



## CLINICAL AND SOCIO-DEMOGRAPHIC PROFILE OF EXTRAPULMONARY TUBERCULOSIS AT TERTIARY CARE CENTRE.

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### Abstract:

**Introduction:** Tuberculosis remains a major global health problem with 1/3 of world's population being infected with tuberculosis. Along with HIV, Diabetes mellitus and recently evolved drug resistant tuberculosis, it is a big threat for mankind. TB can involve any organ system in the body. While Pulmonary TB is the most common presentation, Extra pulmonary TB is also an important clinical problem.

**Material and methods:** A cross sectional study were conducted in General Medicine department of a tertiary care hospital after ethics committee permission. 100 Extra pulmonary TB patients who came to our general medicine OPD and Inpatient admissions, who fulfilled the inclusion criteria were considered for the study over a period of 18 months.

**Result:** Out of 100 Extra pulmonary TB cases, 56 were males (56%) and 44 were females (44%). Pleura TB (32%) and lymph node TB (29%) were the most common Extra pulmonary TB diagnosis followed by abdominal TB (18%), Pott's spine (11%), Genital TB (5%), TB meningitis (4%), Peritoneal TB (1%). 78 cases recovered, 12 cases were lost to follow up, 10 cases died during the study. Mortality was high in Abdominal TB (27.8%) followed in frequency by Potts's spine (27.3%) and TB meningitis (25%). HIV positive status increased the mortality rate

**Conclusion:** Extra pulmonary tuberculosis remains a significant health issue in developing Countries. Extra pulmonary TB contributes a significant share for TB burden, however unnoticed. Our study enhances the knowledge regarding the epidemiology of Extra pulmonary TB and expands understanding of the relative contribution of host related factors to its pathogenesis. The frequency of Extra pulmonary TB in this study was higher with the highest proportion contributed by both pleural TB and lymph node TB. Moreover, being male patient was at higher rate of positivity for

Extra pulmonary TB than female. Age group 20-50 years, associated diabetes mellitus, HIV, COPD, smoking, alcohol consumption and underweight were significant risk factors for patient being Extra pulmonary TB positive.

**Keywords:** *Extra pulmonary tuberculosis, Diabetes, HIV.*

### **Introduction:**

Tuberculosis remains a major global health problem with 1/3 of world's population being infected with tuberculosis. Along with HIV, Diabetes mellitus and recently evolved drug resistant tuberculosis, it is a big threat for mankind. TB can involve any organ system in the body. While TB is the most common presentation, Extra pulmonary TB is also an important clinical problem. [1-4]

The term Extra pulmonary TB has been used to describe isolated occurrence of TB at body sites other than the lungs. Diagnosis of Extra pulmonary TB is done as per National Tuberculosis Elimination Program guidelines which is based on one microbiologically positive specimen from extrapulmonary sites or histological evidence or strong clinical evidence consistent with active Extra pulmonary TB followed by clinician's decision to treat with a full course of anti-tubercular therapy under DOTS [5,6]

Extra pulmonary TB constitutes about 15-20% of all cases of tuberculosis in immunocompetent individuals.[7] But in immunocompromised individuals like HIV, diabetes mellitus, COPD, cancers, malnutrition, chronic renal diseases, liver diseases, post organ transplant etc its incidence rises [7,8]. In HIV positive TB patients, Extra pulmonary TB accounts for more than 50% (1). Globally lymphatics and lymph node TB is the most common form of Extra pulmonary TB [10-12] found in studies from Ethiopia, Canada, Turkey, Nepal and other Indian studies [13-16]. The order of occurrence of Extra pulmonary TB is similar to National Tuberculosis Elimination Program reports [17].

**Aim:** To study clinical and sociodemographic profile of extra pulmonary tuberculosis at tertiary care centre.

**Objectives:** To study all adult extra pulmonary TB cases clinically, distribution of various types and risk factors associated with of Extra pulmonary Tuberculosis at tertiary care centre.

