

A Study on Peripheral Tuberculous Lymphadenitis with Special Reference to Treatment Outcome

Dr. Bijan Kumar Ghosh MD (chest Medicine)¹

Dr. Ujjwal Bandyopadhyay M.D. (Pathology)²

¹Assistant professor, Dept. Of Chest Medicine, Calcutta National medical College, Kolkata.

²Associate professor and Head, Dept. Of Pathology, Raiganj Government Medical College and Hospital, West Bengal. (Previously Assistant Professor (Pathology), Calcutta National Medical college, Kolkata)

Corresponding Author: Dr. Ujjwal Bandyopadhyay M.D

Abstract: Peripheral lymph node involvement is the commonest form of extra-pulmonary mycobacterial disease and the cervical region is the most frequently affected site. Mycobacterial tuberculosis is the most common causative agent of infective lymphadenopathy in India. The present study was carried out in fifty patients who are suspected of having tuberculous lymphadenitis by their clinical presentation and each patient was investigated properly to reach a positive final diagnosis of Tuberculous lymphadenitis according to RNTCP guidelines. FNAC with both cytological & AFB smear examination was the main stay of diagnosis. Patients received Cat I & Cat II regimen under DOTS strategy. Most of the patients (70%) of peripheral tuberculous lymphadenitis had uneventful resolution (Regression / Healing) of the condition. In the persistence lymph node / Sinus / Abscess cases only two patients showed AFB culture positivity from the lesion. In treatment outcome, there is high treatment completion rate, low default rate. No death was observed. Overall satisfactory response was noted in 47 cases out of 50 patients of peripheral tuberculous lymphadenitis. It was found that DOTS strategy is an effective treatment modality for treating TB lymphadenitis patients. All new TB lymphadenitis patients should be categorized under treatment category-I. FNAC plays an important role in quick cytological diagnosis of TB lymphadenitis.

Date of Submission: 22-02-2019

Date of acceptance: 08-03-2019

I. Introduction

Lymph node enlargement is a frequent occurrence and may be due to great diversity of causes and may be localized or generalized. Identification of a causative agent in lymph node as surest evidence of infection is not always possible¹

In Tuberculous lymphadenitis organisms reach lymph node by lymphatics and occasionally through blood stream. In majority of cases the affected nodes represent a primary complex. In primarily infected nodes periadenitis is a rule with subsequent matting. The nodes may undergo caseation and form a cold abscess, which after perforation of deep fascia and skin results in sinuses²

In haematogeneous spread nodes of various Topographical groups enlarged simultaneously. Matting is not a common finding as capsular invasion with periadenitis is a late feature here³

Peripheral lymph node involvement is the commonest form of extra-pulmonary mycobacterial disease and the cervical region is the most frequently affected site^{4,5,6}.

Mycobacterial tuberculosis is the most common causative agent of infective lymphadenopathy in India^{6,7,8}.

Lymphadenopathy due to non-Tuberculous mycobacteria (NTM) is uncommonly reported from India⁹.

In India, majority of the patients with lymph node TB receive DOTS under the RNTCP of the Government of India. According to the DOTS guidelines all new cases of TB lymphadenitis are categorized under treatment category I.¹⁰ Those with relapse, defaulter are categorized under treatment category II.

In this background of scientific knowledge, the present study was conducted in a tertiary care teaching hospital of West Bengal, India with the aim to observe the results of treatment with DOTS for TB lymphadenitis patients.

II. Aims and Objectives

The proposed study was carried out in fifty patients who are suspected of having tuberculous lymphadenitis by their clinical presentation and each patient was investigated properly to reach a positive final diagnosis of Tuberculous lymphadenitis according to RNTCP guidelines.

After proper diagnosis the patients are categorized according to RNTCP guidelines . The patients are then followed up to observe the results of treatments with DOTS.

