

Original article

Extra pulmonary tuberculosis in a tertiary teaching hospital: A five years review

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Abstract

Objective: To investigate the prevalence, clinical and bacteriological features and outcome of extrapulmonary tuberculosis in patients attending a tertiary care hospital at Kota Bharu, Kelantan. **Methods:** All culture positive tuberculosis cases recorded in Hospital Universiti Sains Malaysia at Kota Bharu during five years period from 2003-2007 were included in the study. Mycobacterium detected in samples originating from sites other than lungs was considered as a case of extrapulmonary tuberculosis. Age, site of infection, bacteriological findings and outcomes were analyzed. **Results:** Out of 437 tuberculosis cases recorded from 2002-2006, 59 cases had culture positive extrapulmonary tuberculosis. Their mean age was 37 years and 44% were between the ages of 20-40 years. About 63% were negative for acid-fast bacilli by Z-N stain. Of the 59, 97% was *Mycobacterium tuberculosis* (*M. tuberculosis*) while two (3%) were atypical *Mycobacterium* Runyon Group-IV. Only 3 (5%) were isoniazid resistant. Extrapulmonary sites involved were lymph nodes 19 (31%), central nervous system 12 (20%), pleural 11 (19%), spine 8 (14%), renal 3 (5.1%) and others 6 (10.2%). In this series, 11 (18%) were positive for HIV. There was no significant association between extrapulmonary tuberculosis and HIV status. The outcome of CNS tuberculosis was the poorest with a mortality rate of 25%. **Conclusion:** *M. tuberculosis* is the predominant organism in extrapulmonary tuberculosis and culture is the most effective method for its diagnosis.

Keywords: Extrapulmonary; Tuberculosis; Prevalence; Malaysia

INTRODUCTION

Tuberculosis (TB) is one of the most deadly and common major infectious diseases today, infecting two billion people or one third of people population. Nine million new cases of disease, resulting in two

million deaths, occur annually, mostly in developing countries.

Diagnosis of pulmonary TB in developing countries is mainly based on clinical presentation, supported by radiological and laboratory investigations. Smear is a primary screening procedure and confirmed by culture method. Culture is still considered as the gold standard of the TB diagnosis even though it will be very slow. The diagnosis of extra pulmonary tuberculosis is even more challenging. The clinical presentations vary and the laboratory supports is very limited due to the paucibacillary state.

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There is wide variation of prevalence of extrapulmonary tuberculosis cases between series depending on the region studied and the ethnic groups. Before the human immunodeficiency (HIV) era, in UK the White population present with an extrapulmonary site in 15% of cases but those of Bangladeshi, Pakistani or Indian ethnic origin present with an extrapulmonary site in up to 50% of cases^[1]. Since the emergence of HIV, extrapulmonary tuberculosis has been detected more frequently (more than 30%) among HIV-infected individuals in Europe and in the United States^[2]. In many Asian countries, very limited literature is available regarding the relative contributions of pulmonary and extrapulmonary disease to the total number of tuberculosis as reliable epidemiological data are lacking^[3]. In Malaysia, same scenario occur where published data on prevalence, clinical and bacteriological features of extrapulmonary tuberculosis are very limited. Data reported by the Ministry of Health, Malaysia in the annual report 2004^[4] denotes that extrapulmonary tuberculosis accounts for 9.5% of all TB cases in Malaysia.

MATERIALS AND METHODS

Hospital Universiti Sains Malaysia (HUSM) is a 700-bed tertiary care and teaching hospital. This hospital is located at the east coast of Peninsular Malaysia. All culture positive tuberculosis cases recorded in HUSM at Kota Bharu during five years period from 1st January 2003 and 31 December 2007 were included in this study. *Mycobacterium* species isolated from samples originating from sites other than lungs was considered as a case of extrapulmonary tuberculosis. Extrapulmonary TB cases which were not bacteriologically confirmed were not included in this study. The medical records of the culture positive patients were reviewed. Demographic and clinical data, such as gender, presenting symptoms, site of TB and comorbidity were identified. Data were transferred to standardized questionnaires. Age, site of infection, bacteriological findings and outcomes were analyzed.

