

Research Article

Frequency of tuberculous lymphadenitis in different socioeconomic status

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ABSTRACT:

Objective: To observe the frequency of tuberculous lymphadenitis amongst the different socioeconomic populations of the city of Karachi, Pakistan.

Methodology: This research article is a prospective, descriptive study, conducted in different hospitals of Karachi including Civil Hospital Karachi (CHK), Fauji Foundation Hospital (FFH) and Trauma and General Hospital (TGH), from July 2012 to June 2014. All adult patients coming with peripheral lymphadenopathy were included in the study.

Results: Our study included 174 patients with an age range of 15-78 years. Out of 174 patients, 55.17% (n=96) were diagnosed with tuberculosis while 44.82% (n=78) had some other cause of lymphadenitis. The age range among tuberculous patients was 15-48 years with a female preponderance (68.75%). Tuberculosis was diagnosed among 92 patients with cervical lymphadenopathy. In comparing the socioeconomic status of the patients included in the study, 38.5% belongs to the poor class.

Conclusion: This study concluded that tuberculosis is the commonest cause of cervical lymphadenopathy and it is more common amongst the female population of Karachi. People from lower socioeconomic group are more prone to develop tuberculosis.

Keywords: Tuberculosis, peripheral lymphadenopathy, cervical lymph nodes, Karachi

INTRODUCTION:

Tuberculosis is a chronic bacterial disease caused usually by the bacteria mycobacterium tuberculosis. It remains a major public health challenge worldwide with approximately 1/3rd of world's population likely infected with statistical data predominating in the developing countries.¹ In 1993 World Health Organization had declared tuberculosis as a global emergency.² In Pakistan, the incidence of tuberculosis is estimated to be 181 per 100,000 populations (0.18%) with a yearly incidence of 286000 new cases.³ Although

pulmonary tuberculosis is the commonest form of presentation, extra pulmonary tuberculosis remains an important clinical entity. The incidence of extra pulmonary tuberculosis has been increasing at a much faster rate than pulmonary tuberculosis since 1984.⁴ Extra pulmonary tuberculosis constitutes about 15-20% of all cases of tuberculosis,⁵ and lymphadenopathy is a presenting symptom in about 30-40% of cases in developed countries.⁶ Tuberculosis is responsible for up to 43% of the total cases of

peripheral lymphadenopathy in the developing world.⁷ In one study done in a pediatric rural population the numbers were as high as 4.4 cases per 1000.⁸ As is in other regions of Asia, tuberculous lymphadenitis is very common in Pakistan, ranking 8th among the 22 higher incidence countries and 1st in the Eastern Mediterranean region as stated by WHO.⁹

Tuberculous lymphadenitis presents as an enlarging, painless mass in the lymphatic area. Occasionally, this may be complicated by the formation of an abscess which may progress and form a sinus. Cervical lymphatic tissue is the commonest site of involvement. Despite the decrease in number of cases of pulmonary tuberculosis in the developed nations; the incidence of tuberculosis presenting as cervical infections has remained unaffected.¹⁰ One study done in Khyber Pukhtoonkhaw in 2011 demonstrated tuberculous lymphadenopathy in 39% of diagnosed cases.¹¹ Other studies conducted within the same region demonstrated cervical lymphadenopathy as the commonest presentation of tuberculosis to healthcare professionals.^{12,13}

Over the last years, reported cases of cervical lymphadenitis secondary to tuberculosis has been increasing amongst all reported tuberculous cases.¹³

Therefore, the aim of this study was to observe the pattern of lymph node involvement within different socio economic groups in the city of Karachi, Pakistan and to compare its incidence to the incidence of tuberculosis within this population and other parts of the world. A literature review is also provided.

Methodology:

Our study was a prospective, descriptive study done in three different hospitals of Karachi covering different socioeconomic groups. The

main hospital was Civil Hospital Karachi (CHK) where mainly people of lower or middle class consulted. The other two hospitals were Fauji Foundation Hospital (FFH) and Trauma and General Hospital (TGH) which covers mainly middle and upper middle class respectively. This study was done during the period of July 2012 to June 2014. All patients coming with lymphadenopathy were included in the study with an age range of 15 to 80 years. All patients were subjected to have CBC, ESR, CRP, LFT'S, Chest X-ray, abdominal Ultrasound and lymph node biopsy of peripheral lymph node. Isolated abdominal or hilar lymphnodes were excluded from the study. Prior permission was taken from the patients and Hospital managements. The result was analyzed by SPSS version 16.