The present study aimed to evaluate the patients of Tuberculous lymphadenitis with relation to their –

1. Age, sex distribution
2. Clinical presentation.
3. Presence of any other forms of TB associated with Tuberculous lymphadenitis.
4. Categorization of patents according to RNTCP guidelines.
5. Results of treatment with DOTS

To observe the results of treatment with DOTS in respect of :

- i) Regression of lymph node / Healing of ulcer/ sinus
- ii) Appearance of new nodes
- iii) Abscess formation
- iv) Sinus formation

The present study also intended to evaluate the outcome in terms of treatment completed / Defaulter / failure / Death.

III. Material and Method

Study Area:

The study on peripheral Tuberculous lymphadenitis with special reference to results of treatment with DOTS, was carried out in the department of chest medicine and Pathology of a State run medical college and Hospital of Kolkata, from 2016- 2017.

Study Group:

The subject of this study comprised of fifty (50) patients who are suspected of having tuberculous lymphadenitis of all age groups irrespective of sex attending chest OPD and also indoor patients of the hospital, during the period of February 2016 to January 2017.

Selection of Cases :

Patients with diagnosis of tuberculous lymphadenitis were included in this study. Each patient was studied according to the following plan to make diagnosis of Tuberculous lymphadenitis:

- 1) Proper History taking
- 2) Thorough clinical examination.
- 3) Routine laboratory tests & Radiology.
- 4) Cytological, Bacteriological, Histopathological examination from lymph nodes.

Final diagnosis of tuberculous lymphadenitis was made by either of the following:

- 1) Presence of caseating granuloma on cytology/ Histopathology or cytological / Histopathological examination is consistent with tuberculous lymph node
- 1) Positive AFB smears from lymph node.
- 2) Positive AFB culture from lymph node.

After proper diagnosis the patients were categorized & treated according to RNTCP guidelines incorporating DOTS strategy. The patients were then followed up to observe the results of treatment with DOTS.

Detail history, clinical examination including both general and systemic examination has been done in all cases.

Routine blood examination, Blood sugar, Mantoux test, Sputum for AFB, HIV test was done in all cases. X-ray chest- PA view was done in all cases. Ultrasonography, CT scan was done as and when required.

FNAC of lymph nodes for both cytology & AFB smear done in all cases.

AFB culture & excision biopsy of lymph node were done as and when required.

After treatment further workup done in persistence lymph node/ sinus / Abscess cases by doing AFB culture from the lesion, the culture positive cases were declared as failures.

A patient after treatment initiation has interrupted treatment consecutively for ≥ 2 months was defined as defaulter. A patient who completed treatment is defined as treatment completed.

FNAC:

FNAC of lymph node for both cytology & AFB smear was done in all cases.

Biopsy of lymph node:

A representative gland was taken out aseptically. The lymph node after excision was cut into two halves. The gross appearance of the cut surface was studied. One half kept in formalin for histopathological exam another half kept in Normal saline for bacteriological examination (AFB culture).

IV. Result and Analysis

A total of 50 cases have been selected in this study.

Results of the study are tabulated as follows:

Table – I :Age and sex distribution of cases (n = 50)

Age Group (Yrs)	Male	Female	Total	Percentage (%)
< 11	2	1	3	6
11 – 20	1	11	12	24
21 – 30	6	13	19	38
31- 40	1	3	4	8
41 – 50	3	4	7	14
51 – 60	2	3	5	10
>60	0	0	0	
Total	15	35	50	100

