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ABSTRACT

Objective: To determine the frequency of post TB bronchiectasis in the pulmonary TB treated patients at PMCH Nawabshah.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Medicine Department, PMCH Nawabshah from Jan 2016 to Dec 2016.

Materials and Methods: 100 patients were selected for this study. 100 patients were selected permission was taken from the patients; a written questionnaire was given to all patients in Urdu and Sindhi languages. Study was done according to the Questionnaire.

Results: Out of 100 patients 65 were male and 35 were females. All patients had completed anti tuberculosis therapy. Clinically wheezing and crackles were audible. Sputum was negative for AFB. -X-ray chest of pts with Bronchiectasis was clearly visible, for confirmation of Bronchiectasis CT scan chest was done.

Bronchoscopy was advised 6 patients who were resistant to antibiotic treatment.

Conclusion: Post TB Bronchiectasis is treated by antibiotics as early as possible and daily life of patient can be improved and further complications can be prevented.

Key Words: TB, Bronchiectasis, Acid fast bacilli, ATT, X-ray chest, CT Scan

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INTRODUCTION

Pulmonary tuberculosis is major health problem globally. In 2014 more than 9.6 million people were affected and 1.5 million died¹. M. Tuberculosis is droplet infection lungs are commonly involved^{2,3}. There are many complications of treated Pulmonary TB but commonly Bronchiectasis and COPD are reported^{4,5}.

Association of Bronchiectasis due to pulmonary TB is since the time of laenec, permanent enlargement of parts of the airways of the lung occurs in Bronchiectasis⁶ symptoms include chronic productive cough, breathlessness Haemoptysis, chest pain, whistling sounds clubbing of nail and recurrence of pulmonary infections.⁷⁻⁸

Haemoptysis reported in 56% to 92% patients in Bronchiectasis. Haemoptysis commonly observed in dry Bronchiectasis. Haemoptysis associated with purulent sputum. For this reason patient goes to the physician. Bleeding occurs from dilated bronchial arteries which contain systemic pressure rather pulmonary pressure. Severe haemoptysis occur but not a cause of death^{9,10}. Bronchiectasis is more common in females and old age. Repeated pulmonary infections and shortness of breath are markers of Bronchiectasis¹¹.

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Creptations and expiratory bronchi are audible on auscultation rarely nail clubbing visible on on general physical examination¹²

Bronchiectasis is due to post TB involvement of bronchial wall and subsequent fibrosis 30%-60% is present with the active post primary form TB.

Wasting and loss of weight are reported in advanced disease. In more severe disease corpulmonale and right heart failure, edema, hepatomegaly, hypoxia and respiratory failure are observed.¹³

It can be diagnosed clinically and chest x-ray confirmed by CT Scan chest, if needed bronchoscopy is advised in sensitive cases.

Regarding treatment, general measures, smoking cessation in smokers, maintenance of nutrition. Broad-spectrum Antibiotics for controlling infection^{14,15}: Amoxicillin, tetracycline, Azithromycin¹⁶, Clarithromycin¹⁷.

Second generation cephalosporin, floroquinolone. Dose of antibiotic daily for 7-14 days of each month, alternating antibiotics for 7-10 days, with antibiotic free period for 7-10 days, intravenous antibiotics are recommended in severe infections^{18,19}, Aerosolized antibiotics treating patients with infection from Pseudomonas aeruginosa, currently tobramycin is used for Bronchiectasis.²⁰⁻²¹ Gentamycin²² and colistin²³ are beneficial. postural drainage physiotherapy surgery can also be used to treat localized disease²⁴

Inhaled steroids therapy is useful to decrease sputum production and dilate airway.²⁵ For mucus clearance flutter devices are available^{26,27}.