Result:

Total 174 patients were included in the study from three different hospitals,(table 1) with an age range of 15-78 years with mean of 35.03 ±17.127. Among them 102 (55.4%) were females. Out of 174 patients 96 (52.5%) had tuberculosis,(table 1) and 78(42.4%) had other different illnesses.(table2) The age range among tuberculous patient was 15-48 years with mean of 24.47±7.357. Out of 78, 14.1% had reactive lymphadenopathy involving different groups of lymph node. One female patient had rare illness like kukichi's who came from Saudi Arabia, and 2 patients had HIV. Among 133 patients who had cervical lymphadenopathy 69.17% had tuberculosis. (table2) Out of 96 tuberculous patients, 38.5% belongs to poor class while only 10.4% belongs to upper class. (table 3) Fifty three out of 96 were females among tuberculous patients.

Table 1

No of patients from each hospital n=174

	CHK	FFH	TGH
Total no patients	92	50	32
Patients with tuberculosis	47	36	13

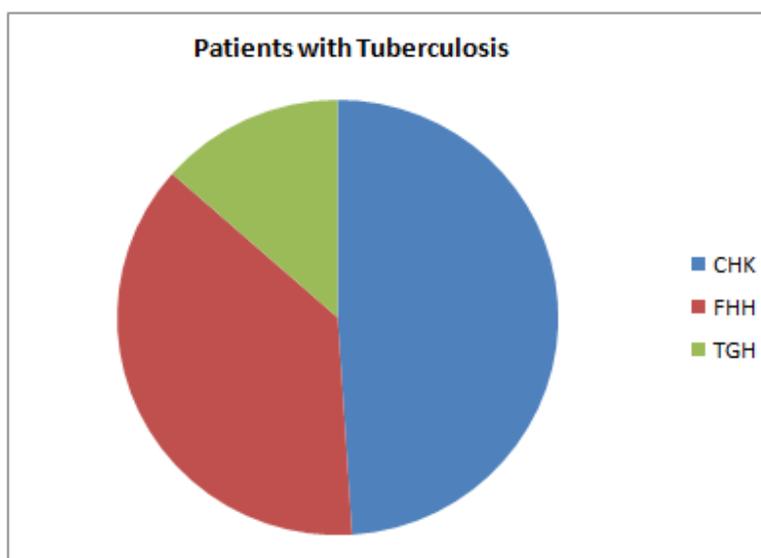


Table 2: Categorization of illness and sites of lymphadenopathy. n=174

Disease	Lymph node					Total
	Cervical	Axillary	Abdominal	Inguinal	Hilar	
Tuberculosis	92	6	11	0	1	96
Lymphoma	22	2	10	0	0	23
Leukemia	12	6	3	0	0	12
Breast CA with metastasis	0	16	0	0	0	16
Sarcoidosis	0	0	0	0	6	6
Metastatic disease	4	3	1	0	5	8
Reactive lymphadenopathy	2	5	0	4	0	11
Others	2	0	1	0	0	3

Table 3: Site of lymph nodes involvement according to socioeconomic status

Lymph nodes	Socioeconomic Status				Total
	Lower class	Middle class	Upper middle class	Upper class	
Cervical	54	41	25	13	133
Axillary	17	6	5	10	38
Abdominal	8	8	7	3	26
Inguinal	2	1	1	0	4
Hilar	4	2	2	4	12
Tuberculosis	57	29	20	10	96

DISCUSSION:

Peripheral lymphadenopathy without an obvious cause after the history and physical examination presents a diagnostic dilemma. Lymphadenopathy can be caused by a vast array of diseases and drugs, and tuberculosis stands high on the list of differential diagnosis when a person has enlarged lymph node, and especially in the developing countries. In developed countries most cases of tuberculous lymphadenitis is seen in immigrants from endemic countries.¹⁵ It was illustrated in

different studies done in France and Germany in whom 70% and 75% respectively had tuberculous lymphadenitis.¹⁵ One study done in USA showing the same pattern in immigrants from Asia Pacific Islanders and it was mostly in females.⁷In this study the same pattern of female preponderance is seen, which is also highlighting in different studies from Pakistan,^{12,16} Turkey¹⁷ and Ethiopia.¹⁸ The prepotency of tuberculosis in females of this society is probably due to joint family system and supremacy of males. It is a common practice in

our society that they take their meals after male members of the family and this further increase in malnutrition.