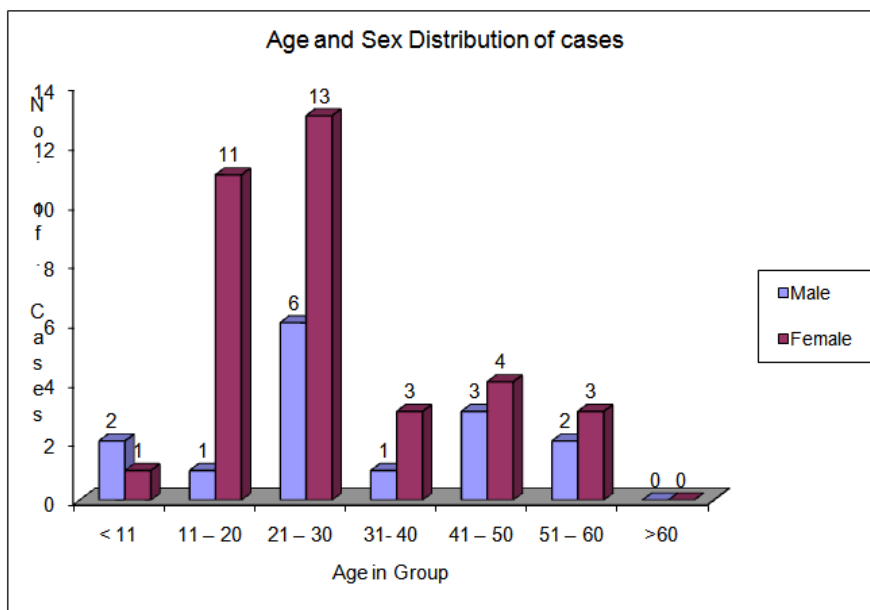


Fig 1

Table 2: Comorbidities

Comorbidities	No of cases (n = 50)	Percentage (%)
Diabetes Mellitus	2	4
HIV	2	4

Table – 3 : Clinical Presentation

Variables	No of cases	Percentage (%)
Visible Swelling	50	100
Fever	28	56
Cough	10	20
Weight loss	30	60
Night Sweats	12	24

Fig :2

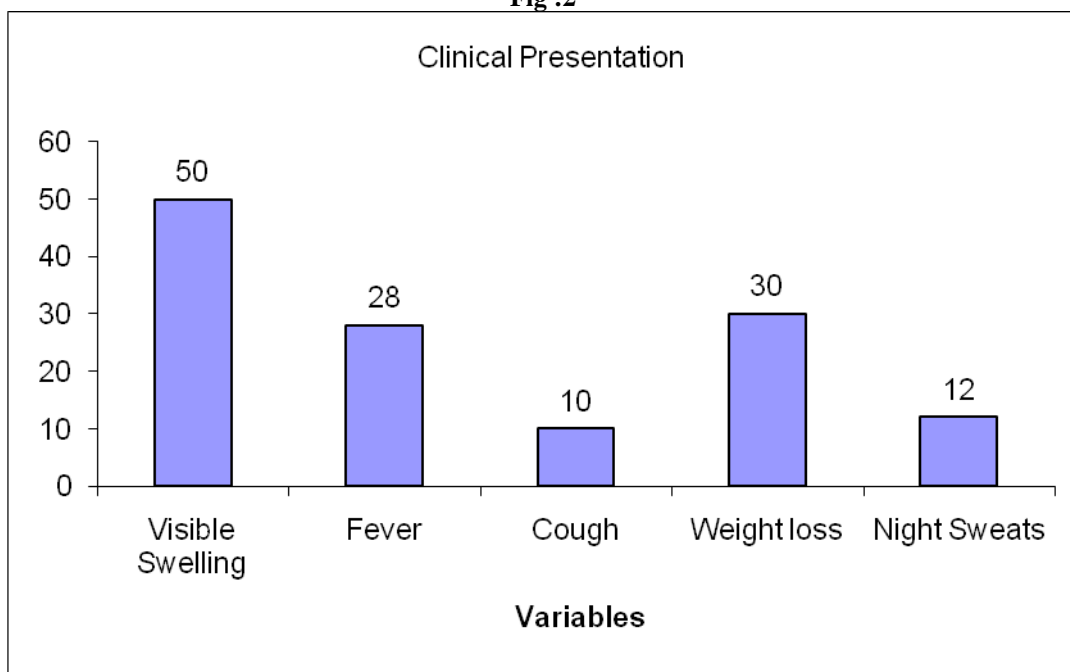


Table – 4 : Site of involvement

Site	No of cases(n = 50)	Percentage (%)
Cervical	43	86
Axillary	2	4
Inguinal	1	2
Multiple Sites	4	8