MATERIALS AND METHODS

A cross sectional study was conducted in medicine department PMCH Nawabshah consent was taken from patients a Questionnaire was given to all patients translated in local languages Sindhi and Urdu. Data was collected according to this Questionnaire. Complete history including detailed present history, past history, treatment history, clinical examination and investigations including sputum examination, x-ray chest and CT Scan were done. This study was conducted from Jan 2016 to Dec 2016.

Inclusion criteria:

1. Completed therapy with anti TB drugs
2. Symptoms included chronic productive cough breathlessness Haemoptysis, fever
3. Wheezing and creptations on auscultation
4. AFB negative sputum

Exclusion criteria:

1. Sputum positive for AFB
2. Uncooperative patient
3. Symptoms negative
4. Severe complications, collapse and fibrosis of lung

RESULTS

This study was conducted on 100 patients 65 were males 35 were females.

Married were 63 and unmarried 9 widow 20 divorce 8

Smoker were 57 and non smoker 43

Illiterate 35, primary 20, middle 15, matric 12 graduation 10, masters 8.

80 patients belong to rural areas and 20 belong to Arabian areas. Initial symptoms were cough productive in nature 87% breathlessness 93% haemoptysis 25% COPD 21% hypertension 22% type II diabetes 7% ischemic heart disease 2%

CT scan were done to confirm the Bronchiectasis.

Bronchoscopy was advised for 6 patients who were resistant to antibiotic treatment.

Most of the patients were diagnosed on x-ray 63%. 12% patients had fibrosis with bilateral lung involvement was 32%. right lung involvement was 46% and left lung was 30%

LUL involvement was 43% and right UL involvement was 39%

Table No.1: Lung involvement with percentage

Lung involvement	Percentage
Fibrosis	12%
Bil. Lung involved	32%
Right lung	46%
Left lung	30%
LUL	43%
RUL	39%
Spirometry mixed pattern	38%
Obstructive	20%
Restrictive	9%

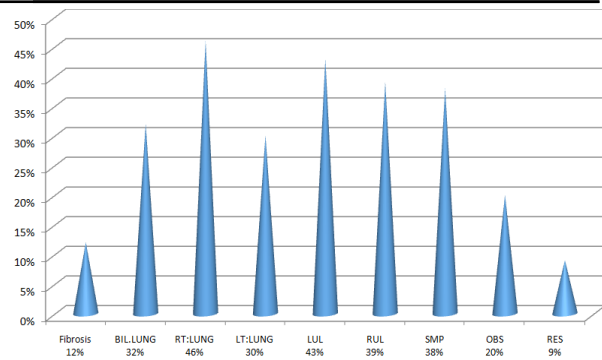


Figure No.1: Lung involvement with percentage

Table No.2: Number of patients with age.

Number of patients	Age
27	30-40 years
63	40-50 years
10	50-60

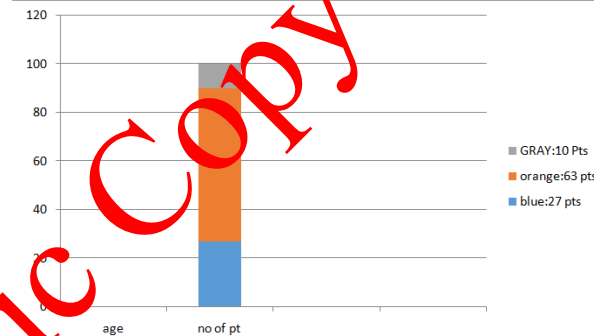


Figure No.2: Number of patients with age.