### **Materials And Methods:**

A cross sectional study was conducted in General Medicine department at a tertiary care hospital after ethics committee permission. Extra pulmonary TB patients who came to our general medicine OPD and Inpatient admissions, who fulfilled the inclusion criteria were considered for the study. Informed consent is taken from all study participants.

Extrapulmonary cases included in our study were lymph node TB cases, TB pleural effusion cases, TB meningitis cases, Tuberculoma cases, TB spine cases, peritoneal TB cases, Abdominal TB cases, genital TB cases etc.

USG guided lymph node biopsy and FNAC samples in TB lymphadenitis cases, pleural fluid analysis in TB pleural effusion cases, CSF studies and CNS imaging in TB meningitis cases, imaging in spinal TB cases, ascitic fluid studies and ultrasonography in abdominal TB cases and various other radiological and biochemical tests were done. Case proforma sheets were filled and data is entered in MS excel sheet.

### **Inclusion criteria:**

1) Age > 12 years 2) Clinically/ radiologically/ microbiologically confirmed cases of Extra pulmonary Tuberculosis.

### **Exclusion criteria:**

All pulmonary parenchymal TB cases

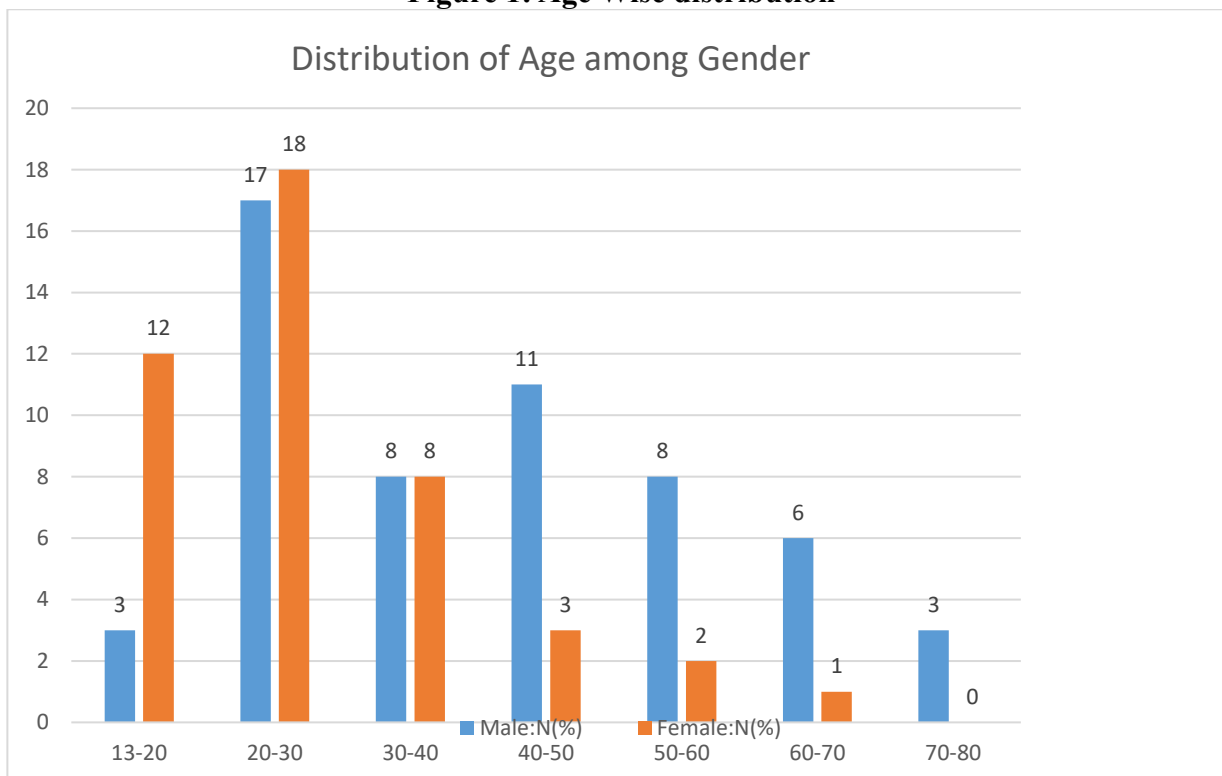
Pulmonary Tuberculosis with Extra pulmonary Tuberculosis.

