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Discrepancies in Chest X-Ray among Patients with Tuberculous Cervical Lymphadenitis

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Abstract

Tuberculous cervical lymphadenitis is not an uncommon entity when it comes to otolaryngology practice and that too in Bangladesh. In tuberculous cervical lymphadenitis the bacilli may reach the neck nodes from the lungs as well, through circulation. This study was done in the department of ENT and Head Neck Surgery, Dhaka Medical College Hospital, Dhaka, from January 2012 to January 2013 and was designed to find out chest x-ray abnormalities in apparently chest asymptomatic confirmed tuberculous cervical lymphadenitis without associate disease. The diagnosis of tuberculous cervical lymphadenitis was confirmed by fine needle aspiration cytology (FNAC) and/or smear for acid-fast bacillus, and chest x-ray (PA view) was done in all confirmed cases (n=183).

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Normal chest x-ray was found in 132 cases (72.13%) and abnormal chest x-ray in 51 cases (27.87%). Pulmonary infiltration, the commonest radiological finding was detected in 32 cases (17.49%), hilar enlargement in 17 cases (9.29%), right paratracheal opacity in 2 (1.09%), obliteration of costophrenic angles in 3 cases (1.64%) and miliary mottling in one case (0.55%). Upper zonal predominance of lung parenchymal infiltrations was noted in 12.57% and right lung involvement in 16.39%. Single zone was affected in 9.84% cases and multiple zones were involved in 7.65% cases. We observed right hilar enlargement in 6.56%, left hilar lymphadenopathy in 4.37% and bilateral hilar lymphadenopathy in 2.73% cases. We concluded that routine chest x-ray PA view should be done in all tuberculous lymphadenitis before categorization and starting of treatment.

Keywords: *Chest x-ray, tuberculosis, cervical lymphadenitis;*

1. Introduction:

Lymphadenitis (especially cervical lymphadenitis) is the most common clinical manifestation of extra pulmonary mycobacterial infection [1]. It presents with single / multiple painless lump, mostly located in the posterior cervical or Supraclavicular region [2,3]. Multiplicity, matting and sinus formation are the hallmark of tuberculous lymphadenitis. Tuberculous lymphadenopathy is usually post primary and primary site is usually in the lung. It may be a manifestation of systemic tuberculosis (TB) including pulmonary TB or a unique clinical entity localized to neck. It can result from direct extension or haematogenous spread of infection [2]. Though cervical tuberculous lymphadenitis is common in Bangladesh, there is scarcity of report on lung involvement in tuberculous lymphadenitis, particularly as tuberculosis is very prevalent in Bangladesh. Our objectives of the study were to find out the chest x-ray (CXR) abnormalities in confirmed cases of tuberculous lymphadenitis, and to find out incidence of associate pulmonary TB.

2. Material and Methods:

This study was conducted in Dept of ENT and Head Neck Surgery, Dhaka Medical College Hospital, Dhaka, Bangladesh, a tertiary care hospital draining a large part of patients of the country. All adult patients attending the outpatient department, with confirmed cervical tuberculous lymphadenitis were taken in the study over a period of one year from January 2012 to January 2013. The diagnosis of tuberculous lymphadenitis was confirmed by fine needle aspiration cytology (FNAC) of lymph nodes and demonstration of acid-fast bacilli (AFB) or caseating epithelioid granuloma. Patients with lymphadenitis in other areas, apparent TB elsewhere or patients having associate medical, surgical or gynecological disease including HIV infection, diabetes, etc, were excluded from the study. Patients refused to give informed written consent were also excluded. All cases were subjected to detail history, clinical examination and routine blood and biochemistry including sputum examination for AFB. History taking included onset, duration and progression of symptoms, past history of anti-TB drugs, etc. CXR posterior anterior (PA) view was performed in each case. CXR findings were classified as normal; pulmonary infiltrate;

lymphadenopathy presented as hilar enlargement or paratracheal opacity; cavitations; and pleural effusion presented as obliteration of costophrenic angle. Pulmonary infiltrates were divided according to single or multiple zonal involvement; unilateral or bilateral infiltration; and isolated infiltration or complicated infiltration (with other abnormality).