Table No.3: Ratio of smoker and non smoker among patients

No. of patients.	sex	smoker	Non smoker
17	females	positive	Negative
18	females	negative	Positive
40	males	positive	Negative
25	males	negative	Positive

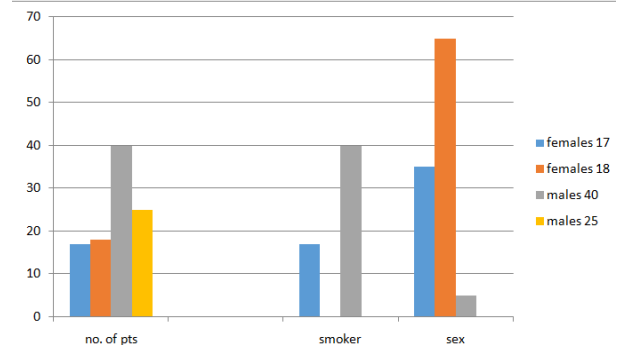


Figure No.3: Ratio of smoker and non smoker among patients

Table No.4: Marital Status

Married	63
Un married	9
Widow	20
Divorce	8

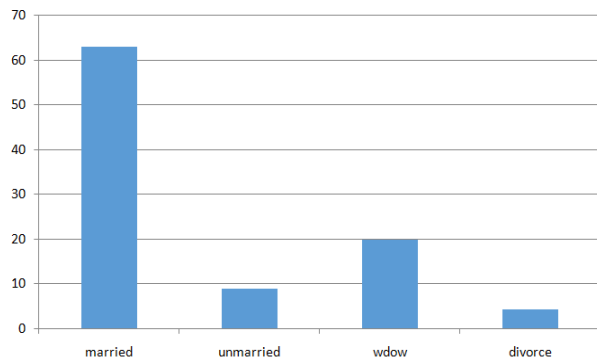


Figure No.4: Marital Status

Table No.5: Symptoms

symptoms	Percentage
Productive cough	87%
Breathlessness	93%
Haemoptysis	28%
COPD	21%
Hypertension	22%
Type 2 Diabetes mellitus	7%
Ischemic heart disease	2%

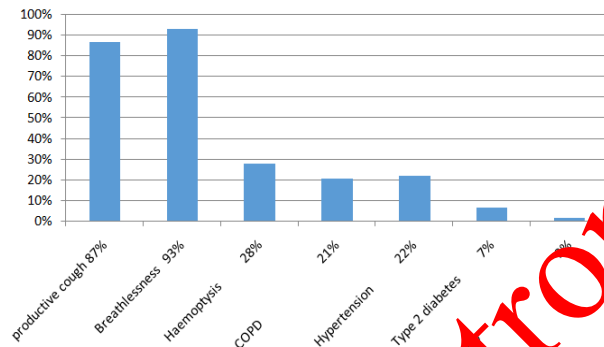


Figure No.5: Symptoms

Table No.6: Socio economical

No. of Patients	Status
20	Lower
53	Lower middle
22	Middle
05	Upper middle

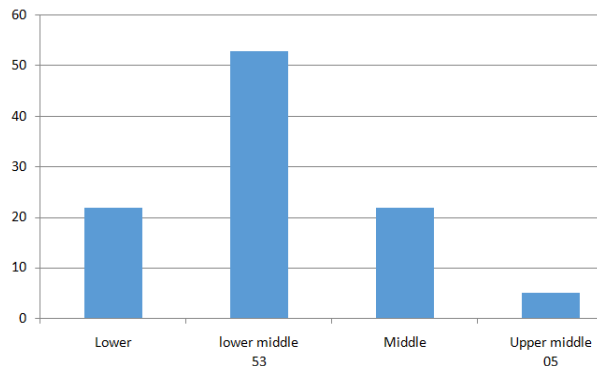


Figure No.6: Socio economical

Bilateral involvement was 32% on spirometry mixed pattern 38% cases obstructive 20 cases restrictive 9 cases. The Management maintain nutrition. Antibiotics (clarithromycin, moxifloxacin and and ceftriaxone) postural drainage.