**Observations:**

**Age Wise distribution:**

Figure 1 shows age wise distribution. Out of 100 Extra pulmonary TB cases, majority of the patients (64.3% males and 65.9% females) are in the 20-50 years age group. Only 5.4% males and 27.3% females are below 20 years of age. In the study participants 30.4% males and 13.6% females are above 50 years of age.

**Figure 1: Age Wise distribution**



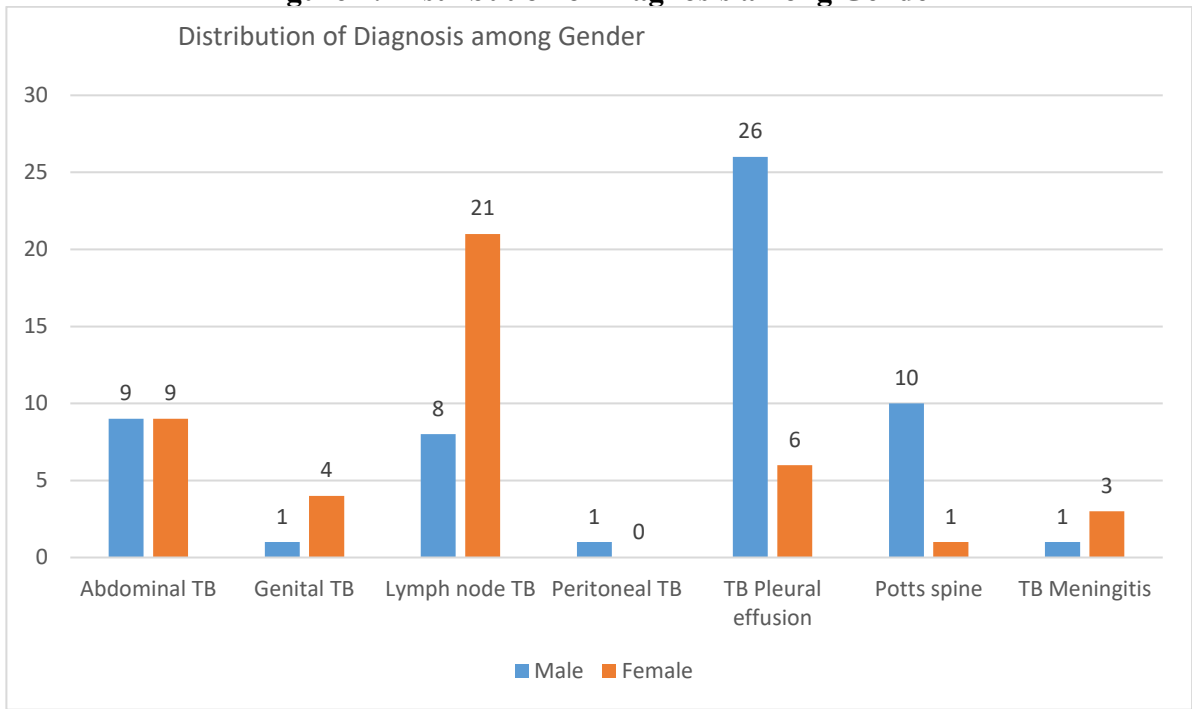
**Distribution of Diagnosis:**

Table 1 shows Distribution of Diagnosis among Gender, Overall, among 100 Extra pulmonary TB patients, pleura TB (32%) and lymph node TB (29%) were the most common Extra pulmonary TB diagnosis followed by abdominal TB (18%), Pott’s spine (11%), Genital TB (5%), TB meningitis (4%), Peritoneal TB (1%). Females have higher rates of genital TB, lymph node TB, and TB meningitis. Males have higher rates of pleura TB and Pott's spine.