3. Observations:

Out of 183 adult patients, 132(72.13%) were female and 51 (27.87%) male, and 2.59: 1 was the female to male ratio. Ninety-three patients (50.82%) were below the age of 30 years of age (Table 1). Single cervical lymph node enlargement was found in 74 cases (40.44%) and most of them were in posterior triangle. Multiple lymph node enlargements were noted in 109 cases (59.56%), and of them 51.38% were matted and 41.28% were non-matted. Sinus formation was found in 25 cases (13.66%). Lymphadenopathy was left sided in 71 cases (38.80%), right sided in 80 cases (43.72%) and bilateral in 32 cases (17.49%). FNAC of the gland showed caseating granuloma in 175 cases (95.63%). FNAC smears were positive for AFB in 57 cases (31.15%) and in 7 cases (3.83%) FNAC smear was positive for AFB in absence of caseating granuloma. In one case diagnosis was established by excision biopsy and histopathological examination.

Table 1: Age and Sex wise Distribution of Study Population (n=183)

Age in years	No of cases (%)		
	Male (n=51)	Female (n=132)	Total (n=183)
< 15	6 (3.28%)	24 (13.11%)	30 (16.39%)
>15 to 30	25 (13.66%)	68 (37.16%)	93 (50.82%)
>30 to 45	15 (8.20%)	32 (17.49%)	47 (25.68%)
>45 to 60	5 (2.73%)	6 (3.28%)	11 (6.01%)
>60	0	2 (1.09%)	02 (1.09%)
Total	51 (27.87%)	132 (72.13%)	183 (100%)

Normal CXR was found in 132 cases (72.13%) and abnormal CXR was found in 51 cases (27.87%) (Table 2). Pulmonary infiltration was the commonest radiological finding, and was found in 32 cases (17.49%); lymphadenopathy presented as hilar enlargement was found in 17 cases (9.29%) and right paratracheal opacity was found in 2 cases (1.09%) (Fig 1); cavities were found in 3 cases (1.64%) (Fig 2); pleural effusion presented as obliteration of costophrenic angle was found in 3 cases (1.64%); and miliary mottling was found in one case (0.55%). Distribution of lung infiltrations showed upper zonal prominence, found in 23 cases, followed by mid and lower zonal distributions in 14 and 13 cases respectively. Single zone involvement was found in 18 cases (9.84%), two zones were involved in 8 cases (4.37%) and three zones were involved in 6 (3.28%). Right lung was involved in 30 cases (16.39%), left lung was involved in 20 cases (10.93%) and both lungs were involved in 18 cases (9.83%). Complicated infiltration was noted in 5

cases (2.73%), and of them 3 had cavities, 1 had pleural effusion and 1 had miliary mottling. Right hilar lymphadenopathy was noted in 12 cases (6.56%), left hilar lymphadenopathy was noted in 8 cases (4.37%) and bilateral hilar lymphadenopathy was recorded in 5 cases (2.73%).

Table 2: Distribution of Cases according to Radiological Abnormalities in Chest X-ray (n=183)

Site and distribution in x-ray	<u>X-ray abnormalities (n=51; 27.87%)</u>				
	Lung infiltrate (n=32;17.49%)	Lymphadenopathy (n=19;10.38%)	Pleural effusion (n=3;1.64%)	Cavitations (n=3;1.64%)	Miliary mottling (n=1;0.55%)
Right lung (n=30; 98.75%):-					
Upper zone	17 (53.13%)	-	-	-	-
Mid zone	6 (18.75%)	-	-	-	-
Lower zone	7 (21.88%)	-	-	-	-
Left lung (n=20; 62.05%):-					
Upper zone	6 (18.75%)	-	-	-	-
Mid zone	8 (25.00%)	-	-	-	-
Lower zone	6 (18.75%)	-	-	-	-
Both lungs (n=18; 56.25%)	18 (56.25%)	-	-	-	-
Complicated infiltration (n=5; 2.73%)	5 (15.63%)	-	-	-	-
Lymphadenopathy (n=19; 10.38%): Hilar (n=17;					