Table – 5: Clinical variation of lymph nodes at the time of presentation

Variables	No of cases(n = 50)	Percentage (%)
Discrete	18	36
Matting and fixity	22	44
Abscess formation	4	8
Sinuses	5	10
Ulcers	1	2

Table – 6 : Incidence of associated pulmonary TB

Variables	No of cases	Percentage (%)
Associated Pulmonary TB	7	14

Table – 7: Showing Hb content of patients

Hb (gm%)	No of cases(n = 50)	Percentage (%)
< 10	5	10
10 – 11	24	48
> 11	21	42

Table – 8 :Showing Total leucocytes count

Leucocytes / cmm	No of cases(n = 50)	Percentage (%)
< 4000	1	2
4000 – 10000	45	90
> 10000	4	8

Table – 9 : Showing ESR in patients

ESR (mm)	No of cases(n = 50)	Percentage (%)
<20	2	4
20 – 60	36	72
> 60	12	24

Table – 10 : Results of Mantoux test

Induration (mm)	No of cases(n = 50)	Percentage (%)
<5mm	1	2
5 – 9mm	11	22
>9mm	38	76

Table – 11: Showing Sputum positivity for AFB

Sputum for AFB	No of cases (n= 50)	Percentage (%)
Positive	2	4

Table – 12: Showing different radiological (X- ray / CT scan) findings

Variables	No of cases	Percentage (%)
Pulmonary infiltration	6	12
Cavitation	1	2
Pleural effusion	1	2
Mediastinal lymph node	3	6

Table – 13: Results of FNAC from lymph node

Variables	No of cases	Percentage (%)
Epithelioid granuloma without caseation necrosis	15	30
Epithelioid granuloma with caseation necrosis	32	64
Caseation necrosis without epithelioid granuloma	3	6
Positive AFB smear	15	30

Excision Biopsy & Histopathological Examination :-

Done in three cases where FNAC was inconclusive. Three cases showed Histopathological feature of Epithelioid granuloma with caseation necrosis.

Table – 14: Categorization of patients according to RNTCP

Category	No of cases (n = 50)	Percentage (%)
Category I	34	68
Category II	16	32

Table – 15 :Status of lymph nodes after treatment

Status	No of cases (no = 50)	Percentage (%)
Regression / Healed	35	70
Appearance of new lymph node	2	4
Persistence of lymph node	8	16
Abscess formation	2	4
Sinus formation	3	6

Table – 16: Further work up in persistence lymph node / Sinus / Abscess cases

	No of cases
Positive AFB culture	2
Negative AFB culture	12

Table – 17 :Treatment outcome

Type of outcome	No of cases (no = 50)	Percentage (%)
Treatment completed	47	94
Defaulter	1	2
Failure	2	4
Died	0	0

Table – 18: Comparison of outcome of treatment for different categories of treatment

Categories	Treatment Completed	Defaulter	Failure	Died	Total
Cat I	32 (95%)	2 (5%)	0 (0%)	0 (0%)	34
Cat II	16 (100%)	0 (0%)	0 (0%)	0 (0%)	16

V. Discussion

In the present study out of fifty (50) cases, thirty five patients (70%) were female and fifteen patients (30%) were male. The female/ male ratio was 2:3:1 (Table 1 And Figure1). Enarson DA et al (1980)¹¹ showed in their study that there is a female predominance (approximately 2:1). In the present study the patients were found in all age group though the patients aged between 21 – 30 yrs represent the largest group (38%) and 24% patients were 11 -20 yrs.

In the present study co existent diabetes were present in two cases (4%) and HIV were present in two cases (4%) (Table2). In a study Khan A H et al (2010)¹² showed that among risk factors for TB lymphadenitis HIV and Diabetes mellitus were seen in 15.6% and 10% patients respectively.

