Research Article

Comparison of auramine-O stain with Ziehl Neelson stain in suspected cases of tubercular lymphadenitis

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Abstract

The objectives were to correlate the fluorescent method with the conventional Ziehl–Neelsen (ZN) method for the detection of acid-fast bacilli (AFB) and, also to study the efficacy and advantages of using the auramine–O stain on lymph node aspirates under fluorescent microscopy. 42 patients with a clinical suspicion of tuberculosis (TB) presenting with lymphadenopathy, fine needle aspirations were performed. Smears from the aspirates were processed for routine cytology, the conventional ZN method, and the fluorescent method. Out of 42 aspirates, The smear positivity by ZN was 26.2% (11/42) while positivity increases to 64.2% (27/42) cases with FT. Combined smear positivity with both the stains was 69.2% (29 /42) cases. Fluorescent microscopy has the advantage of speed and ease of screening, and reduces observer fatigue. The fluorescent method was found to be more advantageous than routine cytology and conventional ZN method, particularly in paucibacillary cases. The bacillary positivity rates were higher in the modified fluorescent method than in the ZN method.

Keywords: Ziehl–Neelsen, auramine–O, fluorescent microscopy, acid-fast bacilli.

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INTRODUCTION

Tuberculosis is a major public health problem in India and worldwide. Lymphadenopathy is the most common extra pulmonary manifestation of tuberculosis. Fine Needle Aspiration Cytology (FNAC) of lymph nodes can have varied cytomorphological features Even clinical parameters are neither specific nor their absence exclude tuberculosis. In developing country like ours the diagnosis of TB relies primarily on smear microscopy for Acid Fast Bacilli but its sensitivity is limited in paucibacillary cases. The aim of this study was to compare Auramine-O stain with the conventional ZN stain for the detection of Acid Fast Bacilli (AFB) in lymph node aspirates Also to correlate the results with routine cytology. This study was conducted in Father Muller Medical College, Mangalore and 42 cases were included in this study. Relevant Details of every patient were noted wherever available. FNAC was done using standard protocol and a minimum of Four smears were prepared from each of the FNAC aspirates. Alcohol fixed wet smears were stained with Papanicolaou (PAP) staining and air dried smears. were stained with May Grunwald Giemsa (MGG) staining and observed under light microscope to note cytological features. Depending on the cytomorphological features tuberculous lymph nodes were sub divided into four categories.

1. Caseation with epithilioid cells
2. Non- caseating with epithilioid cells
3. Only caseation
4. Purulent with caseation

Ziehl Neelson (ZN) and Auramine – O staining was done for each Aspirate to detect presence of AFB.ZN was examined under oil immersion at a magnification of 100x .AO stained slide was examined under fluorescent microscope under 40x in a linear pattern .Presence or absence of AFB was noted in both. Of the total 42 FNAC aspirated specimens the age of patients ranged from 10 years to 70 years. A slight male preponderence was noted with 55% males and 45% females.

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Table 1	
Male	55%
Female	45%

Most commonly involved were cervical lymph nodes with 30/42 falling in this group followed by sub mandibular lymph nodes with 6/42 cases. Submental, axillary, Sub carinal and intra abdominal were one case each.

RESULT OF SMEAR EXAM BY ZN AND FT

The smear positivity by ZN was 26.2% (11/42) while positivity increases to 64.2 %(27/42) cases with FT. Combined smear positivity with both the stains was 69.2 % (29 /42) cases

Table 2: Comparison of smear exam by FT and ZN

	ZN Positive	ZN negative	Total
FT positive	09	18	27
FT negative	02	13	15
Total	**11**	**31**	**42**

Cytomorphological features of aspirates

16/42 cases showed epithiliod granulomas accompnied with caseous necrosis while another 15/42 cases showed only granulomas with no necrosis.7/42 cases had only caseous necrosis with no cellular details while 2/42 yeilded purulent material.

DISCUSSION

Table 3		
	Smear positivity ZN	Smear positivity FT
Present study	26.2%(11/42)	64.2%(27/42)
Vamseedhar *et al*	44.11%(45/102)	81.37% (83/102
A.Jain *et al*	22%	52%
Laifangbam *et al*	25% 25/102)	71.6%(72/102)
Habeenzu *et al*	21%(66/488)	57% (152/488)

CONCLUSION

We conclude that Auramine –O stain is more efficient over ZN stain in detecting tubercle bacilli in LN aspirates. Further since FT is examined under lower power(40x) than ZN (100x) a greater area is screened per field which makes it less time consuming. High initial cost of the equipment will always be a factor, but where facilities are available its use should be considered seriously.

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