ORIGINAL RESEARCH PAPER

Volume-8 | Issue-6 | June-2019 | PRINT ISSN No. 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A STUDY OF EPIDEMIOLOGY AND CLINICO-PATHOLOGICAL CORRELATES OF CERVICAL LYMPHADENOPATHY IN A MEDICAL COLLEGE OF WEST BENGAL, INDIA

Pathology

Dr. Ujjwal Bandyopadhyay M.D.(Pathology), Associate Professor And Head, Dept. Of Pathology, Raiganj Government Medical College and Hospital, West Bengal.

Dr. Bijan Kumar Ghosh* MD (Chest Medicine) Assistant Professor, Dept.Of Chest Medicine, Calcutta National Medical College, Kolkata. *Corresponding Author

ABSTRACT

Peripheral lymph node involvement is the commonest form of extra-pulmonary mycobacterial disease and the cervical region in 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 at a positive final diagnosis of Tuberculous lymphadenitis according to RNTCP guidelines. FNAC with both cytological & AFB smear examination was the main stay of diagnosis. Detailed clinical history taking, clinical examination, routine blood tests, microbiological examination, FNAC and other relevant tests were performed and all the results were tabulated to get the correlations among all the epidemiological factors . The following observation & conclusion was made from the present study: TB lymphadenitis is the most common form of extra pulmonary TB and it 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. About 14% patients had associated pulmonary TB. Blood picture does not help to arrive at a diagnosis. A positive tuberculin test (Mantoux test) has got some role in the diagnosis. FNAC with both cytological & AFB smear examination is the main stay of diagnosis.

KEYWORDS

Cervical lymphadenopathy, FNAC lymph node

INTRODUCTION

The lymph nodes are the special collections of lymphoid tissue which are scattered widely throughout the body. The lymph node along with the lymph vessels constitutes the lymphatic system. The lymph channels not only convey tissue fluid with protein of higher molecular weight back to the blood, they also form normal route for the spread of bacteria and dissemination of malignant cells. Consequently 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- surest evidence of infection is not always possible. In Tuberculous lymphadenitis organism reach lymph node by lymphatics and occasionally through blood stream. In majority of cases the affected nodes represent a primary complex. Sometimes the infection may spread to the neck by lymphatics from primary lesion in lung. The affected nodes are usually lower cervical multiple & bilateral moderately enlarged and rarely caseous. (Bently et.al.[1] chapman,[2] and Miller et al.[3]

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 sinuses. 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.Peripheral lymph node involvement in the commonest form of extra-pulmonary mycobacterial disease and the cervical region in the most frequently affected site. (Lazarus AA, et al[4], Thompson MM et al[5], Dandapat MC et al[6]). Mycobacterial tuberculosis is the most common causative agent in India. (ICMR[7], Dandapat MC, et al[6], Jawahar MS et al[8]). Mycobacterial lymphadenitis most frequently affects patients in their second decade but may afflict patients of any age. There is a female predominance (approximately 2:1) in most of the studies. (Enarson DA. et al[9].) Infection with the human immunodeficeiency virus (HIV) is associated with an increased frequency of both pulmonary and extra pulmonary tuberculosis particularly lymphadenitis. (Aguado JM et al[10], Finfer M et al[11]).

In this background of scientific knowledge, the present study was conducted in a tertiary hospital and Medical college of Indian subcontinent. which caters mostly rural population, with the aim to observe the epidemiological factors and their effect on occurrence of TB lymphadenitis .

AIMS AND OBJECTIVES

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

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 and
5. other related factors

MATERIAL AND METHOD

Study Area:

The study on peripheral Tuberculous lymphadenitis with special reference to epidemiological association, was carried out in the OPD & IPD of department of chest medicine of a medical college of West Bengal, India.

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 IPD during the period of January 2018 to July 2018.

Selection of Cases :

Patients with diagnosis of Tuberculous lymphadenitis are 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 epithelioid granuloma on cytology/ Histopathology or cytological / Histopathological examination is consistent with tuberculous lymph node
2) Positive AFB smears from lymph node.
3) Positive AFB culture from lymph node.

