



## Original Article

# Extrapulmonary Tuberculosis: Experience in Rajshahi Chest Disease Clinic and Chest Disease Hospital

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### Abstract

The study was carried out to see the prevalence and pattern of extrapulmonary tuberculosis in Rajshahi. Twenty five hundred eighty two tuberculosis patients (sputum positive, sputum negative and extrapulmonary) who were diagnosed and treated in between January 1999 and December 2003 in Rajshahi Chest Disease Clinic and Chest Disease Hospital were included in this study. Extrapulmonary tuberculosis accounted for about 16% of total tuberculosis cases. Tuberculous lymphadenitis was found to be the commonest form of extrapulmonary tuberculosis, comprising about 75% of the extrapulmonary cases. Tuberculous pleural effusion was noted in about 9% of cases, intestinal tuberculosis in 7%, bone and joint tuberculosis in 5% and other forms in 4% cases. 24% patients with extrapulmonary tuberculosis were afebrile, 14% had normal ESR, and 22% had negative Mantoux test.

TAJ 2004; 17(1) : 16-19

### Introduction

Tuberculosis can involve any organ system in the body. While pulmonary tuberculosis is the most common presentation, extrapulmonary tuberculosis (EPTB) is also an important clinical problem<sup>1</sup>. The term EPTB has been used to describe isolated occurrence of tuberculosis at body sites other than the lung. The recent human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) pandemic has resulted in changing epidemiology and has once again brought extrapulmonary tuberculosis (EPTB) into focus. EPTB constitutes about 15 to 20 per cent of all cases of tuberculosis in immunocompetent patients and accounts for more than 50 per cent of the cases in HIV-positive individuals.<sup>1</sup> The most common site of extrapulmonary tuberculosis is

lymph node affecting mostly the cervical group of lymph nodes.<sup>1</sup> Other forms of extrapulmonary tuberculosis are- tuberculous pleural effusion, tuberculous pericardial effusion, intestinal, genitourinary, meningeal, bone, skin, and breast tuberculosis. Since the clinical presentation of EPTB is atypical, tissue samples for the confirmation of diagnostic can sometimes be difficult to obtain, and the conventional diagnostic methods have a poor yield, the diagnosis is often delayed. Availability of computerised tomographic scan, laparoscopy, endoscopy have tremendously helped in anatomical localisation of EPTB. The disease usually responds to standard antituberculosis drug treatment. Biopsy and/or surgery is required to obtain tissue samples for diagnosis and for managing complications.

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### Symptoms and signs of extrapulmonary tuberculosis:

Lymph node tuberculosis: fever, swelling of lymph node (sometimes with discharging sinus).

Tuberculous pleural effusion: fever, cough, chest pain, stony dullness on percussion with diminished breath sound and vocal resonance.

Tuberculous arthritis: pain and swelling of joints (usually monoarthritis).

Tuberculosis of spine (Pott's disease): pain, swelling and deformity of the spine.

Tuberculous meningitis: headache, fever, altered mental status, neck stiffness.

Intestinal TB: fever, weight loss, altered bowel habit, abdominal pain, ascites, lump in right iliac fossa.

### Materials and methods

This study was done in Chest Disease Clinic and Chest Disease Hospital, Rajshahi. In this study 2582 tuberculosis patients who were diagnosed and treated in between January 1999 and December 2003 were included in this prospective study. Extrapulmonary tuberculosis was diagnosed on the basis of history, physical examination and relevant investigations like- FNAC for lymph node, FNAC and histopathology for skin, genitourinary and breast tuberculosis, X-ray for bone tuberculosis, synovial biopsy for joint tuberculosis, histopathology after laparotomy for intestinal tuberculosis, CSF cytology, and biochemistry for tuberculous meningitis, Chest skiagram and pleural fluid study for tuberculous pleural effusion etc. In all cases presence or absence of fever, and lab result of ESR, MT was specially noted. Patients who had disseminated tuberculosis were excluded from the study.

Records of smear positive PTB, smear negative PTB, and extrapulmonary tuberculosis were analyzed and compared.

### Results

In the study period, total number of tuberculosis cases attending the Chest disease hospital, Rajshahi was 2582. Among them 903 patients had sputum smear positive pulmonary tuberculosis, 1274 patients had sputum smear negative pulmonary tuberculosis, and 405 patients had extrapulmonary tuberculosis. Extrapulmonary tuberculosis accounted for about 16% of total tuberculosis cases.

Tuberculous lymphadenitis was found to be the commonest form of extrapulmonary tuberculosis, comprising about 75% of the extrapulmonary cases. Tuberculous pleural effusion was noted in about 9% of cases, intestinal tuberculosis in 7%, bone and joint tuberculosis in 5% and other forms in 4% cases.

