



Study of Cytomorphological Spectrum of Tuberculous Lymphadenitis And Correlation With Afb Positivity

KEYWORDS

Tuberculous Lymphadenitis, Fine needle aspiration

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ABSTRACT Background: Tubercular lymphadenitis is one of the most common causes of lymph node enlargement in developing countries. Fine needle aspiration cytology (FNAC) plays an important role in diagnosing Tubercular lymphadenitis and prevents unnecessary surgical intervention.

Objectives:

- To study cytomorphological appearances at FNAC suspected Tuberculous Lymphadenitis.
- To detect the presence of acid fast organisms of these aspirates using Ziehl Neelsen stain.
- To correlate the cytomorphological findings with Ziehl Neelsen staining

Materials and Methods: A prospective study was conducted on 180 patients clinically suspected to have tubercular lymphadenitis were subjected to fine needle aspiration cytology study of lymphnode between june 2013 to july 2014. Cytomorphological patterns were categorized into three patterns. Pattern A- Epithelioid granuloma without necrosis , Pattern B- Epithelioid granuloma with necrosis, PatternC- Caseation necrosis granuloma. These observations were correlated Ziehl Neelsen stain.

Results: 180 cases of peripheral lymphadenopathy involving cervical, axillary lymphnodes were subjected for FNAC, on clinical suspicion of tuberculosis. 120 cases show cytological features of Tuberculous lymphadenitis. Pattern and number of cases as follows PatternA:24 cases, Pattern B:55 cases, PatternC:41 cases. Positive ZN staining was seen 58/120(48.3%) of cases. The cytological patterns of AFB positive cases Pattern A: 5/24(20.3%), Pattern B: 25/55(45.8%), Pattern C: 28/41(68.2%).

Conclusion: Tuberculous Lymphadenitis is a common extra pulmonary manifestation of Mycobacterial tuberculosis infections. Fine needle aspiration cytology is a simple, cost effective, quick & safe out patient procedure and a reliable diagnostic tool for diagnosis of extra pulmonary tuberculosis when compared to surgical biopsy.

Introduction:

India accounts for one-fifth of the global incidence of tuberculosis (TB). Every year 1.98 million cases are reported from India as compared to global annual incidence of 9.4 million. Lymphadenitis is the most common extra pulmonary manifestation of TB. Tubercular lymphadenitis is seen in nearly 35% of extra pulmonary TB (Extra Pulmonary TB constitutes 15-20% of all cases of TB). Further in patients with human immunodeficiency virus (HIV) infection extra pulmonary TB constitutes almost 53-62% of TB.[1,2]

Numerous diagnostic methods such as fine needle aspiration cytology (FNAC), culture, polymerase chain reaction and histopathological examination of excised node have been advocated for confirmation of tubercular lymphadenitis. However, FNAC is a routinely done cytological technique in diagnosing tubercular lymphadenitis as it has sensitivity and specificity of 8896%. FNAC is economical and rapid as compared with culture studies (considered as gold standards but time consuming and require skill) and polymerase chain reaction (expensive, needs training).[2]

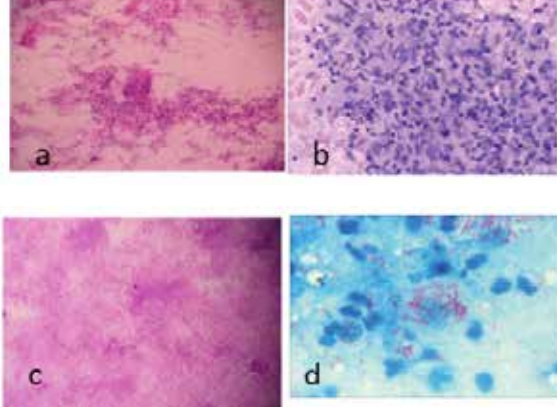
TB is very common in our country and tubercular lymphadenitis is the most common cause of chronic lymph nodes enlargement;[3] though the most reliable criteria for diagnosing tubercular lymphadenitis is a demonstration of acid fast bacilli (AFB) as demonstrated by Ziehl Neelsen (ZN) stain, auramine rhodamine stain and polymerase chain re-

action or culture of bacilli from aspirates. In spite of availability of above methods, in our population, with limited resources and high tubercular disease burden presence of epithelioid cell granuloma is considered as an evidence of tubercular lymphadenitis.[4,5]

Objectives:

- To study cytomorphological appearances at FNAC suspected Tuberculous Lymphadenitis.
- To detect the presence of acid fast organisms of these aspirates using Ziehl Neelsen stain.
- To correlate the cytomorphological findings with Ziehl Neelsen staining.

Materials and Methods: This study was carried out in department of pathology at our institute. A prospective study was conducted on 180 patients clinically suspected to have tubercular lymphadenitis were subjected to fine needle aspiration cytology study of lymphnode between june 2013 to july 2014. FNAC of enlarged lymphnode was performed with informed consent of a patient . detailed clinical history is noted. Palpable nodes are aspirated. Smears are stained with H&E. One slide was kept unstained in each case and Ziehl-Neelsen staining was performed. 120 cases show cytological features of granulomatous lymphadenitis. . Cytomorphological patterns were categorized into three patterns fig(1).