Fever, Cough, Weight loss, Night Sweats were the common symptoms in the present study. All patients presented with visible swelling. In the present study most of the patients presented with weight loss (60%) and fever (56%). Night sweat and cough were present in 24% and 20% of cases respectively (Table3& Fig2). Dandapat MC et al (1990)¹³ showed in their study that fever was present in 40%, weight loss in 85%, cough in 10% and night sweats in 37% of cases. In another study Fain et al (1993)¹⁴ observed fever in 30.5%, weight loss in 47.5%, night sweat in 22% of cases.

Cervical group of lymph nodes were most commonly involved in peripheral lymph node tuberculosis. In the present study forty three cases (86%) had involvement of the cervical group of lymph nodes, two cases (4%) had axillary, one case (2%) had inguinal and four cases (8%) had multiple sites involvement (Table 4).

Chen et al (1992)¹⁵ also observed in their study that 91.5% had involvement of cervical group of lymph nodes, 12.7% had axillary, 7% had inguinal and 14% had involvement of multiple sites.

In the present study most of the patient presented with matted nodes (44%) and discrete nodes (36%). Abscess formation, sinuses and ulcer were present in 8%, 10% and 2% of cases respectively (Table 5). Thompson et al (1993)¹⁶ observed in his study discrete node 32%, matting and fixity 68%, Abscess formation 15.2% sinuses 10.5% and ulcers 7.6% cases.

In the present study seven cases (14%) had associated pulmonary tuberculosis. Two of them were sputum positive and another five cases were sputum negative as diagnosed by consistent radiological and clinical features (Table 6).

Anemia was present in over 50% of patients. It is difficult to judge whether it is the result of TB affection or poor nutrition. High ESR is not a constant accompaniment. In the present study high ESR of greater than 60 mm was observed in twelve cases (24%) (Table-7,8,9).

In the past, the tuberculin test was an important diagnostic aid in patients of tuberculosis. The tuberculin test is still considered diagnostic in mycobacterial infections in third world countries, though its value in diagnosing disease is debated. However a negative skin test does not rule out the diagnosis of TB lymphadenitis. In the present study mantoux test was positive in thirty eight (76%) cases out of fifty patients of peripheral tuberculous lymphadenitis (Table 10).

In the present study apart from associated lesions in lung i.e. pulmonary infiltration in six cases (12%) and cavitation in one case (2%), enlarged mediastinal lymph nodes was seen in three cases (6%), pleural effusion in one case (2%) (Table 11,12). Thompson et al (1992)¹⁶ found abnormal appearing chest radiograph in 44% Indian patients with only 18% of whites population. In their study they found healed pulmonary lesions in 43%, active pulmonary tuberculosis in 22% and hilar or paratracheal lymphadenopathy was noted in 32%. FNAC from lymph node was done in all cases for cytology and AFB smear.

In the present study, most patients (64%) showed cytological feature of epithelioid granuloma with caseation necrosis. 30% patients showed Epithelioid granuloma without caseation necrosis and 6% patients showed caseation necrosis only. AFB smear was positive in 30% cases (Tab 13).

Dua et al (1996)¹⁷ observed in their study that granuloma only in 51.51% cases, granuloma with necrosis in 33.33% cases and necrosis only in 15.15% cases. In another study Das DK et al (1990)¹⁸ showed Epithelioid granuloma without necrosis in 25.3% cases, epithelioid granuloma with necrosis in 39.1% cases and necrosis without epithelioid granuloma in 35.6% cases.

In the present study 34 patients (68%) received Cat I regimen, 16 patients (32%) received Cat II regimen. (Table 14)

In the present study it was observed that most of the patients (70%) had uneventful resolution (Regression / Healing). Persistence of lymph nodes observed in eight cases (16%), appearance of new lymph node observed in two case (4%). abscess formation and sinus formation observed in two (4%) and three (6%) cases respectively (Table 15).