**Table 1: Distribution of Diagnosis**

Diagnosis	Male: N (%)	Female: N (%)
TB pleural effusion	26(46.4%)	6(13.6%)
Lymph node TB	8(14.3%)	21(47.7%)
Abdominal TB	9(16.1%)	9(20.5%)
Potts spine	10(17.9%)	1(2.3%)
Genital TB	1(1.8%)	4(9.1%)
TB Meningitis	1(1.8%)	3(6.8%)
Peritoneal TB	1(1.8%)	0(0%)
Total	56(100%)	44(100%)

**Figure 2: Distribution of Diagnosis among Gender**

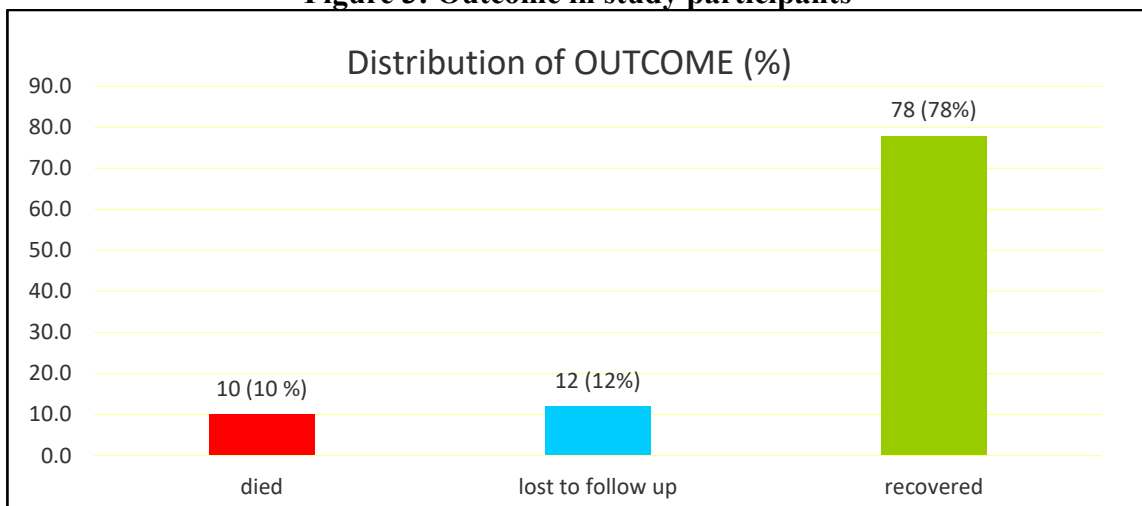


In our study we found a significant association between Extra pulmonary TB and Diabetes mellitus, smoking, alcohol consumption and HIV. Tables below show the individual P- values (significant P value < 0.05). (Figure 2 and table 2)

**Table 2: Association between various factors and Extra pulmonary TB**

Factor	Pearson Chi-Square	Likelihood Ratio	DF	P value
Diabetes Mellitus	12.408	10.822	6	0.05
HIV	13.477	14.999	6	0.03
Alcohol	24.250	27.371	6	0.00
Smoking	36.203	40.686	6	0.00

**Figure 3: Outcome in study participants**



In our study of 100 cases, 78 cases turned up for follow up and all these individuals recovered, 12 cases were lost to follow up, 10 cases died during the study. Mortality was high in Abdominal TB (27.8%) followed in frequency by Potts spine (27.3%) and TB meningitis (25%).(Figure 3 and table 3)

**Table 3: Outcome in study participants**

Diagnosis	Died	Lost to follow up	Recovered	Total
Abdominal TB	5	1	12	18
Genital TB	0	1	4	5
Lymph node TB	0	4	25	29
Peritoneal TB	0	1	0	1
TB pleural effusion	1	3	28	32
Pott's spine	3	1	7	11
TB Meningitis	1	1	2	4
Total	10	12	78	100