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

Examination of the enlarged gland was done in respect of:
Site, tenderness, Size, Consistency, Shape, Mobility, Number, Matting , Overlying skin Condition, Presence of Sinus

Routine blood examination, Blood sugar, Mantoux test, Sputum for AFB, HIV test was done in all cases. X-ray cheat- 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.

RESULT AND ANALYSIS

Results 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

From Table –I it is evident that fifteen (15) patients were male (30%) and thirty five (35) patients were female (70%) with female to male ratio of 2:3:1. 38% Patients were between 21-30 years and 24% patients were 11-20 years(fig 1)

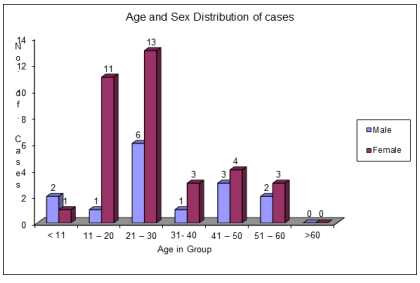

Figure 1

History of contact:-

Out of fifty (50) patients of tuberculous lymphadenitis, five (10%) gave history of contact with tuberculosis patients.

Table – 2 Co morbidities

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

Table – 2 reveals that Coexistent Diabetes was present in two cases (4%) and HIV were present in two cases (4%).

Table – 3 Clinical Presentations

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

Table – 3 shows that visible swelling was present in all cases. Constitutional symptoms like fever and weight loss were the most frequent symptoms and were present in 28 (56%) and 30 (60%) cases respectively. Cough was present in 10 cases i.e. 20% and night sweats was present in 12 cases i.e. 24%.

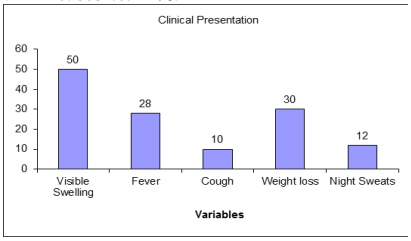

Figure 2 : Clinical Presentation

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 – 4 shows that 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.

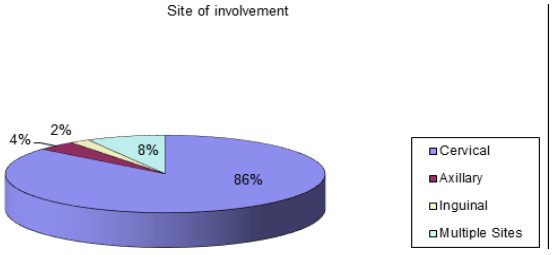

Figure 3 : Site of involvement

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 – 5 shows that eighteen cases (36%) had discrete nodes, twenty two cases (44%) had matting and fixity. Abscess formation, sinuses and ulcers were present in four (8%), five (10%) and one (2%) cases respectively.

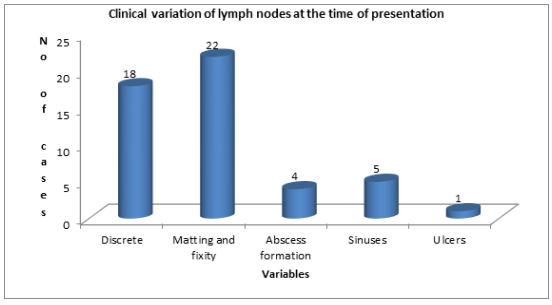

Figure 4: Clinical variation of lymph nodes at the time of presentation

Table – 6 : Incidence of associated pulmonary TB

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

Table – 6 shows that seven cases (14%) of peripheral tuberculous lymphadenitis had associated pulmonary tuberculosis. Two cases were sputum positive and five cases were sputum negative pulmonary TB as diagnosed by radiological & clinical features consistent with granulomatous infection.

Table – 7 : Showing hemoglobin(Hb)content of patients

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

Table – 7 shows that five patients (10%) had less that 10 gm % Hb, Twenty four (48%) patients had hemoglobin of 10 gm% to 11 gm% and twenty one patients (42%) had greater than 11 gm% hemoglobin.

