A MORPHOLOGICAL STUDY OF TUBERCULOUS LYMPHADENOPATHY

Niaz Mohammad Sulaiman Khail, Naseer Ahmad Chaudhry, Raza Malik, Rakhshindah Bajwa, Saeed Akhtar and Jamil Ahmad

Department of Pathology,
Bolan Medical College, Quetta,
Postgraduate Medical Institute, Lahore
and PMRC, Islamabad and Lahore.

SUMMARY

Two hundred patients with lymphadenopathy were screened and one hundred and one patients with tuberculous lymphadenopathy were studied. Their ages ranged from 2-70 years. Maximum numbers of cases were in age groups 10-29 years. Females (69.31%) were more affected than males (30.69%). The common presenting symptoms was fever. Out of 101 patients 83 had affected cervical lymph nodes, 7 had axillary lymph nodes and 11 had multiple sites of lymph node involvement. Fluorescent staining of histopathological sections from 103 chronic granulomatous lymphadenitis gave positive results in 76 out of 103 (73.78%) cases, however Ziehl-Neelsen staining was positive only in 29 out of 103 (28.15%) cases. The yield of mycobacteria on fluorescent staining was highly significant (p<0.001) as compared to Ziehl-Neelsen staining thereby providing the superiority of fluorescent stain.

INTRODUCTION

Tuberculosis is a leading cause of morbidity and mortality not only in developing countries but also in developed countries due to emergence of human immunodeficiency virus infection.[2] Peripheral tuberculous lymphadenopathy is the commonest form of extrapulmonary tuberculosis.[1,2,3,4]

Histological diagnosis of tuberculosis had to be differentiated from simulating granu-lomatous lesions of lymph nodes caused by other microbial infections. Bacteriological proof for tuberculosis is always beneficial for making a firm diagnosis either by demonstrating acid-fast bacilli in smear, section or by culture to distinguish it from other granulomatous lesions.[11] In a review of 23 cases of abdominal tuberculosis in Pakistan Institute of Medical Sciences Islamabad, mesenteric lymphadenitis was present in 5(22%) out of 23 cases.[8] In another study done in Karachi and Hyderabad during 1971-1991, 133 patients of abdomi-

COMPARISON OF FLUORESCENT (AURAMINE-RHODAMINE) STAINING IN CASES OF CHRONIC GRANULOMATOUS LYMPHADENOPATHY

Histopathological findings	Fluorescent positive	Fluorescent negative	No. of cases
Caseous granulomatous Lymphadenitis	61	19	80
Non-caseous granulomatous Lymphadenitis	15	08	23
Total	76	27	103

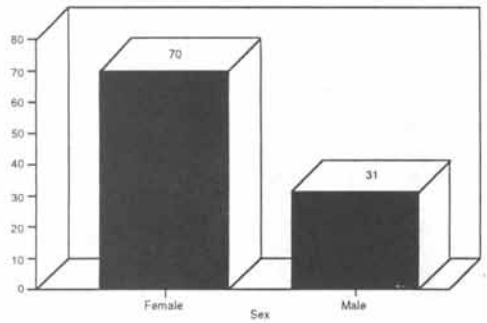
P = Not significant TABLE – 1

nal tuberculosis were confirmed histologically. At operation, mesenteric lymphadenitis was found in 50 (38%) patients.[8] Sarfaraz[9] studied 200 resected intestinal specimen at Postgraduate Medical Institute Lahore, 51 out of 200 cases presented with tuberculous mesenteric lymphadenitis.

MATERIAL AND METHODS

The present study involved 101 patients with tuberculous lymphadenopathy from various hospitals of Lahore. They were drawn from a total of 200 patients with lymphadenopathy over this period. Patients of all ages and both sexes were included in study. The specimens of the lymph nodes were collected irrespective of any specific sites for morphological study. Clinical information regarding history, physical examination and relevant investigations were obtained from the patients and doctor incharge. After a detailed gross examination of each specimen and tissue processing, all the sections were stained with Haemotoxylin and Eosin (H&E) and reticulin stains. Whereas granulomatous lesions were stained with Ziehl-Neelsen, Auramine-Rhodamine, periodic acid-schiff, whereas methenamine silver and Giemsa stains were used when required. In non-granulomatous lesions, Gram stain, Congo red and phyloxin-tartrazine stains were used.

