

Scenario of Extrapulmonary Tuberculosis in a Tertiary Care Center

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ABSTRACT

Background: Tuberculosis is a worldwide disease and one of the major health problems of Nepal. Extrapulmonary tuberculosis is increasing all over the world. The main aim of this study was to assess the frequency of extrapulmonary tuberculosis in various organ systems of the body and to assess the pattern of disease in different age groups and gender.

Methods: This observational retrospective study was carried out from December 2003 to October 2009 at the Department of Pathology, Kathmandu University Hospital, Kavre, Nepal. A total of 259 extrapulmonary tuberculosis cases diagnosed by fine needle aspiration cytology and biopsy were included. Frequency of extrapulmonary tuberculosis in the lymph nodes in relation to age and sex were studied.

Results: Lymph nodes tuberculosis was present in 179 (69.11%) cases. Among all extrapulmonary tuberculosis, 132 (50.56%) cases were in males and 127 (49.04%) were in females. Out of total 179 tuberculosis of lymph nodes, 116 (74.35%) were seen in age group of 25 years and above ($p=0.018$) and 86 (48.04%) in males and 93 (51.95%) in females ($p=0.18$).

Conclusions: Extrapulmonary tuberculosis is common in lymph nodes, equally in both sexes and more in age group of 25 and above. Therefore, this age group should be focused upon more for investigation and management of extrapulmonary tuberculosis.

Key words: biopsy, fine needle aspiration cytology, lymph nodes, tuberculosis

INTRODUCTION

Tuberculosis (TB) is a worldwide disease. Majority of the estimated cases are from Asia (55%) and Africa (31%).¹ About 45% of population is infected with TB, out of which 60% are in the productive age group. Every year 44,000 people develop active TB, of whom 20,000 have infectious pulmonary disease. Introduction of treatment by Directly Observed Treatment Short Course (DOTS) in Nepal has reduced the number of deaths; however, 8,000-11,000 people continue to die each year.²

TB occurs in all age groups, and can affect almost all organs of the body. It can be pulmonary or extrapulmonary (EPTB). EPTB is increasing all over the world.^{3,4} However, only limited data is available about the situation of EPTB in developing countries. This study was conducted to assess the frequency of EPTB in various organ systems and to assess the pattern of disease in various age groups and gender.

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METHODS

A retrospective observational study was carried out at the Department of Pathology, Dhulikhel Hospital, Kathmandu University Hospital from December 2003 to October 2009. A total of 267 tuberculosis cases, diagnosed by fine needle aspiration cytology (FNAC) and surgical pathology were retrieved from the records of the Pathology department. Age, sex and site of EPTB were recorded. Ethical approval was taken from patients and the institutional ethical review board. Among 267 cases, eight cases were excluded due to inadequate demographic information. EPTB cases were divided into two groups, one group consisted of tuberculosis involving the lymph nodes and another group consisted of tuberculosis involving location other than the lymph nodes. Demographic variables were compared between TB of the lymph nodes and TB involving location other than lymph nodes. The chi-square test was used in demographic variables (age and sex) to identify differences between TB of the lymph nodes and TB involving other location. Data were analyzed using Statistical Package for Social Sciences, version 10 (SPSS).

RESULTS

A total of 267 cases of EPTB were diagnosed and registered in pathology department. Among them eight cases were excluded due to the lack of complete information. Two hundred and fifty nine cases (mean age 30.51 ± 17.01 years, range 1-83) were included for final analysis.

Table 1. Distribution of extrapulmonary tuberculosis

Location	Number (%)
Lymph nodes	179 (69.11)
Bone	23 (8.88)
Synovium	16 (6.17)
Abdominal	14 (5.40)
Small intestine	5
Colon	4
Peritoneum	3
Mesentery	1
Liver	1
Skin	10 (3.86)
Epididymis and testis	6 (2.31)
Appendix	4 (1.54)
Fallopian tube	3 (1.15)
Breast	2 (0.77)
Chest wall	2 (0.77)
Total	259

Out of 259 cases of EPTB, 179 (69.11%) were of the tuberculosis of the lymph nodes (table 1)

