

1 Study of Cytological Pattern of Tubercular Lymphadenitis

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4 *Received: 8 December 2011 Accepted: 3 January 2012 Published: 16 January 2012*

5

6 **Abstract**

7 Background : Fine needle aspiration cytology is a diagnostic tool in which cells are extracted
8 from a palpable swelling using FNAC gun, syringe and fine needle. It is a simple, speedy, safe,
9 cost effective and accurate technique being used worldwide. Lymphadenopathy is one of the
10 common conditions encountered in clinical practice with varied etiological predispositions.

11 Aim : To know the cytological pattern of tubercular lymphadenitis of this region and
12 correlation with biopsy whenever possible. To evaluate the utility of fine needle aspiration
13 cytology of lymph nodes. Study Setting Design : This prospective study was conducted at
14 the department of Pathology, of a tertiary healthcare teaching center for a period of three
15 years from October 2000 to January 2003. Materials And Methods : 22 to 23 gauze needle
16 with 10ml disposable syringes were used. Minimum of three stains Hematoxylin Eosin (H E)
17 stain, MGG S stain and AFB stain were done. Wherever possible Gram stain was also done.

18 The cytological diagnoses were correlated whenever possible with histopathological
19 examination. Statistical Analysis : The data entry was carried out using Microsoft Office
20 Excel worksheet and was analyzed. Results : Cytological diagnosis of tubercular

21 lymphadenitis was made for 109 cases. The smears were divided into four groups. I.

22 Epithelioid cell clusters with or without Langhan's giant cells with necrotic material. II.

23 Epithelioid cell clusters with or without Langhan's giant cell, without necrosis. III.

24 Occasional epithelioid cell collection without typical necrosis giant cells. IV. Only necrotic
25 material, without epithelioid cell clusters or giant cells. The positivity was 16.67

26

27 **Index terms**— Cytological pattern, Lymphadenopathy, Tuberculosis and biopsy.
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29 needle aspiration cytology of lymph nodes.

30 Study Setting & Design : This prospective study was conducted at the department of Pathology, of a tertiary
31 healthcare teaching center for a period of three years from October 2000 to January 2003. Materials And Methods
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41 Occasional epithelioid cell collection without typical necrosis giant cells. IV.

42 Only necrotic material, without epithelioid cell clusters or giant cells. The positivity was 16.67%, 7.3%, 11.12%
43 and 50 % for group I, II, III and IV respectively.

44 **1 Conclusion : Fine needle aspiration cytology is an**

45 useful technique for evaluation of patients with lymphadenopathies, because of lack of complication and excellent
46 results. The present study is relatively sensitive and specific. Diagnostic accuracy can be further improved by
47 studying the cytological pattern of the tuberculosis, immunocytochemical stains and analysis male number of
48 cases along with histopathological correlation.

49 **2 INTRODUCTION**

50 lymphadenopathy is one of the common conditions encountered in clinical practice with varied etiological
51 predispositions.

52 it always poses a dilemma for the clinician. Lymphadenopathy is one of the major causes of morbidity particularly
53 in pediatric age group. Hence it is essential that a correct diagnosis is made as early as possible.

54 Fine needle aspiration cytology (FNAC) is a diagnostic tool in which cells are extracted from a palpable swelling
55 using FNAC gun, syringe and fine needle. It is a simple, speedy, safe, cost effective and accurate technique being
56 used worldwide.

57 Fine needle aspiration studies are being increasingly used for evaluation of lymphadenopathy.

58 lymph node FNAC can be performed routinely as a first approach to lymphadenopathies. The clinical value of
59 FNAC is not limited to neoplastic conditions, but also in diagnosis of inflammatory, infectious and degenerative
60 conditions. In most cases architectural distortion is minimal or absent, if biopsy becomes necessary. With
61 adequate cytological examination and follow-up, a large number of biopsies can be avoided. Ethical considerations:
62 The protocol for this study was approved from the Chairman, and the secretary, institutional ethical committee
63 (IEC). The approval was on the agreement that patient anonymity must be maintained, good laboratory practice/
64 quality control ensured, and that every finding would be treated with utmost confidentiality and for the purpose
65 of this research only. All work was performed according to the international guidelines for human experimentation
66 in biomedical research.

67 **3 II.**

68 **4 MATERIAL AND METHODS**

69 **5 Study**

70 **6 III.**

71 **7 RESULTS**

72 **8 Cytological**

73 diagnosis of tubercular lymphadenitis was made 109 cases. The smears were divided into four groups.