In most studies it is seen that tuberculous lymphadenitis is more common between 15-50 years,¹⁹ as seen in our study as well. One study done in USA among South Asians living in United States showing involvement of lymph nodes between 15-44 years and less often among patients below 15 years or above 44 years.²⁰ This pattern is also seen in various studies done before showing either reactive lymphadenitis²¹ or atypical mycobacteria²² as a major etiological cause in children while tuberculosis is mainly seen in adults. Most of the patients in our study also belong to age group 15-48 years with the maximum in second decade.

This study also emphasizes the presence of tuberculosis in different socioeconomic groups. As in different studies done in different parts of the world, it was more common in lower socioeconomic group.²³ The cause is probably the same in each study including small homes, lack of food and hygiene. Although this pattern was negated in one study done in KPK-Pakistan, where the tuberculous lymphadenitis was more commonly seen in upper class.¹³

In our study, the complaints of the patients other than lymphadenopathy were fever (100%), weight loss (78.4%), abdominal pain (15.63%), discharging sinus (3.12%), and hemoptysis (1.04%). Cervical lymph node was present in 92 (95.83%) patients while isolated axillary lymphadenopathy was seen in 4 (4.16%) patients. Most of the studies done in developed and developing countries showing the same pattern of involvement of cervical lymph nodes mostly representing 63-77% of cases.²⁴ Oftentimes a unilateral mass appears in the anterior or post cervical triangle, bilateral disease is uncommon (up to 26% of cases).²⁵ We found the same pattern in our study as well, with the involvement of cervical lymph nodes in 92 patients out of 96. It was also seen in different studies done in Pakistan²⁶, or other part of the world.^{27, 28}

Although pulmonary tuberculosis is a universal disease, but extrapulmonary tuberculosis is not so uncommon as well and cervical lymph nodes dominates all other groups of lymph nodes. Tuberculosis is the commonest cause of cervical lymphadenopathy in younger age group, and it should be evaluated in every patient with granulomatous lymphadenitis until proven otherwise. In our study tuberculosis was the commonest cause among cervical lymphadenopathy, and was found in 92 patients and most of them were young females. The second most common cause of cervical lymphadenopathy in our study was lymphoma (22) followed by leukemia (12). Axillary lymphadenopathy was mostly seen in females with breast carcinoma with metastasis. Reactive lymphadenopathy was seen in 11 patients with involvement of axillary, inguinal and cervical lymph nodes. The size of the lymph node also varies with the cause. It is seen that reactive lymphadenopathy is usually less than 1 cm while tuberculous lymphadenitis is greater than 1 cm^{21,29}, and it is also proven in our study.

Conflict of interest:None

CONCLUSION:

In conclusion, pulmonary tuberculosis remains a global public health challenge, and extra pulmonary tuberculosis presenting in the form of cervical lymphadenitis is now a common phenomenon. Tuberculous lymphadenitis remains of the commonest cause of lymph node enlargement and it is predominantly seen in lower socio economic status. Tissue biopsies remain the gold standard for the definitive diagnosis, and should be considered as early as possible to curb disease related morbidity and mortality. Public education regarding the initial symptoms of pulmonary tuberculosis and extra-pulmonary tuberculosis such as cervical lymphadenitis are essential for the general population as well as the primary health care physicians to initiate early management and to prevent its spread amongst healthy individuals.

REFERENCES:

