

Prevalence of Smear Positive Pulmonary Tuberculosis Disease at Hayatabad Medical Complex Hospital, K.P.K, Peshawar

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Abstract:

Tuberculosis (TB) continues a persistent challenge to health and development worldwide. A total of 100 sputum samples were collected from Hayatabad Medical Complex, Hospital Peshawar Khyber Pakhtunkhwa, from patients suspected for pulmonary TB and were studied under microscope at Department of Microbiology Kohat University of Science and Information Technology. Of the total samples collected, 35(35%) were positive for TB. Male (50%) were more infected than female (30%). High occurrence (87.50%) was recorded in 40 years of age, in 10-20 age group the percentage is 80% the lowest percentage was recorded in age group of 21-40 years (35.29%) and the lowest was (71.42%). It is concluded that pulmonary TB is still prevalent in district Peshawar, Khyber Pakhtunkhwa Pakistan.

Key words: Sputum, Tuberculosis, Staining, Microscopy.

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Introduction

Mycobacterium tuberculosis is an airborne bacteria causing tuberculosis (TB) which had primarily affects the lungs, although it may affects other organs and tissues. Almost 2.2 billion people or one third of the world's population are infected with TB. Most infected people have the tuberculosis germs in their bodies which are known as latent TB, but their immune systems protect them from becoming sick. However, over 9.2 million people have active TB disease, worldwide [1]. Tuberculosis has caused more deaths than any other infectious disease and cause about 95% of these deaths in the developing world [2],

Pulmonary Tuberculosis is a chronic infectious disease caused by Mycobacterium tuberculosis, is characterized by prolonged cough, hemoptysis, chest pain and dyspnea. Systemic manifestations of the disease include fever, malaise, anorexia, weight loss, weakness and night sweats [3] Tuberculosis (TB) remains a well known health problem in the world, with an estimated 8 million new cases annually, of which about 3.5 million cases (44%) have infectious pulmonary disease [4,5]

Tuberculosis is one the major infectious disease with predominant involvement of lung and lymph nodes but tuberculosis of the middle ear is uncommon [6] It is one of the most common infectious diseases of developing countries including Nepal.[7]

Materials and Methods

Study Area

The study was carried out of Hayat Abad Medical Complex Peshawar, Khyber Pakhtunkhwa Pakistan. Data was collected through designed proforma, regarding date of registration to hospital, gender, age, weight, diagnosis and treatment.

Sample collection

A total of 100 sputum samples were collected in 2013 directly from the patient in clean and sterile sputum container and were labeled properly. All the samples were brought to Microbiology laboratory, Department of Microbiology, Kohat University of Science and Technology for TB screening.

Microscopic examination

Slides were prepared from the sputum with standard protocol, stained and then examined under the microscope (100X). TB was identified in the stained slides as red rods. The Procedure of the Protocol is:

Slide Preparation:

1. Slide is label first with stylus or lead pencil
2. Fish out the yellowish portion from sputum container and place on slide with rough end of the strick.
3. Spread material evenly on slide in an approximate area of 2cmx1cm so that news print is readable on drying.
4. Air dry smear completely and then heat fix smear in a flame.

Zhel Nelson staining.

- 1 Place slides on the staining box having carbol Fuchsin for 5-10 minutes.
2. Give a heat through a spirit lamp for fixing.
3. Remove the slides and make them air dry.
4. Put a few drops of decolorizing agent as per protocol.
5. Wash the with simples tape water.
6. Again dip the slide in 2nd box having methylene blue for 5-10 minutes.
7. Remove the slides and make them air dry and washed.
8. View the smear under oil immersion.
9. See the slides under microscope at 10x, 40x and 100x and identified with the standard images, those slides having

fine, red rods against the blue background. The red rods show the presence of Mycobacterium (TB) positive.

Prevalence rate

The prevalence rate was determined by using the following formula:

Prevalence rate = No. of patients having TB positive/ Total no. of patients x 100

Statistical analysis

Data was analyzed with statistix9 software for windows.