**Discussion:**

In current study Out of 100 Extra Pulmonary TB cases, males were 56 and Females were 44. Majority of the patients 36 males and 39 females (64.3% male and 65.9% female) were in the 20-50 years age group. Only 3 (5.4%) males and 12 (27.3%) females are below 20 years of age. In the study participants 17 (30.4%) malse and 3 (13.6%) females are above 50 years of age. Similar result found in the study conducted by Anita Velingker et al [19] that the prevalence of extrapulmonary cases is higher in males compared to females. The age group of 30- 50 years had highest proportion extra pulmonary tuberculosis both in males and females.

In current study Distribution of various Extra pulmonary TB is as follows Overall, among 100 Extra pulmonary TB patients, pleura TB (32%) and lymph node TB (29%) were the most common Extra pulmonary TB diagnosis followed by abdominal TB (18%), Pott's spine (11%), Genital TB (5%), TB meningitis (4%), Peritoneal TB (1%). Females have higher rates of genital TB, lymph node TB and TB meningitis. Males have higher rates of pleural TB and Pott's spine. Similar result observed in the study conducted by Ashok Kumar Bhardwaj et al [18] He reported that the Among all cases of Extra pulmonary TB, both pleura (41.9%) and Lymph Node (31.3%) were commonly involved sites in 73.2% of patients. Dominantly, pleura and lymph node were involved in both males and females. Among males' pleural effusion (48.2%) was commonly involved site followed by lymph node (23.5%), whereas, lymph nodes were involved in 40.6% followed by by pleura in 34.4% females.

In our study of 100 cases, 78 cases recovered, 10 cases died during the study. Mortality was high in Abdominal TB (27.8%) followed in frequency by Potts's spine (27.3%) and TB meningitis (25%). HIV positive status increased the mortality rate. In a study conducted by Neelima Srinivas Deshpande et al (21), 82 cases had completed treatment, 9 cases died. Mortality was greater in CNS TB cases (27.3%) and pleural TB (6.1%).

Current study shows that there is a significant association Extra pulmonary TB and DM, HIV, Smoking, Alcohol, Underweight. Similar result observed in the study conducted by Shrivastava AK et al [5] The most important risk factor globally is HIV infection where extra-pulmonary involvement can be seen in more than 50% of patients with concurrent HIV and TB infection. Elderly, alcoholics, malnourished, HIV-infected, tobacco smoking and those with underlying COPD appears to be significant risk factors especially for relapse in already treated Pulmonary TB cases.

**Conclusion:**

Screening for diabetes and HIV is advised for every patient before starting treatment for TB. If comorbidities or coinfection exist, early treatment should be given. This helps to hasten the recovery. Target population for Extra pulmonary TB screening should include young males, smokers, alcoholics, immunocompromised individuals, diabetic individuals. In spite of the availability of knowledge on prevention and treatment, Extra pulmonary TB remains an alarming problem for significant population of the country. In developing countries, Extra pulmonary TB is not adequately addressed by national programs as compared to pulmonary TB, while its recognition is important for optimal care. Thus, investigating Extra pulmonary TB determinants and identifying patients with risk

factors is urgently needed to enhance TB management and to attenuate the disease. TB dissemination and acquiring Extra pulmonary TB depend on factors like comorbidities, co infection, host and genetic factors and site of infection. This study paves way for early detection of presumptive cases. Early detection of positive cases and contacts. Identifying risk groups in population and upfront screening of above risk factors should be done.

### **Recommendations:**

Preventing the spread of TB must be priority task. Early detection of TB using newer diagnostic modalities like Nucleic acid amplification test which are sensitive and specific, easy to use with rapid access helps preventing morbidity and mortality. Large scale community-based studies and well-defined programme specified protocols for education and behaviour modification are required for attenuating disease burden. Government and NGO should fund more on research to enhance the knowledge on Extra pulmonary TB. National programs should be taken to grass root level. Newer vaccines and vaccination strategies should be developed.

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