



## EXTRA PULMONARY TUBERCULOSIS IN SPUTUM NEGATIVE CASES

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Received for publication: March 25, 2013; Revised: April 12, 2013; Accepted: May 14, 2013

**Abstract:** In India, Extra Pulmonary Tuberculosis (EPTB) forms 10 to 15 percent of all types of TB. Diagnosis is based on one culture-positive specimen from the extrapulmonary site or histological evidence or strong clinical evidence consistent with active EPTB disease. The infection may be far advanced before any observable symptom occurs. Thus up to the present time EPTB continues to present as a clinical problem. To study epidemiological aspects of EPTB and its frequency and various presentations among the suspected sputum negative cases attending MNR Medical College & Hospital, Sangareddy (AP). A total of 515 sputum negative clinically suspected EPTB Patients attending chest & TB dept for a period of 2 years were included in the study. Out of which 82 EPTB cases were confirmed by using site specific diagnostic criteria's. Out of 515 sputum negative AFB cases suspected samples processed, 82 (15.91%) cases were positive for different types of EPTB. In age groups, the highest number 28% of cases were among young age group (15- 24), whereas the lowest number 7.3% of EPTB cases was among age group (45-55) and female predominance of 53.66%. Out of 82 cases of EPTB the most common type was TB Lymphadenitis 39 (47.56%) followed by Bone and joint TB 14 (17.07%), TB Pleural effusion 11 (13.41%), Abdominal TB 10 (12.04%), Genital TB (4.87%), TB Meningitis 3 (3.6%) and Cutaneous TB 1 (1.22%) In these 2 cases of TB Lymphadenitis was HIV positive. The importance of Extra-pulmonary Tuberculosis (EPTB) among all forms of Tuberculosis has not yet been ascertained in developing countries due to difficulty in diagnosis and lack of culture facilities.

**Keywords:** Extra Pulmonary Tuberculosis, Sputum Negative

## INTRODUCTION

Tuberculosis remains a major public health problem globally, with India being one of the high burden countries. In India, Extra Pulmonary Tuberculosis (EPTB) forms 10 to 15% of all types of TB, The clinical manifestation of TB are of 2 types: PTB & EPTB, the former being commonest. In the era before the HIV and in studies involving immune competent adults, it was observed that EPTB constituted about 15 to 20 % of all cases of TB in general practice. HIV infected persons are at markedly increased risk for primary or reactivation TB & for second episodes of TB from exogenous reactivation. In some settings, EPTB can account for up to 50 to 60 percent of cases of TB in HIV positive individuals.

The definition of EPTB disease under the RNTCP follows the international classification. EPTB is defined as TB of organs other than the lungs such as pleura, lymph nodes, abdomen, genito-urinary tract, skin, joints, bones, tubercular meningitis; tuberculoma of brain etc., Diagnosis is based on one culture-positive specimen from the extrapulmonary site or histological evidence or strong clinical evidence consistent with active EPTB disease.

EPTB is an important clinical problem by dissemination of tubercle bacilli from an initial focus in the lungs after primary infection. The dissemination is primarily by way of the lympho haematogenous route, with seeding of virulent tubercle bacilli in almost all of the organs & tissues of the body. In EPTB highly vascular areas such as lymph nodes, meninges, kidney, spine & growing ends of the bones are affected. The other sites are pleura, pericardium, peritoneum, liver, gut, genito-urinary tract & skin. Although in most patients, both EPTB & PTB lesions heal, clinically subtle granulomas contain tubercle bacilli which can remain viable for decades. Subsequent breakdown of these lesions can lead to reactivation of Extra Pulmonary disease. Reactivation may be clinically deceptive for the usual features of infection are often absent. Indeed, the infection may be far advanced before any observable symptom occurs. Thus up to the present time EPTB continues to present as a clinical problem.

The diagnosis of EPTB, especially involving deeply located infection in accessible areas is very difficult Sparse literature is available regarding the contributions of pulmonary and Extra Pulmonary disease to the total number of tuberculosis cases from India as reliable epidemiological data are lacking.<sup>1&2</sup>

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To study epidemiological aspects of EPTB and its frequency and various presentations among the suspected sputum negative cases attending MNR Medical College & Hospital, Sangareddy (AP).

**MATERIAL AND METHODS**

A total of 515 sputum negative clinically suspected EPTB Patients attending chest & TB department for a period of 2 years were included in the study. These cases were subjected to further investigations which were available at MNR Medical College. The samples were processed using site specific diagnostic criteria's and confirmed 82 EPTB cases.<sup>3</sup>

**RESULTS**

In the current study out of 515 sputum negative AFB cases suspected samples processed, 82 (15.91%) cases were positive for different types of EPTB.

