay had a sensitivity of 82.60% and specificity of 85% when compared to histopathology. Further the PPV and NPV was found to be 92.68% and 68% respectively. GeneXpert M tuberculosis/RIF showed 2 cases of rifampicin resistance out of 67 cases. The GeneXpert M tuberculosis/RIF showed the results in 0.79 days.³⁵

As per Chavan et al.¹⁵ CBNAAT is 93.42% sensitive and 86.96% specific and has a positive predictive value of 95.95%.

Our study showed similar results with specificity of GeneXpert 70.76% when compared to histopathology. PPV was found to be 95.35%.

All the detected cases were rifampicin sensitive in this present study except 1 patient of supraclavicular lymphadenitis. Patient was primarily detected as a case of EPTB, drug resistant TB.

Conclusion

Extra pulmonary tuberculosis is a significant health problem worldwide. It poses a challenge in diagnosis and monitoring of the treatment. EPTB specially in high disease load countries like India is still an important disease entity.

In this present study female predilection was more as compared to males and maximum number of patients were from age group 21-30 years of age, with mean age 26.25 years.

The ear, nose, paranasal sinuses, pharynx, larynx & cervical lymph nodes are very important anatomical sites of extrapulmonary affliction. Peripheral lymphadenopathy is the most common site of EPTB. In our study 80% of the cases presented with tubercular lymphadenitis.

Out of 75 patients studied in present study, there was no case of nasal tuberculosis.

The symptoms of EPTB in otorhinolaryngology are varied; hence, all otorhinolaryngologists should be aware of the manifestations of EPTB to suspect and diagnose/rule out by specific investigations.

Only a high index of suspicion with proper tissue diagnosis can detect these cases. Patients usually respond well to the recommended category I AKT. Surgery may be required in some cases.

CBNAAT helps in quick diagnosis, and also tells about rifampicin sensitivity, as compared to gold standard test HPE, which leads to early initiation of drug sensitive treatment, early resolution and less lost to follow up with better quality of life for patients.

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