1. Elzinga G, Raviglione MC. Scaleup: meeting targets in global tuberculosis control. *Lancet* 2004; 363: 814-9
2. Chetri AK, Saha A, Verma SC, Palian S, Mishra P. A study of adverse drug reactions caused by first line anti tuberculous drugs used in directly observed treatment, short course therapy in Western Nepal, Pokhara. *J PMA* 2008; 19: 531-5
3. Afzal S, Qayum I, Ahmed I, Kundi S. Clinical diagnostic criteria for suspected ileocecal tuberculosis. *J Ayub Med Coll* 2006; 18: 42-6
4. Khan JS, Latif Z, Hassan H, Khan JA, Ahmed B, Khalid N. Tuberculous lymphadenitis as a cause of cervical lymphadenopathy. *J Rawal Med Coll* 2003; 7: 36-8
5. Golden PM, Vikram RH. Extrapulmonary tuberculosis overview. *Am Fam Phys* 2005; 1761-8
6. Petto HM, Pratt RH, Harrington TA, et al. Epidemiology of extrapulmonary tuberculosis in the United States. 1993-2006. *Clin Infect Dis* 2009; 49:1350
7. Dandapat MC, Mishra BM, Dash SP, Kar PK. Peripheral lymph node tuberculosis: a review of 80 cases. *Br J Surg* 1990; 77:911
8. Narang P, Narang R, et al. Prevalence of tuberculous lymphadenitis in children in Wardha district, Maharashtra State, India. *Int J Tuberc Lung Dis* 2005; 9:188
9. Ahmed P, Anwar M, Khan B, Altaf C, Khalilullah. Role of isoniazid prophylaxis for tuberculosis in hemopoietic stem cell transplant recipients. *J PMA* 2005, 378-81
10. Nomani K, Kazi BM, Ahmed K, Karamat KA. Frequency of tuberculous cervical lymphadenitis detection at a single laboratory in Islamabad. *J Coll Phys Surg Pak* 2007; 17(7): 410-2
11. Maula F, Iqbal Z, Anwar K, Said M, et al. Histological pattern of lymph node biopsies taken in three teaching hospitals of Bannu (KPK). *Pak Jour of Chest Med*, 2012; April-June; 18(2): 3-6
12. Fazal-I-Wahid, Habib-Ur-Rahman, Ahmed I. Extrapulmonary tuberculosis in patients with cervical lymphadenopathy. *J PMA* 2013; Sept: 63(9): 1094-7
13. Khan N, Haq N, Islam Z, et al. Frequency of extrapulmonary tuberculosis in patients with cervical lymphadenopathy. *Pjmhsonline.com*
14. Farooq A, Ameen I. Comparison of FNAC vs excision biopsy for suspected tuberculous cervical lymphadenopathy. *Ann King Edward, Med Coll* 2003; 9: 216-8
15. Geldmacher H, Taube C, Kroeger C, et al. Assessment of lymph node tuberculosis in northern Germany: a clinical review. *Chest* 2002; 121-1177
16. Matiullah S, Ahmed Z, Yunus M, Mafani MS. Evaluation of tuberculosis cervical lymphadenopathy. *Pak J Surg* 2009; 25: 176-9
17. Tatar D, Senol G, Alkeptin S, Ebru Gunes E. Assessment of lymph node tuberculosis in two provinces in Turkey. *Jpn J Infect Dis* 2011; 64: 316-21
18. Daganachew M, Belete B, Eden W, Andachet A. Prevalence of tuberculous lymphadenitis in Gondar University Hospital, Northwest Ethiopia. *BMC Public Health* 2013, 13:435
19. Sheikh SM, Baloch I, Bhatti Y, Shah AA, Shaikh GS, Deenari RA. An audit of 200 cases of cervical lymphadenopathy. *Med Channel* 2010; 16: 85-87
20. Asghar RJ, Pratt RH, Kammerer JS, Navin TR. Tuberculosis in South Asians living in the United States, 1993-2004. *Arch Intern Med* 2008; 168(9): 936
21. Yaris N, Cakir M, Sozen E, Cobanoglu U. Analysis of children with peripheral lymphadenopathy. *Clin Pediatr (Phila)*. 2006; 45(6):544
22. Kwan K.L, Kurt D.S, Irene H.S, William R.M. Mycobacterial Cervical Lymphadenopathy Relation of Etiologic Agents to Age. *JAMA*. 1984; 251(10):1286-1288

23. Mohapatra PR, Jameja AK. Tuberculous lymphadenitis. *JAPI* 2009; 57: 585-90
24. Mert A, Tabak F, Ozaras R, et al. Tuberculous lymphadenopathy in adults: a review of 35 cases. *Acta Chir Beig* 2002; 102:118
25. Agaewal AK, Sethi A, Sethi D, et al. Tubercular cervical adenitis: clinicopathologic analysis of 180 cases. *J Otolaryngol Head Neck Surg* 2009; 38:521
26. Fatima S, Arshad S, Ahmed Z, Hassan SH. Spectrum of cytological findings in patients with neck lymphadenopathy- experience in a tertiary care hospital in Pakistan. *Asian Pac J Cancer Prev* 2011; 12(7): 1873-5
27. Tiwari M, Aryal G, Shrestha R, Rauniyar SK, Shrestha HG. Histopathological diagnosis of lymph node biopsies. *Nepal Med Coll J* 2007 Dec; 9(4): 259-61
28. Maharajan M, Hiranchans S, Kafle PK, Bista M, Shresta S, Toran KC, et al. Incidence of TB in enlarged neck nodes, our experience. *Kathmandu Univ Med J* 2009; 7: 54-8
29. Lakhany M, Bhatta CP, Mishra S. Diagnosis of tubercular lymphadenopathy by FNAC, Acid-fast staining and montoux test. *J Nepal Med Assoc* Jul-Sept 2009; 48(175): 230-33