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Original Research Article

Extrapulmonary tubercular cervical lymphadenopathy and its correlations with pulmonary tuberculosis

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ABSTRACT

Background: Correlation of extrapulmonary tubercular cervical lymphadenopathy (ETCL) with pulmonary tuberculosis (TB).
Methods: The prospective observational study was conducted on 100 patients of pulmonary TB to find out its correlation with ETCL. Patients who fulfilling inclusion criteria were selected for study. Patients on the basis of presence of cervical lymph node divided into two groups group A and group B.
Results: Among 100 patients, 9 (9%) patients who took part in study had ETCL. ETCL more prevalent in young rural female with lower socioeconomic group of pulmonary patients. Patients with ETCL, 6(66.66%) cases with discrete ETCL, matted ETCL were noted in 3 (33.33%) cases. None of them presented with fixed nodes or sinus.
Conclusions: Our study concluded, there is high correlation between cervical lymphadenopathy and pulmonary TB.

Keywords: TB, ETCL, Cervical lymphadenopathy

INTRODUCTION

Tuberculosis TB can affect almost any organ. Despite major strides in prevention, diagnosis and treatment, TB continues to be a major leading cause of death globally. An estimated 1.67 million people died from TB in 2016.[1]

The term extrapulmonary TB has been used to describe the isolated occurrence of TB at body sites other than the lung. ETCL is reported to be increasing over the last several years.[2] Most common sites of extrapulmonary TB consist of lymphatics, genitourinary, bone, and joint, and CNS involvement, followed by peritoneal and other abdominal organ involvement.[2]

TB lymphadenitis may occur due to reactivation of healed focus involved during primary infection, progressive primary TB i.e.; spread from lung into mediastinal lymph node, Spread from tonsil and haematogenous spread due to miliary TB.

This is important clinically and from the public health point of view in order to achieve the national target of elimination of TB. The current study describes the correlation of ETCL in patients with pulmonary TB in a tertiary care centre, Uttar Pradesh, which is the largest contributor of TB cases in our country.

Objective

The objectives of this study were to estimate the prevalence of ETCL in patients with primary pulmonary and previously treated pulmonary TB and to study the correlation between ETCL and pulmonary TB.

METHODS

This is a hospital based observational study conducted on patients with pulmonary TB in department of ear, nose and throat and TB and chest department, of LLRH and TBCD hospital in Kanpur, Uttar-Pradesh, from January

2020 to October 2021. Patients who were fulfilling inclusion criteria after screening were selected for study. History was taken regarding particulars of the patients and complaints. Modified BG Prasad classification was used to assess the economic status of the study population. Site and side of lymph node was noted and lymph node character were noted. Patients on the basis of presence of cervical lymph node divided into two groups.

Group A-Patients of pulmonary TB with extrapulmonary tubercular cervical lymph node. Group B-Patients of Pulmonary TB without extrapulmonary tubercular cervical lymph node.

FNAC was done in all cases with cervical lymphadenopathy. Further diagnosis made by various investigation findings, like CBC, ESR, sputum examination for AFB, if needed sputum for CBNAAT, tuberculin skin test (Mantoux test), USG neck of the patients. Chest radiograph (posterior-anterior view) was done in all cases to assess the pulmonary involvement due to TB. Continuous variable was expressed as mean ± SD. Comparison between group A and B was performed.

Study design

The study design was prospective, non-randomized, observational study.

Inclusion criteria

Patients between10-50 year of age with both primary and previously treated pulmonary TB were included in study.

Exclusion criteria

Patients below 10 years and above 50 years of age excluded in the study, extra pulmonary TB causing cervical lymphadenopathy, patients of pulmonary TB having lymphadenopathy on other site of body (axillary and inguinal) rather than cervical, diagnosed cases of malignancies from any primaries presented with cervical lymphadenopathy, immunocompromised patients (HIV, HCV, HBSAG positive) and any other granulomatous disease and other disease causes cervical lymphadenopathy were excluded from the study.

Statistical analysis

The data obtained from our study was compiled and tabulated on MS excel work-sheet and master table were made accordingly. Suitable charts and diagrams were made for better presentation and analyzed by suitable applicable tools (average, standard deviation, percentages, chi-square test) were applied to analyze the data and conclusion was drawn accordingly. Statistical significance taken as $p<0.05$.

