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Extra-pulmonary tuberculosis - A retrospective study

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Abstract

Background: Tuberculosis can occur in various organ systems of human body. In the recent years, there has been an increase in the occurrence of extra-pulmonary tuberculosis (EPTB) worldwide. As very little data is available regarding the situation of EPTB in Eastern Nepal, this study was conducted to assess its frequency in various organ systems of the body and to evaluate the role of demographic factors like sex and age in its causation.
Aim: To see the prevalence of EPTB among the patient attending a tertiary care hospital, BPKIHS.
Methods: Extrapulmonary specimens received for Acid Fast Bacilli (AFB) microscopy in the TB Laboratory, BP Koirala Institute of Health Sciences, Dharan from 1st July 2010–30th June 2011 were included in the study. Age, sex and origin of specimens were retrieved and analyzed.
Results: High male prevalence was noted with Male: Female ratio of 1.6:1. Maximum specimens were received from age group 0-15 years followed by 16-30years. Body fluids were the most common specimen submitted for EPTB examination. Out of 1823 suspected cases of EPTB, 11 cases were found to be positive by microscopic method, out of the positives cases eight were male and remaining were female.
Conclusion: EPTB is high amongst male in their productive age. Tubercular lymphadenitis is the most common form of EPTB. Introduction of newer and rapid method for the diagnosis of EPTB is utmost necessary for country like ours where diagnosis of Extrapulmonary Tuberculosis is still a challenge.
Keywords: Acid fast bacilli, Microscopy, Tubercular lymphadenitis.

1. Introduction

Tuberculosis (TB), considered a disease of poor, remains a major global public health problem. [1] About 1/3rd of the world population is estimated to be infected with *Mycobacterium tuberculosis.*[2] It is the leading cause of death in HIV co-infected persons and adults (15-19 yrs) of Africa and Asia.[2,3] Tuberculosis occurs in Pulmonary and Extrapulmonary form, the later constituted a quarter (27%) of total cases of TB in Nepal.[4] Extrapulmonary tuberculosis can affect virtually any organ system of human body, from skin to bone, none are spared. Diagnosis of such extrapulmonary tuberculosis is still a challenge to clinicians and laboratories. But in recent years there has been an increase in the reporting of extra-pulmonary tuberculosis (EPTB) cases which might be its flaring due to HIV epidemic and may also be due to introduction of better diagnostic facilities.[3,5,6]

Various factors like immune status, nutrition, age, occupation do have substantial role along with Mycobacterial infection in occurrence of extrapulmonary tuberculosis. Studies conducted in various parts of world including western Nepal have related the occurrence of EPTB with various demographic factors.[7-11] But as little data is available regarding the situation of EPTB in eastern Nepal, this study was conducted to assess its frequency in various organ system of the body and to evaluate the role of demographic factors like Age & Sex in its occurrence.

1.1 Aims and objectives

1. To determine the prevalence of EPTB among the patient attending BPKIHS, a tertiary care hospital in Eastern Nepal.
2. To assess the frequency of EPTB in various organ systems of body.

2. Methodology

2.1 Study setting

This study was conducted in Tuberculosis research Laboratory BPKIHS, Dharan, a tertiary care hospital serving the population of eastern Nepal.

2.2 Study design

A retrospective study.

2.3 Data collection

A total of 1823 suspected cases of EPTB registered in the Tuberculosis research laboratory BPKIHS from 1st July 2010 to 30th June 2011 were included in the study. Demographic information such as Age & Sex along with site and origin of specimens were recorded and analyzed.

2.4 Statistical Analysis

Data were analyzed using SPSS (statistical package for social sciences, version 15)

3. Result

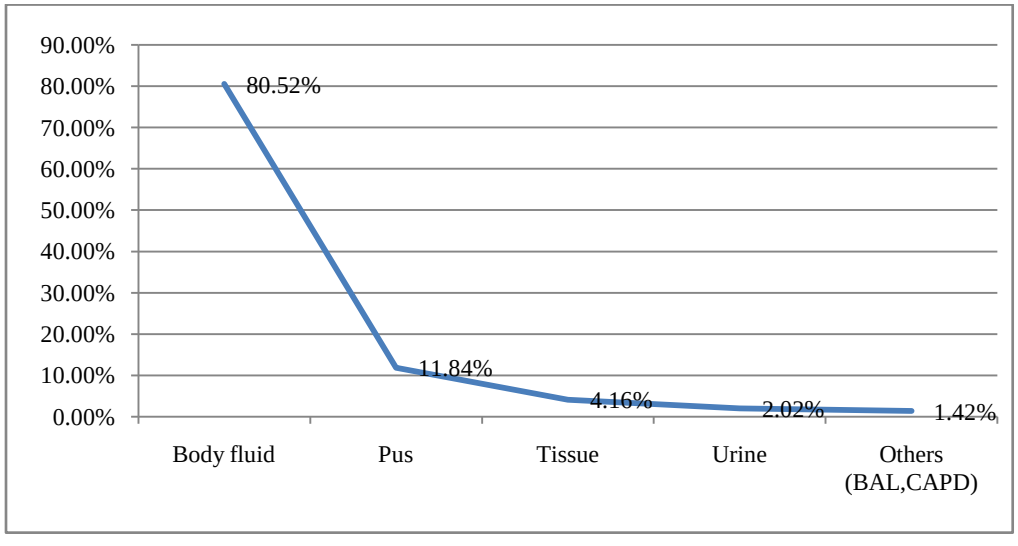
Among 1823 cases registered between the study periods, male outnumbered female with a male: female ratio of 1.6:1. Maximum numbers of specimens were received from the age group 0-15 years (774, 42.47%) followed by 16-30 years (388, 21.25%) as shown in table 1.