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 – 8 shows forty five (90%) patients had total leucocytes count within 4000 to 10000/cmm. one patient (2%) had leucocytes count less than 4000/cmm and four patients (8%) had leucocytes count more than 10000/ cmm.

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 – 9 reveals that thirty six cases (72%) had ESR within 20 to 60 mm, twelve cases (24%) had ESR greater than 60 mm and two cases (4%) had ESR less than 20 mm.

Table – 10 : Results of Mantoux test

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

Table – 10 reveals one patient (21%) had induration less than 5 mm, eleven patients (22%) had induration between 5mm to 9mm and thirty eight patients (76%) had induration more than 9 mm i.e. mantoux positive.

Table – 11 : Showing Sputum positivity for AFB

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

Table – 11 shows that two patients (4%) had positive sputum for AFB.

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 – 12 reveals that six patients (12%) had pulmonary infiltration and one patient (2%) had cavitation. Pleural effusion and mediastinal lymph node were present in one (2%) and three (6%) patients respectively.

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

Table – 13 reveals that fifteen cases (30%) showed epithelioid granuloma without caseation necrosis, thirty two (64%) cases showed epithelioid granuloma with caseation necrosis and three (6%) cases showed caseation necrosis only. Positive AFB smear was found in fifteen cases (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 – 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 – 15 reveals that out of fifty cases of peripheral tuberculous lymphadenitis, thirty five patients (70%) had uneventful Regression / Healing, Appearance of new lymph node was observed in two cases (4%), persistence of lymph node noted in eight cases (16%), Abscess formation and sinus formation were observed in two (4%) and three (6%) cases respectively.

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

	No of cases
Positive AFB culture	2
Negative AFB culture	12

Persistence lymph nodes / sinuses / Abscesses were seen in fifteen cases. One patient of them was defaulter & could not be traced so excluded from workup. AFB C/S from the lesion was done in each of the fourteen cases. Table – 16 shows, two cases of them were found to be AFB culture positive and twelve cases were found to be AFB culture negative.

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. Farer LS et al[12], Enarson DA et al[13] 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. Dandapat MC et al[14] showed in their study that majority of the patients were in the second and third decade of life. Prabhakar[15] found Tuberculous involvement of the lymph node was fairly frequent in the first decade and reached a peak in the second decade after which the incidence declines and the disease was found to be more common in females.

Dandapat et al[14]. Showed that majority of the patients were in the second and third decade of life.

Farer L S et al [16], Eson DA et al[9] showed that there is a female predominance (approximately 2:1). Dandapat MC, Mishra BM et al[6] studied 80 patients with Tuberculous lymphadenitis. Their ages ranged from 1 to 65 years; most were younger than 30 years and there was a slight female preponderance (1.2 :1).

Regarding co morbidities, in the present study co existent diabetes were present in two cases (4%) and HIV were present in two cases (4%). In a study Khan A H et al[16] showed that among risk factors for TB lymphadenitis HIV and Diabetes mellitus were seen in 15.6% and 10.0 patients respectively. HIV infection is a major threat in the global resurgence of tuberculosis, especially for tuberculosis control in developing countries. The combination of the two infections has altered the clinical presentation and course of tuberculosis. Infection with human immunodeficiency virus (HIV)is associated with an increased frequency of Mycobacterial infections in general and lymph node involvement in particular (Lee Kc et al.[17]; Aguado JM et al.[10]; Finfer M et al[11]

Raja sekarans et al.[18] observed in his study that of the 85 patients with Tuberculous lymphadenitis, 16 (18.8%) had HIV seropositivity.

Clinical Presentation like, 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. Dandapat MC et al[6] 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 [19] observed fever in 30.5%, weight loss in 47.5%, night sweat in 22% of cases. Lack of constitutional symptoms was noticed in majority of cases of Tuberculous cervical adenitis by Miller, 1956[20]; Wilmot[21].