**Table.1:** Age and sex wise distribution of cases

Age in years	Male		Female		Total	
	No	%	No	%	No	%
0-14	9	23.6	5	11.4	14	17.1
15-24	14	36.8	9	20.5	23	28.0
25-34	6	15.7	10	22.7	16	19.5
35-44	5	13.2	7	15.9	12	14.6
45-54	2	5.3	4	9.9	6	7.3
55 & above	2	5.3	9	20.5	11	13.4
	38	46.3	44	53.6	82	

Table 1 shows the age and sex wise distribution of EPTB positive cases According to age groups, the highest number 28% of cases was among young age group (15- 24), whereas the lowest number 7.3% of EPTB cases was among age group (45-55) And The number of male cases of EPTB was 38 (46.34 %), while that of females was 44 (53.66 %).

EPTB Site	Presentation	Diagnosis
Pleural	Effusion is usually unilateral of modest scale; cough, fever, pleuritic chest pain, dysapnea, chills, weight loss, malaise	Culture of pleural fluid (although yield is low); effusions are usually lymphocytic exudates
Lymphatic	Painless enlargement of nodes of posterior cervical and supraclavicular group	Excisional biopsy or fine needle aspiration (FNA) for AFB smear and culture
Genital	Mass lesion of the testis or epididymis in men Infertility, pelvic pain and menstrual disturbances in women.	Tissue from affected site for AFB smear / culture Mass lesions are to be biopsied for both histology and culture
Central Nervous System	Symptoms may include malaise, headache, anorexia, nausea. Cerebrospinal fluid (CSF) is often clear and pressure normal	CSF glucose levels are lower than serum glucose levels with an increase in cells & protein
Bone and joint	Pain, circumferential reduction of movements at the joint are evident. "Night cries"	Synovial fluid, biopsy, differential count and radiological findings like CT scan of the affected part
Abdominal	Pain in abdomen, anorexia, and weight loss, recurrent diarrhea, low grade fever, cough and abdominal distension	Isolation of AFB from digestive system by biopsy or endoscopy
Disseminated	Presentations are diverse. Systemic symptoms may include fever, weakness	Chest radiography; tissue or fluid from affected site for AFB smear/culture
Cutaneous	lupus vulgaris, scrofuloderma	Detection of tubercle bacilli by biopsy

Fig.1 indicates that out of 82 cases of EPTB the most common type was TB Lymphadenitis 39 (47.56 %) followed by Bone and joint TB 14 (17.07 %), TB Pleural effusion 11 (13.41 %), Abdominal TB 10 (12.04 %), Genital TB (4.87 %), TB Meningitis 3 (3.6 %) and Cutaneous TB 1 (1.22 %). In these 2 cases of TB Lymphadenitis were HIV positive.

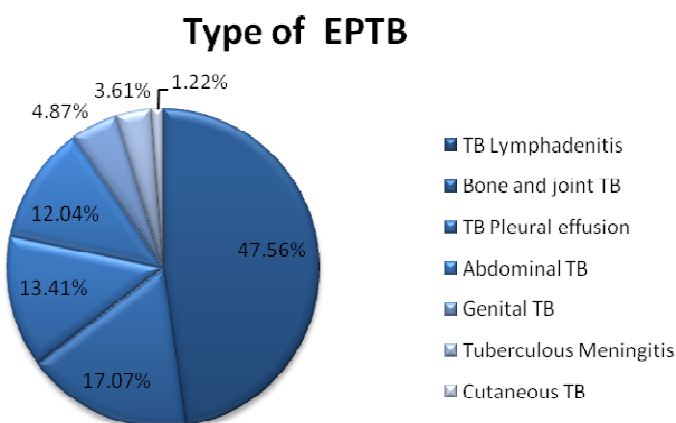
**Table.2:** Gender wise distribution of EPTB cases

Type of EPTB	Male	%	Female	%	Total	%
TB Lymphadenitis	17	44.74	22	50	39	47.56
Bone and joint TB	11	28.95	03	6.82	14	17.07
TB Pleural effusion	07	18.42	04	9.09	11	13.41
Abdominal TB	03	7.89	07	15.91	10	12.20
Genital TB	--	--	04	9.09	04	4.88
Tuberculous Meningitis	--	--	03	6.82	03	3.66
Cutaneous TB	--	--	01	2.27	01	1.22
Total	38	100	44	100	82	100

Table.2 shows that out of 44 females with EPTB the most common manifestation was TB Lymphadenitis 50% followed by 15.91% Abdominal TB. On the other hand out of 38 males with EPTB the most common manifestation 44.74% was TB Lymphadenitis followed by 28.95% Bone and Joint TB.

**DISCUSSION**

Diagnosis of EPTB has always been a challenge. It is a protean disease affecting virtually all the organs and has a wide spectrum of clinical presentation depending on the anatomical site involved and presents a diagnostic dilemma even for physicians with a great



**Fig.1:** Showing distribution of cases as per type of EPTB

deal of experience in the field. In current study out of 515 suspected cases 82 cases were found to have EPTB in the seven different types.