74 **9 I.**

75 Epithelioid cell clusters with or without Langhan's giant cells with necrotic material. II.

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79 Groups I and II together amounting 65.13% of cases. The group-I consisted of 30 patients, group-II consisted
80 of 41 patients. Group-III consisted of 18 patients while the remaining 20 patients belonged to group-IV.

81 AFB staining was done in all the cases. Group-I revealed AFB positively in 5 cases, group-II revealed AFB
82 positively in 3 cases. Group-III revealed AFB positively in 2 cases, while the group-IV revealed AFB positively in
83 10 cases.

84 Biopsy correlation was possible in only 6 of group-I, 10 of the group-II, 4 of the group-III and 5 of the
85 group-IV. Among group-I, II, and IV all biopsies diagnosed as tubercular lymphadenitis on histopathological
86 examination. In group-III, 2 cases were diagnosed as reactive lymphadenopathy and the remaining 2 cases as
87 tubercular lymphadenitis.

88 IV.

89 **10 DISCUSSION**

90 Tubercular lymphadenitis constituted commonest group of lymphadenopathies diagnosed by fine needle aspiration,
91 numbering 109 patients (36.33%) out of 300 patients of lymphadenopathy.

92 The results of our study were in accordance with many studies (The result was in accordance with many studies
93 17, 35. For the bacilli to be demonstrated in the smears, their number should be between 10,000 to 1,00,000 per
94 ml of the material. If the number is less than this bacilli may be detected in the smears 19. the presence of AFB
95 and its relation to immunological spectrum has been described by many authors. ??enzi and his colleagues (1977)
96 proposed a point spectrum, at one pole were reactive cases showing a good cell mediated response, comparatively

97 few bacteria and good response to treatment .At the other pole were unreactive cases, resembling leprematous
98 leprosy in showing numerous organisms in the apparent absence of all cell mediated immune response49.study by
99 meter et al and Das et al found that 64-66% and 77.4% AFB positivity rates respectively in smears containing
100 only necrotic material or pus.Biopsy correlation was possible in 25 patients. Which included 6 patients of group-I,
101 10 of Group-II.4 of Group-III and 5of Group-IV.Biopsy results of group I, II, and iv confirmed the cytological
102 diagnosis. Whereas biopsy of group-iii turned out to be reactive lymphadenopathy in two patients and remained
103 as tubercular lymphadenitis in other two patients. There were difficulties in arriving at a definitive diagnosis
104 in certain cases of tubercular lymphadenitis, when the aspirate shows a polymorphous picture with occasional
105 epithelioid cells and absence of typical Langhan's giant cells or caseous necrosis, making it necessary to resort
106 to excisional biopsy for definitive diagnosis. This is particularly true in children, in whom a similar picture may
107 be seen in cases of reactive lymphadenopathy due to viral or toxoplasma infection. Since the mere presence
108 of occasional epithelioid cells is not diagnostic of any specific condition 35.In the present study 18 cases faced
109 such difficulty. AFB was positive in only 2 cases. On biopsy examination 2 cases turned out to be reactive
110 lymphadenopathy.

111 V.

112 **11 CONCLUSION**

113 Fine needle aspiration cytology is an useful technique for evaluation of patients with lymphadenopathies, because
114 of lack of complication and excellent results. The present study is relative sensitive and specific. Diagnostic
115 accuracy can be further improved by studying the cytological pattern of the tuberculosis, immunocytochemical
stains and analysis male number of cases along with histopathological correlation. ¹



Figure 1:

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11 CONCLUSION

of 20 students revealed positivity in 10 patients.AFB positivity were maximum in the group with caseation only.(fig-2)

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39(35.26%),Bharadwaj K.et al17 (40.95%).Prasad 16(45.76%).But studied by Khan et al 48 and Das Gupta et al 17 conducted by Aligarh and Calcutta respectively showed high incidence of tuberculosis. This must be in accordance with incidence of tuberculosis in that area 17.

Cytological features of tubercular lymph node were divided in to 4 groups (table-1).ZN staining was done in all the cases.ZN staining done in group-1 consisted of 30 patients, revealed positive in 5 patients. Group-II (fig -1) consisted of 41 patients revealed AFB positivity in 3 patients. Group II consisted of 18 patients' revealed AFB positivity in 2 patients. Group-IV consisted

Figure 2: Table -

1

Figure 3: Table 1 :

2

Histopathological Diagnosis

Figure 4: Table 2 :