RESULTS

A total of 100 patients of pulmonary TB (primary and previously treated pulmonary TB) with or without ETCL were included in the study. Among 100 patients, 9% patients who took part in study had ETCL. Among 100 patients, 49 were male, while 51 (51%) were females. On applying chi- square test association is considered to be statistically significant. In group A the disease occurs mostly in the age group of 10-30 years. The youngest age in group A is 17 years old. Mean age and std. deviation is 28.07±11.13. And in group B the disease occurs mostly in the age group 31-40 years. The youngest age in group B is10 year old. Mean age and std. deviation is 28.37±11.16. On applying chi- square test association is considered to be statistically significant.

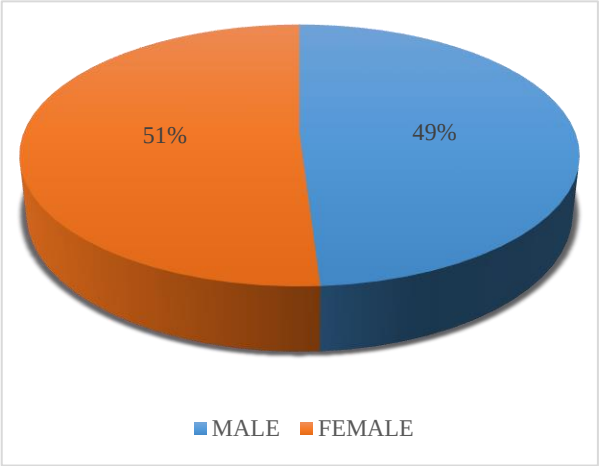

Figure 1: Gender wise distribution of all 100 patients.

Table 1: Clinico-epidemiological profile of all patients enrolled in the study.

Clinico-epidemiological profile	No. of patients with ETCL, n=9	Percentage	No. of patients without ETCL, n=91	Percentage
Gender	**Group A**		**Group B**	
Male	2	22.22222	47	51.64835
Female	7	77.77778	44	48.35165
Total	9	100	91	100
Age (years)				
10-30	6	66.66667	57	62.63736
31-40	0	0	27	29.67033
41-50	2	22.22222	20	21.97802
Total	9	100	91	100

Continued.

Clinico-epidemiological profile	No. of patients with ETCL, n=9	Percentage	No. of patients without ETCL, n=91	Percentage
Socioeconomic status				
Upper + upper middle + middle	1+1+2=4	45.55	2+4+15=21	78.02198
Lower-middle + lower	2+3=5	55.55	11+59=70	21.97802
Geographical distribution				
Rural	6	66.66667	60	65.93407
Urban	3	33.33333	31	34.06593
Symptoms				
Cough >2 weeks	7	77.77778	73	80.21978
Fever	8	88.88889	61	67.03297
Weight loss	6	66.66667	61	67.03297
Dec. appetite	5	55.55556	63	69.23077
Neck swelling	9	100	0	0
TLC				
<4000	1	11.11111	2	2.197802
4000-11000	3	33.33333	57	62.63736
>11000	5	55.55556	32	35.16484
Value of ESR				
<10 mm 1 hr	0	0	10	10.98901
>10 mm 1 hr	9	100	81	89.01099
Sputum for AFB		0		0
Positive	1	11.11111	57	62.63736
Negative	8	88.88889	34	37.36264
Mantoux test				
Positive	6	66.66667	71	78.02198
Negative	3	33.33333	20	21.97802
Chest X-ray				
Positive	6	66.66667	57	62.63736
Negative	3	33.33333	34	37.36264

Among all patients with ETCL, 6 (66.66%) cases with discrete ETCL, matted ETCL were noted in 3 (33.33%) cases. None of them presented with fixed nodes or sinus according to the present study. One (1.72%) patient with ETCL had positive sputum for AFB and 4 patients had positive CBNAAT test for AFB, while 57 (98.28%) those without ETCL had positive sputum test for AFB.

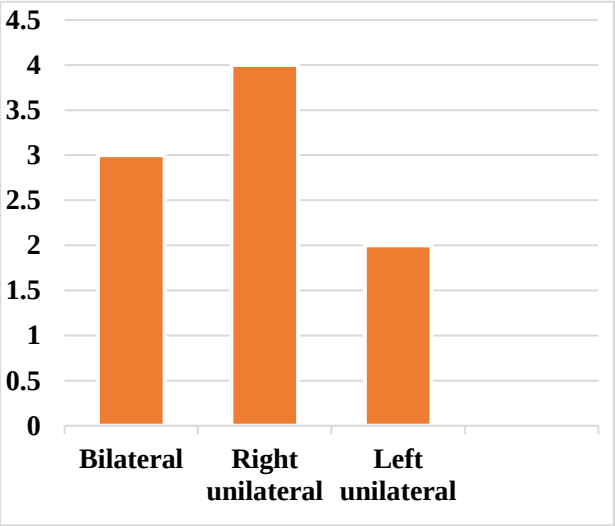

Figure 2: Side distribution of cervical lymph nodes in study subject.