Dandapat et al[6] showed in his study with peripheral lymph node tuberculosis that fever was present in 40 %, weight loss in 85%, cough in 10%, night sweat in 37% of patients.

Fain et al[22] found fever in 30.5%,weight loss in47.5%, night sweat in 22% of cases.

Cough is not a prominent fearure of Tuberculous lymphadenitis and up to 57% of patients have no systemic symptoms(Lee KC et al.)[23].

Hooper[24] found hepetosplenomegaly in six cases with acute presentation in a series of 106 cases.

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Regarding site of Involvement, Cervical group of lymph nodes were most commonly involved in peripheral lymph node tuberculosis. Chen et al[26] 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 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. Peripheral lymph nodes, especially in the cervical regions, are the most common sites of lymphadenopathy caused by M.Tuberculosis. (Dandapat et al. 1990[6];Thompson MM et al. 1992[5]; Manolidis S et al. 1993[27]; Pang SC, 1992[28] In a study with peripheral lymph node tuberculosis Chen et al.[29] showed involvement of the following sites – cervical 91.5%, Axillary 12.7% , inguinal 7%, Multiple sites in 14.0%. Thompson et al[5] found cervical 85%, Axillary 11.1%,inguinal 7% in his study of 67 cases of peripheral lymph node tuberculosis. Dandapat et al 1990[6]; Manolidis S et al.[27] observed involvement of axillary, inguinal and mediastinal lymph nodes in approximately 14% to 30%.

For clinical Variations of lymph nodes at the time of Presentation , In the present study most of the patient presented with matting and fixity of nodes (44%) and discrete nodes (36%). Abscess formation, sinuses and ulcer were present in 8%, 10% and 2% of cases respectively. Subrahmanyam M[30] observed in his study discrete node 32%, matting and fixity 68%, Abscess formation 15.2% sinuses 10.5% and ulcers 7.6% cases.

For incidence of associated pulmonary TB, 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. Subrahmanyam M[31] observed in his study with peripheral lymph node tuberculosis that associated pulmonary tuberculosis was present in 16.2% cases. Acharya[32] showed the association of active pulmonary lesion in 17 patients (27.7%) with peripheral tuberculous lymphadenopathy in children.

Dandapat et al.[6] showed evidence of associated pulmonary tuberculosis in adult patients with peripheral lymph node tuberculosis in 5% of his 80 cases.

In the blood picture analysis, 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%). Harnandan[33] found that high ESR was not considered to be of any significance from the diagnostic point of view.

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, though its value in diagnosing disease is debated. Dandapat et al[34] showed in their study that 75% of tubercular lymph node patients showed positive Mantoux test. Jones and Campbell [35], Kent[36], Sen[37] found positive reaction in all cases of TB cervical lymphadenitis. 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.

For Radiological findings In the present study apart from associated lesions in lung i.e. pulmonary infiltration was present 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%). Thompson et al[5] found abnormal appearing chest radiograph in 44% Indian patients with only 18% of whites. In their study they found healed pulmonary lesions in 43%, Active pulmonary tuberculosis in 22% and hilar or paratracheal lymphadenopathy was noted in 32%.

In another study, Jha et al[38] described 60 cases of cervical tuberculous lymph node enlargement in India. Chest lesions on radiography were evident in only 16% of the patients.

In the present study it is 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. Campbell IA et al [39] 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[8] in their study in children found favorable clinical response in most patients. Residual lymphadenopathy (> 10 mm) was present in 30% cases.

Campbell IA[40] showed in a study that TB of the superficial lymph node responds well to chemotherapy with uneventful resolution of the condition in 70% of patients. Fluctuation, discharge, sinus formation and Scar breakdown occur in the minority.

SUMMARY & CONCLUSION

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

TB lymphadenitis is 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.

About 14% patients had associated pulmonary TB.

Blood picture does not help to arrive at a diagnosis, ESR has no diagnostic value.

A positive tuberculin test (Mantoux test) has got some role in the diagnosis.

FNAC with both cytological & AFB smear examination was the main stay of diagnosis.

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