Campbell IA et al (1993)¹⁹ observed in their study that a small percentage of patients was noted to have new nodes, enlargement of existing nodes or sinus tract formation. At the end of therapy residual lymph nodes were present in 17% of cases. Jawahar MS et al (1990)²⁰ in their study in children found favorable clinical response in most patients. Residual lymphadenopathy (> 10 mm) was present in 30% cases. Geldmacher H et al (2002)²¹ observed in their study that with treatment, reduction of size of the lymph nodes swelling without

complication may occur in 70-90% of patients. Jain N K et al²² showed in their study, percentage of complicated lymph node abscess and sinus formation was seen in 22.71% and 8.13% patients respectively.

Persistence lymph node / Sinus / Abscess were seen in 15 cases in the present study. In the present study two cases were found to be AFB culture positive i.e. bacteriologically disease activity was present in them among the 14 cases of persistence lymph node / Sinus / abscess cases. One case of the fifteen cases of persistence lymph node / Sinus / abscess was defaulter and could not be traced, so excluded from this work up. AFB culture was negative i.e. bacteriologically no disease activity was present in the remaining twelve cases of the Persistence lymph node / Sinus / Abscess cases (Table 16,17). Overall two cases were declared as failure .

In the present study overall treatment completion was noted in forty seven (94%) cases, default in one case (2%), failure in two cases (4%). No death was observed. In Cat I, Treatment completion rate was 95%, default rate was 5%, no failure or death observed. In Cat II, Treatment completion rate was 100%, no default, failure or death observed. (Table 18).

The present findings are similar with the observation of Wares F et al (2005)²¹, who observed in their study out of total 1611 TB lymph node patients 93% completed treatment, 6 patients (0.37%) died, and 1 case reported as treatment failure (0.06%) and 6.4% as default.

Similar findings also seen in another study in children with tuberculous lymphadenitis. Sharma S et al (2010)²² observed treatment completion rate (94.9%), Default rate (2.2%), 2.5% failure rate and 0.3% death rate.

VI. Summary & Conclusion

The following observation & conclusion were made from the present study:

TB lymphadenitis is the one of the most common form of extra pulmonary TB. TB lymphadenitis may occur at any age but most common in second decade. The female are more commonly affected than male with a female: male ratio of 2.3: 1. HIV and diabetes mellitus were important risk factors for developing TB lymphadenitis. Weight loss and fever were the most common constitutional symptoms. Cervical lymph nodes were the most common site of involvement. Most of the patients presented with both matting & fixity of nodes and discrete nodes. About 14% patients had associated pulmonary TB. Blood picture does not help to arrive at a diagnosis in most cases. A positive tuberculin test (Mantoux test) has role in the diagnosis. FNAC with both cytological & AFB smear examination was the main stay of diagnosis. Patients received Cat I & Cat II regimen under DOTS strategy. Most of the patients (70%) of peripheral tuberculous lymphadenitis had uneventful resolution (Regression / Healing) of the condition. In the persistence lymph node / Sinus / Abscess cases only two patients showed AFB culture positivity from the lesion. In treatment outcome, there is high treatment completion rate, low default rate . No death was observed. Overall satisfactory response was noted in 47 cases out of 50 patients of peripheral tuberculous lymphadenitis.

Conclusion:-

DOTS strategy is an effective treatment modality for treating TB lymphadenitis patients. All new TB lymphadenitis patients should be categorized under treatment category-I. FNAC plays an important role in quick cytological diagnosis of TB lymphadenitis.

It is desirable to continue this work involving many more patients to generate more reliable data out of this study for future.