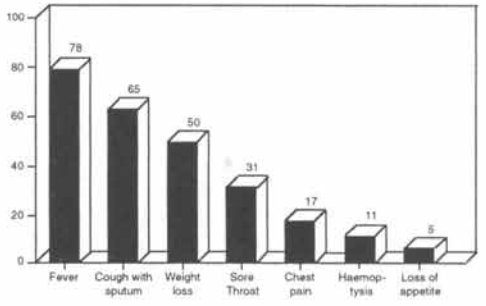
Fig. 1: DISTRIBUTION SEX IN CASES OF TUBERCULOUS LYMPHADENOPATHY



RESULTS

Tuberculosis was the commonest cause of the lymph node enlargement, accounting for 50.5% of such cases in our practice. The total number of our patients with tuberculous lymphadenopathy WQS 101. Other causes of lymphadenopathy were chronic non specific lymphadenitis (n=87) viral lymphadenitis (n=8), fungal lymphadenitis (n=2) and acute bacterial lymphadenitis (n=2). Fluorescent staining of histopathological sections from 103 chronic granulomatous lymphadenitis gave positive results in 76 out of 103 (73.78%) cases (Table-1), however Ziehl-Neelsen staining was positive only in 29 out of 103 (28.15%) cases (Table-2).

Fig. 2: PRESENTING COMPLAINTS OF THE PATIENTS IN CASES OF TUBERCULOUS LYMPHADENOPATHY



COMPARISON OF ZIEHL-NEELSEN STAINING IN CASES OF CHRONIC GRANULOMATOUS LYMPHADENOPATHY

Histopathological findings	Ziehl-Neelsen positive	Ziehl-Neelsen negative	No. of cases
Caseous granulomatous Lymphadenitis	20	60	80
Non-caseous granulomatous Lymphadenitis	09	14	23
Total	29	74	103

P = Not significant

TABLE – 2

In 101 cases, the findings were consistent with the diagnosis of tuberculous lymphadenopathy. In our study, significantly greater number of cases, 78 out of 101 (P<0.001) diagnosed as tuberculous lymphadenitis were in age groups 10-29 years (Table-3). Female (69.31%) were more affected than males (30.69%) Fig-I. The common presenting symptom was fever (Fig-II). Cervical lymph nodes were commonest site of biopsy (Table-4) Haemoglobin estimation revealed anaemia in 65 out of 101 (66.32%) patients of tuberculous lymphadenopathy. Erythrocyte sedimentation rate was performed in 63 cases and was raised in 52 (82.53%) cases. In a total of 80 cases in whom X-ray chest was performed, 14 (15.5%) cases revealed foci of tuberculosis (Fig-III).

DISTRIBUTION OF AGE IN CASES OF TUBERCULOUS LYMPHADENOPATHY

Age (years)	No. of cases	Percentage
0–9	07	6.93
10–29	78*	77.23
30 and above	16	15.84
Total	101	100.0

*P <0.001

TABLE – 3

SITE OF LYMPH NODE BIOPSY IN CASES OF TUBERCULOUS LYMPHADENOPATHY

Site of biopsy	No. of cases	Percentage
Cervical	83	82.18
Axillary	07	6.93
Submandibular	04	3.96
Inguinal	02	1.98
Mediastinal	02	1.98
Mesenteric	01	0.99
Anterior chest	01	0.99
Pre-auricular	01	0.99
Total	101	100.00

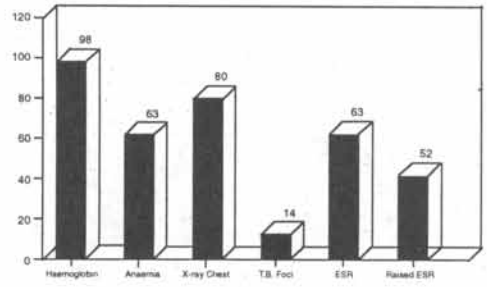
TABLE – 4

DISCUSSION

In a study of 150 cases of myocbacterial lymphadenitis, 22 patients (14%) had Mycobacterium tuberculosis and 131 patients (86%) had non tuberculous Mycobacterial disease.[5] A prospective evaluation of 80 patients of peripheral lymphadenopathy presenting in the General surgical outdoor of Mayo Hospital Lahore over a period of one year (1990-1991) showed tuberculosis in 43 (54%), non specific reactive hyperplasia in 16(20%) and acute lymphadenitis 4(5%) cases.[6]

A retrospective analysis of 22 patients of primary tuberculosis in the last six years in ENT department of Sir Ganga Ram