RESULTS

For the five years study period, 437 confirmed culture positive *Mycobacterium tuberculosis* (*M. tuberculosis*) were identified in the Mycobacteriology laboratory, Universiti Sains Malaysia, Kelantan, Malaysia. Out of these numbers, 59 (13.5%, 59/437) cases were isolated from extrapulmonary site. Out of these numbers 8 cases (1.8%, 8/437) were also having concurrent pulmonary tuberculosis. Extrapulmonary sites involved includes lymph nodes 19 (32%, 19/59), central nervous system 12 (20%, 12/59), pleural 11 (19%, 11/59), spine 8 (14%, 8/59), renal 3 (5.1%, 3/59) and others 6 (10.2%, 6/59). Figure 1 represent the percentage and numbers of the extrapulmonary cases and its distribution. The mean age was 37 years and 44% were between the ages of 20-40 years (Figure 2). Among all the confirmed culture positive samples, only 22 cases (37.3%) had initial smear positive, whereas 37 cases (62.7%) had negative smear of the clinical samples. Majority of cases (97%) was identified as *M. tuberculosis* while two (3%) were identified as *Mycobacterium* Runyon Group-IV. Only 3 (5%) were monoresistant to isoniazid. None had multidrug resistant tuberculosis (MDRTB). In this series, 11 (18%) were tested positive for HIV. There was no significant association between extrapulmonary tuberculosis and HIV status. The outcome of Central nervous system (CNS) tuberculosis was the poorest with a mortality rate of 25%.

DISCUSSION

In our series, the prevalence of extra pulmonary tuberculosis was 13.5%. In the Malaysia's Ministry of Health report 2003, it is reported that extrapulmonary cases in Malaysia represent 10% of all types of tuberculosis. The figure that was presented here is higher than the national figure might be due to the fact that our data was only extracted from the culture positive extrapulmonary cases, and those cases diagnosed by histopathological examination were not included in this study. In our series, only 37.3% cases of extrapulmonary tuberculosis can be detected by direct smear. This figure strongly supports the fact that the diagnosis of extrapulmonary cases re-

quire high degree of suspicions by the clinician. In this review, lymph nodes is the commonest site of extrapulmonary tuberculosis, where it represent 31% of cases. This finding is similar to the study

done elsewhere in Asian countries. Subramnyam in 1990 reported that in India and other developing countries lymph nodes tuberculosis continues to be the most common form of extrapulmonary tuberculosis^[5].

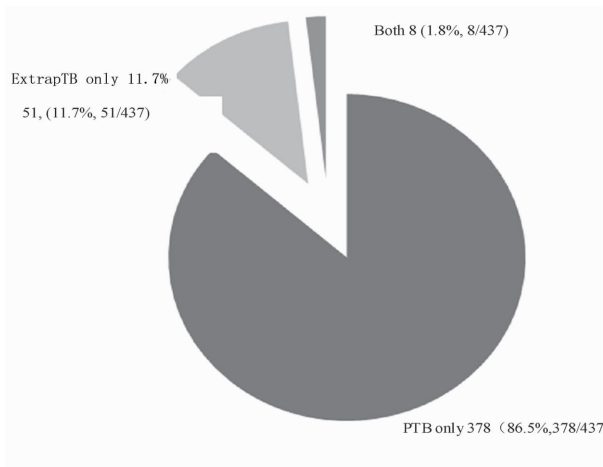


Figure 1 Distribution of pulmonary and extrapulmonary cases

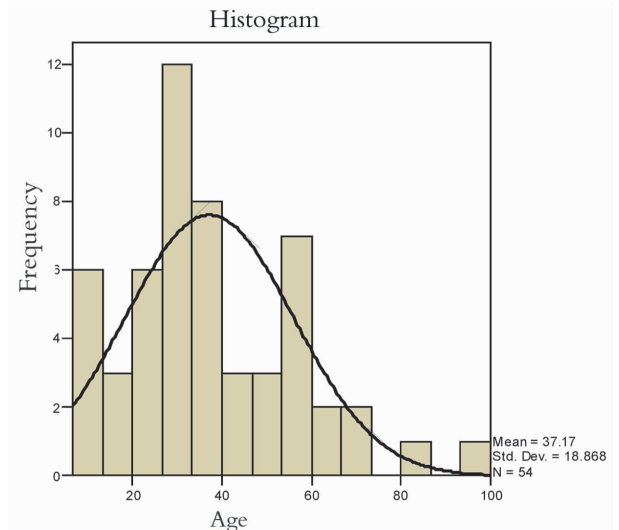


Figure 2 Mean age distribution of extrapulmonary cases.

Extrapulmonary tuberculosis is prevalent in Malaysia. Data presented here gives the picture of extrapulmonary cases in Malaysia, a country that practicing BCG vaccination to all newborn. The prevalence of extrapulmonary tuberculosis reported here is 13.5%, based on the confirmed culture positive cases. The figure might be different if all the cases histopathological examination and radiological method, with negative culture were included. Lymph nodes tuberculosis is the commonest form of extrapulmonary tuberculosis, followed by tuberculous meningitis, pleural and spine. TB meningitis carries the worst prognosis with 25% case mortality despite on antituberculous treatment.

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