Table 2: Side distribution of cervical lymph nodes in study subject.

Side of ETCL on palpation	No. of subjects	Percentage
Bilateral	3	33.33
Right unilateral	4	44.44
Left unilateral	2	22.22

DISCUSSION

Today in developing countries TB is a major health problem. TB which mainly involves the lungs can also cause infection in almost all other organs and tissues in the body. In high prevalence areas such as India, the LNT incidence is second to that of TB pleuritis. CTL is the result of lympho-hematogenous spread of pulmonary TB. In our study, patients with cervical lymphadenopathy are maximum between 10-30 years of age and mean age and std. deviation was 28.07±11.13. In our study we also found that right unilateral 44.44%, discrete (66.66%) cervical lymphadenopathy was more common. It was more common in females and rural population (66 cases) where poverty, overcrowding, illiteracy, ignorance, poor hygiene, poor ventilation, malnutrition and lack of medical facilities i.e., in lower socioeconomic status have been suggested as a basis for widespread prevalence of TB with or without cervical lymphadenopathy. Thus, in

our study population from lower socioeconomic status were found more vulnerable to ETCL. In our study patients with cervical lymphadenopathy (n=4) patients had previous treatment history of pulmonary TB. We found that patients with cervical lymphadenopathy had most common complaint of neck swelling (9 cases) and second most common was fever (8 cases). In our study we found that all patients with cervical lymphadenopathy had positive investigation finding by FNAC investigation so we considered this test as a confirmatory test for diagnosis. In our study all patients with cervical lymphadenopathy had raised ESR and (n=5) cases had raised TLC count. One patient had positive sputum test for AFB and rest of the patient came positive by CBNAAT sputum test that means CBNAAT is more sensitive as compared to smear sputum test for AFB. Most of the patients (n=6) had positive Mantoux test and finding of TB on chest radiograph (posterior to anterior view).

Shikhani et al studied that (n=645) patients with TB were out of which twenty-nine (4.5%), of these patients had proven mycobacterial cervical lymphadenitis.[3] In our study higher result was found compared to this study. In Guler et al study percentage was 12% out of 427 patients.[4]

Ueda et al found 23 patients with tuberculous lymphadenitis out of 207 patients with TB.[5] Their ages ranged from 18 to 99 years (mean, 45.7 years), and the male-to-female ratio was 7:16. The most common complaint were cervical mass and fever. This study was similar to our study, we also found the female predominance and male to female ratio was 2:7.

Khan et al conducted study on 1,548 TB cases, 109 (7.0%) patients had TB lymphadenitis.[6] The mean age was 36.4±12.87 years and of the 109 patients with TB lymphadenitis, 35 (33.0%), 37 (34.0%) and 36 (33.0%) were observed for 2006, 2007 and 2008, respectively. Cough and fever were the most frequently reported symptoms. In a majority of cases (n=90, 82.5%) positive results were obtained for fine-needle aspiration (FNA). This study nearly similar to our study.

Garca et al found 21 cases were identified with lymph node TB.[7] 13 patients were female (61.9%), 8 (38.1%) were male and mean age was 41±21 years. The female to male ratio of lymph node TB cases was 1.625 (13:8). The most common complaint was palpable mass on neck. Only 2 cases have contact history with TB cases (9.5%) and two cases had a history of pulmonary TB (9.5%). This study nearly similar to our study.

Shah et al conducted study on 1582 children with TB, 63 (4%) had tuberculous cervical lymphadenopathy. Twenty-nine (46%) patients had bilateral lymphadenopathy, 17 (27%) each had left-sided and right-sided nodes.[8] Fifteen (23.8%) patients had TB in the past, of which 7 (46.7%) had previous cervical lymphadenopathy, 6 (40%) had pulmonary TB, 1 (6.7%) multifocal lymphadenopathy and 1 (6.7%) disseminated TB. Contact with a TB patient had occurred in 25 (39.7%) cases. This study not similar to our study about the result of unilateral and bilateral involvement of lymph node.

Mathiasen et al found that total 13.5% (n=489) of all TB patients in Denmark had TBLA with annual proportions from 9.4 to 15.7%. Most patients were immigrants between 25-44 years.[9]

Limitation

The study conducted in small population it required large population for better result assessment statistically.

CONCLUSION

There is high probability of extra-pulmonary tubercular cervical lymphadenitis in patients with pulmonary TB in India. Involvement of cervical lymph nodes are the most commonly affected group of nodes and hence, it is important that ENT doctors should have a high index of suspicion towards TB in the head and neck region.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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