Fig. 3: INVESTIGATION OF PATIENTS IN CASES TUBERCULOUS LYMPHADENOPATHY



Hospital, Lahore, was conducted to illustrate the various modes of clinical presentation. It was evaluated that out of 22 patients, tuberculous cervical lymph node (31.83%) was the commonest affected site.[10]

Tuberculous lymphadenopathy is the commonest cause of extrapulmonary tuberculosis in Pakistan and India.[1,6] In the present study, granulomatous lesions 103 out of 200 cases (51.5%) were the commonest. The same were the findings of Krishnaswami et al[11] and Dandapat et al.[1] Fluorescent staining of histopathological sections from 103 chronic granulomatous lymphadenitis gave positive results in 76 out 103 (73.78%) cases, however Ziehl-Neelsen staining was positive only in 29 out of 103 (28.15%) cases. There was no significant difference in the yield of mycobacteria on both Ziehl-Neelsen and fluorescent stain in caseous granulomatous lesions versus non-caseating granulomatous lesions. However, the yield of mycobacteria on fluorescent staining was highly significant ($P<0.001$) as compared to Ziehl-Neelsen staining, thereby proving the superiority of fluorescent stain. In our study Mycobacteria on Ziehl-Neelsen staining was positive only in 29 out of 103 (28.15%) cases. Different studies quote frequency of demonstration of Mycobacteria on Ziehl-Neelsen staining varying from 16.27% to 37.5%.[13,14]

Maximum number of cases of tuberculous lymphadenitis in the present study were of 10-29 years ago group. Ahmad[6] also reported the same age group from Lahore. The commonest age group of tuberculous lymphadenitis in India was 21-30 years.[1,11] In Saudi Arabia, maximum number of cases were seen at the age of 40 years.[15] In Unites States of America the reported age group was 20-70 years.[3,16] An other study from the United States of America, the median age group was 58 years in male and 49 years in female.[17] According to them the discrepancy may be at least in part due to high prevalence and better recognition of the disease in Indian subcontinent leading to early diagnosis. In the rest of the world doctor's being unfamiliar with the disease, take much longer time to reach a diangosis.[9] Most cases of granulomatous lymphadenitis in children in developed countries are caused by atypical Mycobacteria rather than Mycobacterium tuberculosis.[18]

In the present study, female out numbered the male as has been found by others.[1,6,11] However few reported showed male preponderance.[14,15] This could be due to the fact that the female in our male dominated society have a low nutritional status and are exposed to over crowding more than males.[1,6] In the present study, out of 101 cases of tuberculous lymphadenitis, in 80 (79.2%) cases X-ray chest was performed, out of these 80 cases 14 revealed foci of tuberculosis. Our findings are in accordance with those of Ahmed[6] who reported tuberculous lesions on X-ray chest in only 3 out of 43 patients. Our findings are further supported by those of Saeed[10] who reported radiographic healed pulmonary tuberculosis in 3 out of 22 patients, thereby showing lack of trend of investigations on part of the clinicians and consolidating the fact that X- ray chest has very limited value in cases of tuberculous lymphadenitis. It is further suggested that a normal chest radiographic findings does not rule out the possibility of patients suffering from tuberculous lymphadenitis. The predominance of cervical lymph nodes involvement in tuberculosis has also been established.[1,3,6,19] In our study a large majority of the lymph nodes examined were from the neck and of these 83 out of 101 (82.18%) cases showed lesions histologically consistent with tuberculosis. It has been suggested that the preponderance of cervical lymph node tuberculosis could be due to infectia of the tonsils, adenoids and Waldayers ring, providing any easy portal of entry for

mycobacterium secondary to inhalation and deposition of Mycobacterium tuberculosis in the pharyngeal wall leading to deep cervical lymph node involvement.[1] Dandapat et al[1] studies lymph node biopsies in 80 patients with tuberculous lymphadenopathy, reported 64 out of 80 (80%) cases as caseating granuloma, out of these 80 cases 52(65%) were positive for mycobacteria on culture, negative culture therefore does not exclude the diagnosis as all enlarged lymph nodes do not contains live acid-fact bacilli. These findings indicate that caseation in lymph nodes is a characteristic of tuberculosis and is an important criterion for diagnosis of tuberculous lymphadenitis.[11]

Thus it is concluded that tuberculosis is an important cause of cervical lymphadenopathy and cervical lymph node biopsies should be sent for histological as well as for microbiological examination.

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