Table 2. Age groups, sex and tuberculosis of lymph nodes

Variables	Extra pulmonary TB Lymph nodes (%)	Other than lymph nodes (%)	Total	P-value
Age				
> 25 yrs	116 (74.35)	40 (25.65)	156	0.018
< 25 yrs	63 (61.17)	40 (38.83)	103	
Total	179	80	259	
Sex				
Male	86 (48.04)	46 (57.5)	132	0.18
Female	93 (51.95)	34 (42.5)	127	
Total	179	80	259	

Among all EPTB, 132 (50.56%) cases were in males and 127 (49.04%) were in females with male to female ratio of 1.04:1. Demographic profiles of tuberculosis of the lymph nodes with relation to age and sex are shown in table 2.

DISCUSSION

TB involves virtually all organ systems of the body. The most common presentation is pulmonary TB. It can also occur with involvement of other sites but is still called as pulmonary TB. When TB involves other sites without the involvement of lungs it is known as EPTB.⁵ The incidence of EPTB is increasing with the emergence of human immunodeficiency virus (HIV). In the era before HIV pandemic, EPTB constituted 10-20% of tuberculosis cases. Now, with the HIV pandemic it accounts for more than 50% of all TB cases.⁶⁻⁸

In Sanskrit, TB is known as *Rajyachhyama*, or the king of diseases.⁹ TB of the lymph nodes was referred to as "scrofula" meaning "glandular swelling" (Latin) and "full necked sow" (French).¹⁰ It is the most common site of EPTB in developing countries.¹¹ In our present study, out of 259 cases of EPTB, 179 (69.11%) cases were TB of lymph nodes. Study done by Sreeramareddy *et al* in western Nepal also showed TB of the lymph nodes as the commonest location of EPTB (42.6%).¹² Extrapulmonary tuberculosis at a regional hospital in Thailand also showed lymph nodes as a common location (29.6%).¹³ Our result was comparable with that of the other studies, however, the cases of TB of the lymph nodes were much higher in our study. This may be due to the inclusion of data limited to diagnosis done by fine needle aspiration cytology and biopsy.

Some other studies have shown other sites as the commonest location of EPTB other than lymph nodes.

Study done by Noertjojo *et al* in Hong Kong suggested pleura as the most common site of EPTB followed by lymph nodes.⁴ In USA, bone and joints were most common sites.¹⁴ Bone and joints tuberculosis were found to be second common sites of EPTB in our series.

The association between TB and HIV has enormous public health importance. Increasing trend of EPTB has been associated with HIV infection.^{6-8,14} According to WHO (1992), 95% of TB infected with HIV were from developing countries.¹⁵ We did not have data of HIV status of EPTB cases in our study to carry out the analysis of association between HIV infection and EPTB. All TB cases, especially EPTB should be investigated for HIV to strengthen tuberculosis control programmes in countries where infection with HIV and TB is high.

Regarding the frequency of EPTB in different age groups, it was seen more in age ≥ 25 years (60.2%) with mean age of 30.51 ± 17.01 . TB of the lymph nodes (74.35%) was also seen more in the same age group ($p=0.018$). This finding is similar to several other studies.^{16,17} The cause of such distribution of disease is poorly understood. This may be related to time duration of exposure to tubercle bacilli and immunosuppression due to various chronic diseases including HIV in this age group.

In our study, out of 259 cases of EPTB, 132 (50.96%) cases were in males and 127 (49.04%) were in females with male to female ratio of 1.04:1. This finding is in accordance with other studies.^{13,18} However, several other studies have shown female preponderance.^{3,4,16} The causes of female preponderance in their studies were thought to be due to low socioeconomic status and male dominant society. However, in our study we do not know the basis for occurrence of EPTB equally in both male and female.

Main limitation of this study was lack of the assessment of other risk factors of EPTB. Therefore, further study has to be done in order to identify various risk factors of EPTB.

CONCLUSIONS

Lymph nodes is the most common EPTB with preponderance in ≥ 25 age group; and, equally in both sexes. Further study to identify risk factors is necessary for prevention and proper management of EPTB.

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