89.47%)				
(i) Only right	-	10 (58.82%)	-	-
(ii) Only left	-	7 (41.18%)	-	-
(iii) Bilateral	-	5 (29.41%)	-	-
Paratracheal opacity (n=2; 10.53%)	-	2 (10.53%)	-	-
Pleural effusion (n=3; 1.64%)	-	-	3 (100%)	-
Cavitations (n=3; 1.64%)	-	-	-	3(100%)
Miliary mottling (n=1; 0.55%)	-	-	-	-
	3 (100%)			

4. Discussion:

The incidence of tuberculous cervical lymphadenitis is increasing in parallel with the increase in the incidence of TB worldwide, and Bangladesh being no exception to it. Cervical lymphadenitis is one of the commonest forms of extra pulmonary TB, where the primary site is usually in the lung. It may be a purely a localized disease or a manifestation of disseminated TB. Tuberculous cervical lymphadenitis is more common in female and found in younger age group. Multiplicity, matting and sinus formation are the hallmark of tuberculous lymphadenopathy, and fistula formation can be seen in almost 10% of mycobacterial cervical lymphadenitis [4]. Sinus and fistula formation is rare in atypical mycobacterial infection [5]. However, clinical differentiation between them may be misleading. Diagnosis TB cervical lymphadenitis is usually done by FNAC along with AFB smear of the aspirate. FNAC is sensitive, specific and cost-effective way to diagnose mycobacterial cervical lymphadenitis [6]. The sensitivity and specificity of FNAC in the diagnosis of tuberculous lymphadenopathy were found to be 88% and 96% respectively [7].

In the present study, the female to male ratio was 2.59:1, confirming tuberculous cervical lymphadenitis is

more common in females. The finding is consistent with other studies, though greater female predominance in this study might be due more female attendance in the OPD clinic. In patients with tuberculous cervical lymphadenitis, the abnormalities seen in CXR may be classified into parenchymal, hilar, mediastinal, paratracheal and pleural. In tuberculous cervical lymphadenopathy the CXR may reveal findings consistent with TB in 14-20% of the cases [8,9]. In the present study, normal CXR was found in 72.13% cases and abnormal CXR was noted in 27.87% patients. Some have reported normal CXR in 47.8% [10], parenchymal lesions in 23.2%, and thoracic lymphadenitis in 23.2% HIV negative patients with cervical tuberculous lymphadenitis. On the other hand, in a recent study 14% patients showed positive CXR findings suggestive of concurrent pulmonary TB [11]. Less CXR abnormalities noted in this study might be due to exclusion of active pulmonary TB and disseminated TB. We observed lung parenchymal infiltration as commonest form of CXR abnormality, occurring in 62.75% (32 out of 51) patients, and a predominance of upper zonal distribution of lung parenchymal infiltrations in 71.88% (23 out of 32) cases. Zonal distribution of lung infiltrations in tuberculous cervical lymphadenitis was not discussed in any of the previous studies, though it is well known that TB lung infiltration is common in upper zone.

This study confirmed the hypothesis that chest x-ray in apparently chest asymptomatic patients with cervical tuberculous lymphadenopathy might reveal abnormalities consistent with active pulmonary TB. According to prevalent protocol, there is no provision for CXR in extra pulmonary TB and sputum examination is done only for patients having cough, and that might underestimate the coincidence of pulmonary TB. Further study in this regard is necessary to prevent under-treatment in TB lymphadenopathy, especially in Bangladesh, having still many undiagnosed cases of tuberculosis. We hope; otolaryngologists play our part in the mission.

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