Results

Tuberculosis remains a well known health problem in the world. In this study, among the 100 samples, 35(35%) were positive for TB. Gender wise prevalence was determined in this study where high prevalence was recorded in male 50% (25/50) than female 30% (15/50) (Table-1). The data was significant when analyzed by using chi square test with $P < 0.05$. High prevalence 87.50% (30/40) was recorded in age 40year. In age 10-20 years 80% (20/25) were found positive while lowest 71.42% (25/35) was observed in age 21-40 years (Table-2). A high prevalence 75% (30/40) was recorded in the month of July, in June it is 71.42% (25/35) the lowest percentage is in May which is 60%(15/25)(Table-3).

Table 1: Gender Wise Occurrence of Tuberculosis in Hayatabad Medical Complex, Peshawar

Sex	Sample tested	Positive Result	%age
Male	50	25	50%
Female	50	15	30%
Overall Result	100	35	35%

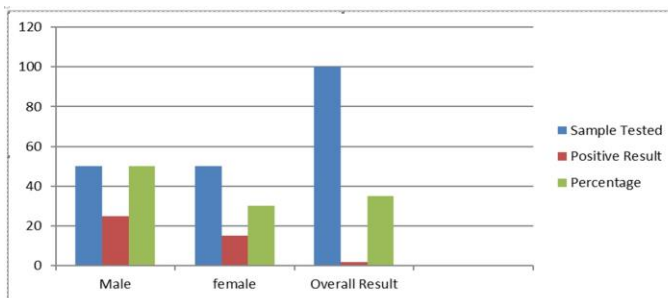
Table 2: Age-wise Occurrence of Tuberculosis Hayatabad Medical Complex, Peshawar

Age	Total Sample tested	Positive Samples	Parentage
10-20	25	20	80%
21-40	35	25	71.42%
>40	40	35	87.50%
Overall result	100	80	80%

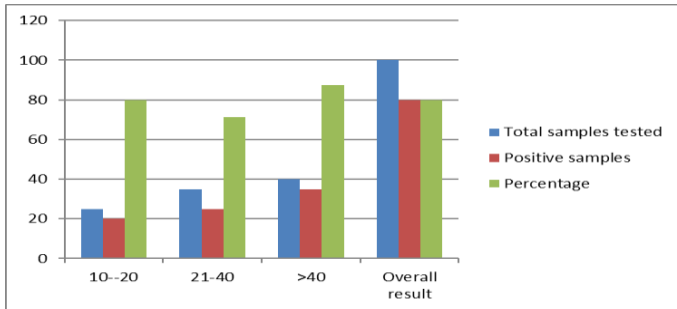
Table 3: Month-wise Prevalence of Tuberculosis in Hayatabad Medical Complex, Peshawar

Months	Total Sample	Total Positive Samples	Parentage
May	25	15	60%
June	35	25	71.42%
July	40	30	75%
Overall Results	100	70	70%

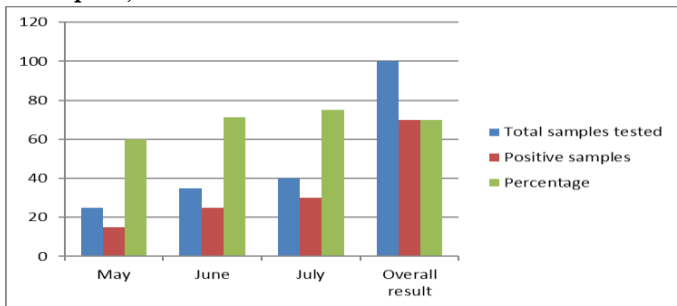
Graph 1 : Gender Wise Occurrence of Tuberculosis in Hayatabad Medical Complex, Peshawar



Graph 2: Age-wise Occurrence of Tuberculosis Hayatabad Medical Complex, Peshawar



Graph 3: Month-wise Prevalence of Tuberculosis in Hayatabad Medical Complex, Peshawar



Discussion

TB remains a leading health problem in the world, with an estimated 8 million new cases annually, of whom about 3.5 million cases (44%) have infections (smear positive) pulmonary disease [4,5]. TB remains a serious threat to public health in developing countries [8]. Pakistan, together with other Asian countries makes up over 50 percent of the global burden of the tuberculosis. In this study high prevalence was recorded in male than female which similar to the findings of others [9]. In the present study, high prevalence (75%) was recorded in July, followed by June (71.42%) while lowest (60%) was recorded in May, 2010. In this study is in line with other studies [10,

11].The limitations of the current study were the nature and the unavailability of induced sputum. The value of induced sputum for sputum smear-negative tuberculosis is the burning issues [12, 13, 14].

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