Table No.7: Education

35	Illiterate
20	Primary
15	Middle
12	Matriculation
10	Graduation
08	Masters

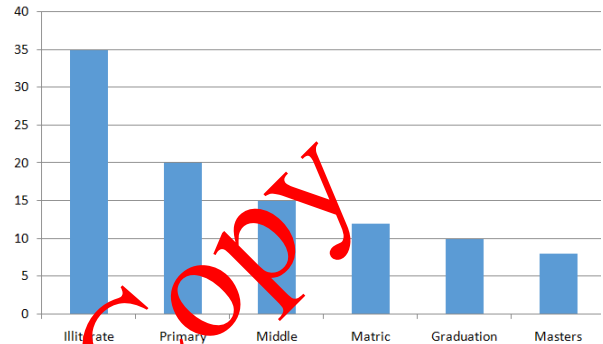


Figure No.7: Education

Table No.8: Occupation

Name of occupation	No. of pts.
Farmers	40
House wife	30
Unemployed	10
Service	3
Laborer	17

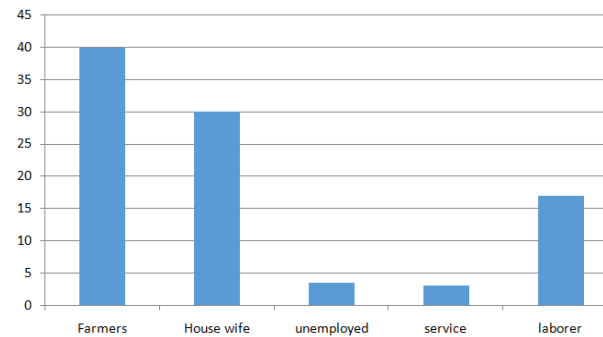


Figure No.8: Occupation

DISCUSSION

Bronchiectasis is defined as the permanent dilatation and distortion of airways. Toni Jordan et al indicated that the incidence of post TB Bronchiectasis was in the range of 19%-65%. TB is the most common identified cause.²⁸

Bronchiectasis can be considered as orphan lung disease. It is common in extensive pulmonary TB since

the time of osler.²⁹ In TB endemic countries it is observed that Bronchiectasis disease is high as 85% in TB treated patients.^{30,31} For this reason non invasive test(CT Scan) is recommended.³² In Nepal patients presented with Bronchiectasis most commonly in post TB treated patients. TB is granulomatous disease, complication can be develop even successful treatment or and off treatment occupational lung disease can play role in the development of Bronchiectasis, like coal workers mill workers farmers.

We can define Bronchiectasis as irreversible dilation of bronchi, destruction of elastic and muscular elements of bronchial walls. Secondary infection occurs commonly by staphylococci, klebsella, haemophilus influenza and pseudomonas in Bronchiectasis³³

In Bronchiectasis there is granulomatous inflammation, caseation necrosis, scarring, peribronchial stenosis pooling of secretion.

Bronchiectasis was seen commonly in upper lobes (48%) in prospective study. According Brock et al upper lobes involvement was seen in 22% cases.³⁴ Middle lobe involvement was seen in 64% cases in their studies.

Smoking is aggravating factor in Bronchiectasis.

Major complications were noted pneumothorax and corpulmonale.

Similar complication were reported by Jones et al in active post TB Bronchiectasis³⁵

According to Rajasekharan, et al pulmonary kocks was the main cause for destruction of lung in their studies.³⁶

According to previous studies, Fungal colonization was noted in many cases.³⁷

Bronchoscopy is useful in resistant cases to antibiotic treatment and postural drainage³⁸.

CONCLUSION

There are so many complications of untreated pulmonary TB,

Post TB Bronchiectasis is treatable disease mild Bronchiectasis with infections is treated with antibiotic treatment and postural drainage. Complete treatment by DOTS in TB prevents complications and complete cure of disease. Fibre optic bronchoscopy and sputum examination are important to rule out disease severity in those patients where drug resistant is problem. Complication are increased with concomitant COPD. Only few cases needed anti TB treatment and rarely surgery. Maintenance of nutrition is necessary malnutrition was the main problem noted in this study. Proper education about disease diet and treatment is compulsory.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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