Table 1: Showing age distribution of study population.

Age group	Number of patients	Percentage
0-15 Yrs	774	42.47%
16-30 Yrs	388	21.25%
31-45 Yrs	291	15.96%
46-60 Yrs	204	11.19%
>60 Yrs	166	9.16
Total	1823	100%

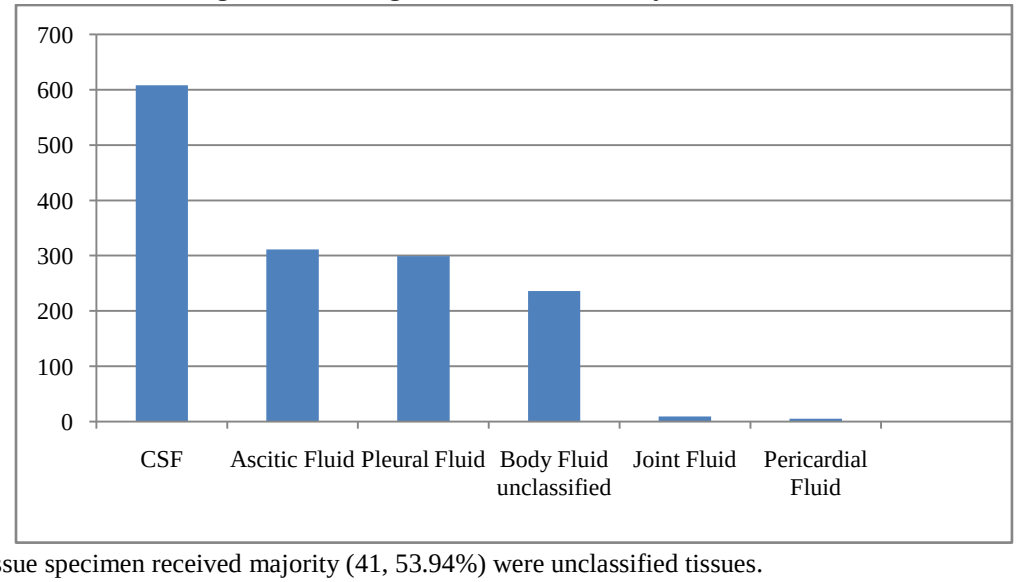
Body fluids (1468, 80.52%) were the most common specimens received for EPTB examination followed by Pus (216, 11.84%) & tissue (76, 4.16%).

Figure 1: Showing various natures of specimens



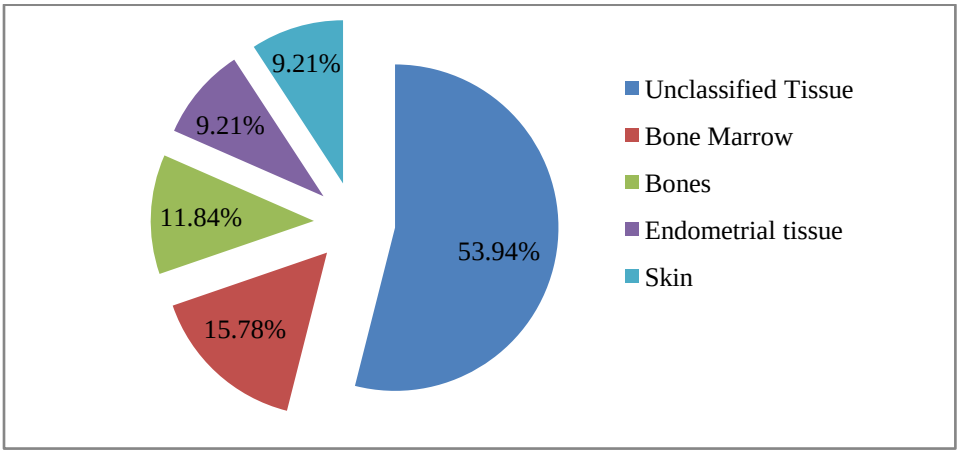
Among the body fluids received majority (41.41%) was CSF followed by Ascitic fluid (21.18%)

Figure 2: Showing various nature of body fluid received.