Our study it was found that among 82 cases 38 (46.34 %) patients were males and 44 (53.66 %) patients were females. This shows inclination of EPTB towards females. Similar findings was observed in the study done by sadoon Al et al.,<sup>4</sup>

Where as in the study done by S.S. Ahamadi et al<sup>5</sup> among 328 cases 17 cases were reported in males and remaining cases in females (151) sex ratio was 1.2:1. and Triparthi et al.,<sup>6</sup> found, the male and female ratio was 3:1

Age wise distribution indicated that 62.1% were in reproductive age group of 15-45 years similarly 65.7% of males and 59.1% of females were in the reproductive age group. Highest number of cases in the age group of 15-24years, this finding coincides with the study done by sadoon, where they found the predominance of EPTB among the young age group. A recent case-controlled study from Nepal has reported a strong association between younger age and female gender with EPTB.<sup>7</sup>

In India and other developing countries LNTB continues to be the most common form of EPTB and lymphadenitis due to non-Tuberculous mycobacteria (NTM) is seldom seen.<sup>8-10</sup>

EPTB manifestation of our study was TB Lymphadenitis, Bone and joint TB, TB Pleural effusion, Abdominal TB, Genital TB, TB Meningitis and Cutaneous TB this was in analogue with the study done by S. Aktogu et al<sup>11</sup> Out of 455 cases of EPTB the most common type was pleural TB 343 (75.38%) followed by TB lymphadenitis 31 (6.81) cases laryngel 31 (6.81%) genitourinary 13 (2.8%) bone and joint 10 (2.19%) meningeal 9 (1.97%) peritoneal 7 (1.53%) and other sites 10 (2.19%) cases respectively

In our study the most common manifestation of EPTB was TB lymphadenitis similar finding was observed by Ilagazli A et al<sup>12</sup> (56.3 %) and Dayal et. al 63.74%<sup>13</sup> and S.K. Sharma & A. Mohan<sup>14</sup>

In current study bone and joint TB was second most common type of EPTB accounting to 17.7% of all EPTB and it was predominantly found in males (28.95% of male cases). In the study of Martini M and Ouahes M<sup>15</sup> 652 cases of bone and joint TB were described. They found high rate of TB osteomyelitis (19%) and TB of upper limb joints (14%).

Mehrotra<sup>16</sup> have also reported a case of frontal bone TB in a child. According to Zahaorska<sup>17</sup> who

reported two cases of frontal bone TB, the frontal bone is a rare site of TB. TB Osteomyelitis of other cranial bones is also a rare entity. This is the observation of Hiranandani<sup>18</sup> who reported a case of porosities in 12 yrs old child.

In the current study third common type of EPTB was pleural TB but in studies done by Arciniges Orjuela DL<sup>19</sup> the most common form of EPTB was Pleural TB followed by meningeal (19), lymphadenitis (13), peritoneal (5). and pleural TB was most common type in work done by S. Aktogu et al<sup>11</sup>

Present study indicated abdominal TB as 4<sup>th</sup> common EPTB (12%) where as in study done by Sharma and Mohan<sup>14</sup> abdominal tuberculosis was only 3% Tanrikulu et al<sup>20</sup> studied 39 cases of Abdominal TB, in them most were having family history of Mantoux test was positive. Uzunkoy et al<sup>21</sup> found 11 cases of Abdominal TB, was found in all cases and Palmer et al.,<sup>22</sup> in their study of 60 cases of Abdominal TB found intestinal TB in 42 (70%) cases.

In our study after abdominal tuberculosis next common was genital tuberculosis accounting to 9% of all cases. Similar findings were observed by S K Sharma and A Mohan<sup>14</sup>. But in our study all cases were in female patients

The other manifestations found in our study were TB Meningitis (3.66%) and cutaneous tuberculosis (1.22%). Kakrani and Pratinidhi<sup>23</sup> had studied 20 cases of TB Meningitis have 12(60 %), 8 (40 %) were males and females respectively.

## CONCLUSION

Tuberculosis can involve any organ system in the body. While pulmonary tuberculosis is most common presentation, extra-pulmonary tuberculosis (EPTB) is also an important clinical problem. EPTB is a milder form of disease in terms of infectivity as compared to pulmonary tuberculosis.

In this study from 515 sputum negative cases 82 cases of EPTB were detected and none of them were vaccinated with BCG. In these 7 types of EPTB was classified. TB Lymphadenitis was found to be the most common types of EPTB (47.56 %). Cutaneous TB (1.22%) was found to be the least common type EPTB in the study.

The importance of Extra-pulmonary Tuberculosis (EPTB) among all forms of Tuberculosis has not yet been ascertained in developing countries due to difficulty in diagnosis and lack of culture facilities. However an assessment of end point of cure is a problem with EPTB.

The cases of EPTB have been reported from various places by research workers from time to time. The reports and the data are about the prevalence of EPTB from the rural area are very few. Due to this, the study has got importance which is going to provide the data of prevalence of EPTB from this part of rural area.

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Source of support: Nil

Conflict of interest: None Declared