References

- [1]. Lazarus AA, Thilagar B. Tuberculous lymphadenitis. *Dis Mon* 2007;53:10-5.
- [2]. Thompson MM, Underwood MJ, Sayers RD, Dookeran KA, Bell PRF. Peripheral Tuberculous Lymphadenopathy: a review of 67 cases. *Br J Surg* 1992;79:763-4.
- [3]. Dandapat MC, Mishra BM, Dash SP, Kar PK. Peripheral lymph node tuberculosis: a review of 80 cases. *Br J Surg* 1990;77:911-2.
- [4]. Indian Council of Medical Research, Tuberculosis in India-A Sample Survey, 1955-58. Special Report Series No.34, New Delhi.
- [5]. Jawahar MS, Sivasubramanian S, Vijayan VK, et al. Short course chemotherapy for tuberculous lymphadenitis in children. *BMJ* 1990;301:359-362.
- [6]. Sharma SK, Mohan A. Extrapulmonary tuberculosis . *Indian J Med Res.* 2004;120:316-353.
- [7]. Treatment of Tuberculosis: American Thoracic Society/Centers for Diseases Control/Infectious Diseases Society of America- Recommendations and Reports. *M M W R Morb Mortal Wkly Rep.* 2003;52:1-77.
- [8]. Kent DC. Tuberculous lymphadenitis; not a localized disease process. *Am J Med Sci.* 1967;254:866-874.
- [9]. Miller FJW, Cashman JN. *Lancet* 1955;1:1286.
- [10]. Fain O, Lortholary O, Djouab M, Amoura I, Babinet P, Beaudreuil J, et al. Lymph node tuberculosis in the suburbs of Paris: 59 cases in adults not infected by the human immunodeficiency virus. *Int J Tuberc Lung Dis* 1993;3:162-5.
- [11]. Chen Y-M, Lee P-Y, Su W-J, Perng R-P. Lymph node tuberculosis: 7-year experience in veterans General Hospital, Taipei, Taiwan. *Tuber Lung Dis* 1992;73:368-71.
- [12]. Geldmacher H, Taube C, Kroeger C, et al. Assessment of lymph node tuberculosis in northern Germany: a clinical review. *Chest* 2002;121:1177-1182.
- [13]. Chao SS, Loh KS, Tan KK, Chong SM. Tuberculous and nontuberculous cervical lymphadenitis: a clinical review. *Otolaryngol Head Neck Surg.* 2002;126:176-179.
- [14]. Das DK, Pank JN, Chachra KL, et al. Tuberculous Lymphadenitis: correlation of cellular components and necrosis in lymph node aspirate with AFB positivity and bacillary count. *Indian J Pathol Microbiol.* 1990;33:1-10.

A Study On Peripheral Tuberculous Lymphadinitis With Special Reference To Treatment Outcome

- [15]. Khatri GR,Frieden TR.Controlling tuberculosis in India.N Engl J Med 2002;347:1420-5.
- [16]. Park K.Preventive and social medicine,17th edition.2002:P-139.
- [17]. Wares F,Balasubramanian R,Mohan A,Sharma SK .Extra pulmonary tuberculosis:management and control.In:Agarwal SP,Chauhan LS,editors.Tuberculosis control in India. New Delhi:Directorate General of Health Services, Ministry of Health and Family Welfare;2005.P.95-114.
- [18]. Khan AH,Syed AS,Muttalif RA,Hassali MA,Abdullah R.Archives of pharmacy practice.2010;1(1)pp7.
- [19]. Jha BC,Dass A,Nagarkar NM,et al.Cervical tuberculous lymphadenopathy: chaging clinical pattern and concepts in management.Postgrad Med J 2001;77:185-187.
- [20]. Dua T,Ahmad P,Vasenwala S,Beg F,Malik A.Ind. J.Tub.1996;43:81.
- [21]. Geldmacher H,Taube C,Kroeger C,et al.Assessment of lymph node tuberculosis in northern Germany:a clinical review.Chest 2002;121:1177-1182.
- [22]. Wares F,Balasubramanian R,Mohan A,Sharma SK .Extra pulmonary tuberculosis:management and control.In:Agarwal SP,Chauhan LS,editors.Tuberculosis control in India. New Delhi:Directorate General of Health Services, Ministry of Health and Family Welfare;2005.P.95-114.

Dr.Ujjwal Bandyopadhyay.M.D. “A Study on Peripheral Tuberculous Lymphadinitis with Special Reference to Treatment Outcome.” IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 3, 2019, pp 15-22.