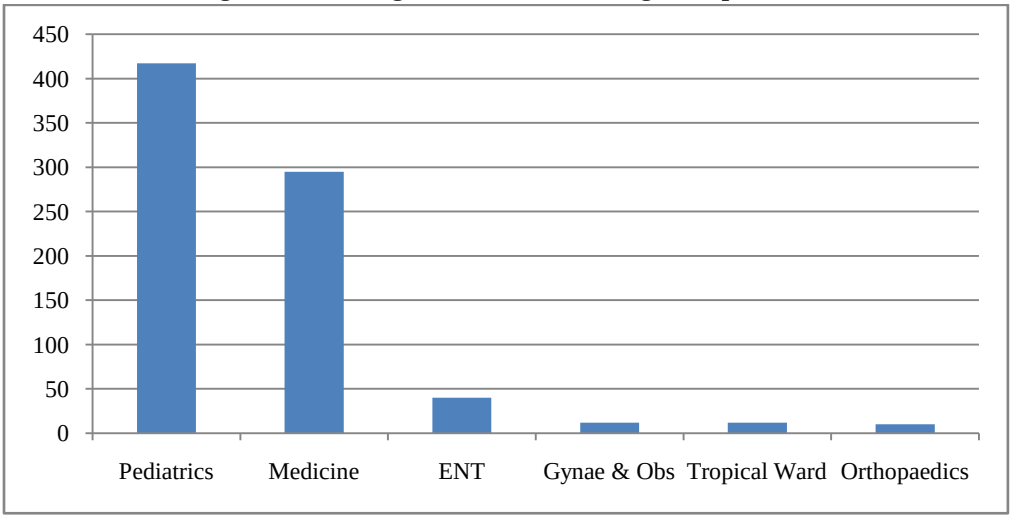
Among the tissue specimen received majority (41, 53.94%) were unclassified tissues.

Figure 3: Pie chart showing distribution of tissue specimen.



A large number of specimens were received from various wards (786, 43.11%) followed by OPD (464, 25.45%), Emergency (422, 23.14%) and intensive care units (151, 8.28%). Among the wards, most of the specimens were received from pediatrics ward as shown in figure 4.

Figure 4: Showing various wards of origin of specimen



Among 1823 registered cases 11 cases were reported positive out of which 8 were male and 3 females. Most of the positive cases were in the age group 31-45 yrs (4, 36.36%) followed by 0-15 yrs and 16-30 yrs (2 each, 18.18%) as shown in table 2.

Table 2: Showing age distributions of Positive cases

Age group	Number of Patients	Percentage
0-15 Yrs	2	18.18%
16-30 Yrs	2	18.18%
31-45 Yrs	4	36.36%
46-60 Yrs	2	18.18%
>60 Yrs	1	9.09%
Total	11	100%

Among the positives, pus (9, 81.81%) was the most common specimen, indicating tubercular lymphadenitis as the most common form of EPTB.

Most of the positive specimens were originated from various wards (6, 54.54%) followed by OPD (3, 27.27%) and Emergency (2, 18.18%).

4. Discussion

This study, been conducted at BPKIHS Dharan, a tertiary care hospital, aims to reflect the EPTB status of the eastern Nepal. In our study it was found that males were highly suspected to have EPTB than female (1.6:1) and the result confirmed further higher occurrence of EPTB in male than female (2.67:1). This finding is in contrary to the findings of previous studies in both developing and developed countries.[12-15] Again in contrary to the findings from western Nepal, USA, and Europe where younger age (<25yrs) was reported as an independent risk factor for EPTB, our findings report Adult/productive age group (31-45yrs) to be associated with occurrence of EPTB.[9-10] This study presents tubercular lymphadenitis as the most common form of EPTB(9/11) which is similar to the study from western Nepal and Turkey but in contrary to the studies conducted in Hong Kong and USA where Genitourinary system and Bones and joints were the most common sites involved.[7, 8,11,16,17]

Though we have related occurrence of EPTB to age, gender and anatomical sites, our study has some limitations. Been conducted at tertiary care hospital, this result may not reflect the true picture of EPTB in general population of eastern Nepal. In Nepal, where 45% of population is suspected of being infected with mycobacterium tuberculosis, introduction of newer and rapid methods for the early diagnosis of EPTB is of utmost importance.[18]

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