H and E stained smears showing (a) granuloma (Pattern A), (b) granuloma with necrosis (Pattern B),

(c) necrosis (Pattern C), (d) Ziehl Neelson stained smear showing acid fast bacilli arranged in clumps.

Results

Patient’s age ranged from 5 years to 70 years in 120 cases of tubercular lymphadenitis. Maximum numbers of cases were seen in the age group of 2130 years followed by 3140 years.

The sites of distribution of lymphadenopathy were as follows: Cervical lymph nodes – 97, Axillary nodes – 23.

Table 1 Correlation of cytomorphologic features with smear AFB positivity in histologically proved tuberculous lymphadenitis cases

Cytological category	No.	Smear positive (%)
Granuloma only	24	5 (20.3%)
Granuloma and necrosis	55	25 (45.8%)
Necrosis only	41	28 (68.2%)
Total	120	58

Table 1: Correlation of cytomorphologic features

Discussion

Lymphadenopathy is one of the common clinical presentations of various ongoing disease processes inside the body. FNAC is a simple and rapid diagnostic technique for evaluation of lymphadenopathy It was Dudgeon and Patrick in 1927 who first used FNAC in diagnosing TB lymphadenitis followed by Tempka and Kubiczek, Mahanta *et al.*[8] Maximum number of cases was in the age group of 2130 years followed by age group of 1120 years and 3140 years. In our study distribution of affected lymphnodes predominantly cervical followed by axillary nodes the results comparable with ahamed *et al* and Rajashekaran *et al.*, [10] We noticed a female preponderance of cases in our study. Similar findings have been described by Pamra *et al.*,[11]

AFB positivity was seen in 48.3% of cases. Varying AFB positivity has been described by many s authors ranging from 35.6% to 55.2%.[6,12

Comparisons of AFB positivity with study by Das *et al.*,[6] is represented in Table 2.

Table 2: Comparisons of AFB positivity with study by Das *et al.*

Authors	I (%)	II (%)	III (%)
Das <i>et al</i>	39	25.3	35.6
Our study	20.3	45.8	68.2

Conclusion

Tuberculous Lymphadenitis is a common extra pulmonary manifestation of Mycobacterial tuberculosis infections. Fine needle aspiration cytology is a simple, cost effective, quick & safe out patient procedure and a reliable diagnostic tool for diagnosis of extra pulmonary tuberculosis when compared to surgical biopsy. Maximum number of granulomatous lymphadenitis is seen in the age group of 2130 years with a decreasing trend in elderly. There was a female preponderance of cases.

References

- Sharma SK, Mohan A. Extrapulmonary tuberculosis. *Indian J Med Res* 2004;120:31653.
- Corbett EL, Watt CJ, Walker N, Maher D, Williams BG, Raviglione MC, et al. The growing burden of tuberculosis: Global trends and interactions with the HIV epidemic. *Arch Intern Med* 2003;163:100921.
- Laishram RS, Devi RKB, Konjengbam R, Devi RKT, Sharma LD. Aspiration cytology for the diagnosis of tuberculous lymphadenitis: A fiveyear study. *J Indian Acad Clin Med* 2010;11:315.
- Mohapatra PR, Janmeja AK. Tuberculous lymphadenitis. *J Assoc Physicians India* 2009;57:58590.
- Pandit AA, Khilnani PH, Prayag AS. Tuberculous lymphadenitis: Extended cytomorphologic features. *Diagn Cytopathol* 1995;12:237.
- Das DK, Pant JN, Chachra KL, Murthy NS, Satyanarayan L, Thankamma TC, et al. Tuberculous lymphadenitis: Correlation of cellular components and necrosis in lymphnode aspirate with A.F.B. positivity and bacillary count. *Indian J Pathol Microbiol* 1990;33:110.
- Kumar S, Ferns S, Sujatha S, Jatiya L. Acidfast staining patterns and their correlation with HIV positivity. *Acta Cytol* 2005;49:1112.
- Singh JP, Chaturvedi NK, Das A. Role of fine needle aspiration cytology in the diagnosis of tubercular lymphadenitis. *Indian J Pathol Microbiol* 1989;32:1004.
- Hemalatha A, Udaya Kumar M, Harendra KM. Fine needle aspiration cytology of lymph nodes: A mirror in the diagnosis of spectrum of lymph node lesions. *J Clin Biomed Sci* 2011;1:16472.
- Ahmad SS, Akhtar S, Akhtar K, Naseem S, Mansoor T, Khalil S. Incidence of tuberculosis from study of fine needle aspiration cytology in lymphadenopathy and acid fast staining. *Indian J Community Med* 2005;30:635.2005046.
- Rajashekaran S, Gunasekaran M, Jeyaganesh D, Bhanumathi V. Tubercular cervical lymphadenitis in AFB positive and negative patients. *Indian J Tuberc* 2001;48:2014.
- Parma SR, Baily GV, Gupta SP. Cervical lymphadenopathies *Indian J Tuberc* 1987;34 34: 96100