Sputum smear positive pulmonary tuberculosis cases had a strong male preponderance. About 75% of the patients with smear positive tuberculosis were male and the rest were female. Sex distribution of sputum smear negative pulmonary tuberculosis was also similar. About 70% were male and the rest were female. On the other hand, in case of extrapulmonary tuberculosis, 52% of the sufferers were female and 48% were male. About 76% patients with extrapulmonary tuberculosis had fever and 24 % were afebrile. ESR, which is usually expected to be raised in a patient with tuberculosis, was < 30 mm in first hour in about 14% and >30 mm in first hour in about 86% cases. Mantoux test was positive in about 78% cases and negative in 22% cases.

**Table 1:** Yearly Distribution of tuberculosis cases diagnosed and treated in Chest Disease Clinic and Chest Disease Hospital, Rajshahi.

Year	Smear positive PTB cases	Smear negative PTB cases	Total TB cases	Extra pulmonary tuberculosis	Incidence of Extra pulmonary TB among total TB cases (%)
1999	208	237		71	
2000	198	251		94	
2001	191	204		95	
2002	166	273		70	
2003	140	309		75	
Total	903	1274	2582	405	15.68%

**Table 2:** Distribution of Extrapulmonary tuberculosis (n=405)

Site	Number	Percentage
Lymph node TB	302	74.56
Pleural effusion	35	8.66
Intestinal TB	28	6.93
Bone and joints	20	4.93
Meningeal	6	1.48
Skin	5	1.23
Genitourinary	5	1.23
Breast	4	0.98

**Table 3:** Sex distribution of smear-positive PTB cases diagnosed in 1999-2003(n=903)

Sex	Number of cases	Percentage
Male	681	75.42
Female	222	24.58

**Table 4:** Sex distribution of smear-negative PTB cases diagnosed in 1999-2003(n=1274)

Sex	Number of cases	Percentage
Male	883	69.30
female	391	30.70

**Table 5:** Sex distribution of total Pulmonary TB cases diagnosed in 1999-2003(n=2177)

Sex	Number of cases	Percentage
Male	1564	71.84
female	613	28.16

**Table 6:** Sex distribution of extrapulmonary tuberculosis (n=405)

sex	number	percentage
Female	209	51.6
male	196	48.4

**Table 7:** Fever in extrapulmonary tuberculosis (n=405)

Fever	Number of patients	Percentage
Fever present	307	75.80
Fever absent	98	24.20

**Table 8:** ESR in extrapulmonary tuberculosis (n=405)

ESR	Number of patients	Percentage
>30 mm in 1st hour	348	85.92
<30 mm in first hour	57	14.08

**Table 9:** MT in extrapulmonary tuberculosis (n=405)

MT	Number of patients	Percentage
Positive (10 mm or more)	314	77.53
Negative (10 mm)	91	22.47

## Discussion

In our study, we have observed that about 16 % of total tuberculosis cases were extrapulmonary. This result is comparable to some other study done in other countries. Similar study done in East Tennessee State University, USA showed nearly similar result. Incidence of EPTB in that study was about 12% of the total tuberculosis cases.<sup>2</sup> Sparse literature is available regarding the relative contributions of pulmonary and extrapulmonary disease to the total number of tuberculosis cases from India as reliable epidemiological data are lacking.<sup>9</sup>

Our study has shown that, in case of pulmonary tuberculosis males are affected 2.5 times more commonly than female ( M: F=5:2). But in case of EPTB, male and female were equally affected.

Some pitfalls in diagnosing EPTB were found, as in about 24 % of cases fever was absent, ESR was normal in about 14% of cases, and MT was negative in about 22 % of cases having EPTB. Our result can be compared with a Danish study which has observed absence of fever in 31%, normal ESR in 13% and negative MT in 9% of cases.<sup>3</sup> Negative MT was more common in our study group than in the Danish study population. In the

era before the human immunodeficiency virus (HIV) pandemic, and in studies involving immunocompetent adults, it has been observed that EPTB constituted about 15 to 20 per cent of all cases of TB<sup>4,5,6</sup>. In HIV-positive patients EPTB accounts for more than 50 per cent of all cases of TB.<sup>7,8</sup> Though it is estimated that EPTB constitutes 15 to 20 per cent of tuberculosis cases in general practice among HIV-negative adults in India<sup>9</sup>, a higher proportion of EPTB cases have been documented in tertiary care centres. For example, in the Tuberculosis Clinic at the All India Institute of Medical Sciences, (AIIMS), New Delhi (n=1137) and the Sri Venkateswara Institute of Medical Sciences (SVIMS), Tirupati (n=612), patients with EPTB constituted 53 and 30.4 per cent respectively during the period 1994-2002 (unpublished observations). Since several patients are referred to tertiary care centres for confirmation of diagnosis, these high figures could be a result of referral bias. In India and other developing countries lymph node TB continues to be the most common form of EPTB and lymphadenitis due to non-tuberculous mycobacteria (NTM) is seldom seen.<sup>10</sup>

## Conclusion

EPTB is a commonly encountered problem in our country. Our study suggests that in a significant number of patients with EPTB fever is absent, ESR is normal and MT is negative. So, over reliance on these clinical and laboratory data may lead to failure to diagnose EPTB.

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