



Contents lists available at BioMedSciDirect Publications

International Journal of Biological & Medical Research

Journal homepage: www.biomedscidirect.com



Original Article

Fine Needle Aspiration Cytology -an Important Tool For Diagnosis Of Extra Pulmonary Tuberculosis

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ARTICLE INFO

Keywords:

FNAC

AFB

Extrapulmonary

Caseation

HIV

Granuloma

ABSTRACT

Tuberculosis is most common and important infectious cause of death in our country. Tuberculosis can involve any organ system of our body while pulmonary TB is most common presentation, extra pulmonary tuberculosis is also equally important problem. Fine Needle Aspiration Cytology is very useful in diagnosis of extra pulmonary tuberculosis. The aim of our study is early diagnosis of tuberculosis with simple and easy technique and to study in occurrence at various extra pulmonary sites. This is a 12 yr study of 17,640 cytological smears received in cytology laboratory of a tertiary care centre between Jan 2000 to March 2012 out of 17,640 smears 1038 (5.88%) turned out as tubercular lesions. Our study reveal tuberculosis is more common in females 721 cases (69.46%) than in males 317 (30.53%) with male is to female ratio 1:2.27. Lymph node was the most common site in both sexes i.e. 975 cases (93.93%) out of 1038. We also found that tuberculosis is most common in age group 14-45 yrs. Fine Needle Aspiration Cytology is considered as valuable diagnostic test and gaining importance because of simple procedure, easy availability of results and minimum complications.

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1. Introduction

With the resurgence of tuberculosis, although Pulmonary TB (PTB) contribute to majority of cases, Extrapulmonary TB (EPTB) is becoming more common probably due to Human Immunodeficiency Virus (HIV) coinfection^{1,2}. The mycobacterial load in HIV/TB patients may be high yet, pulmonary lesions are mostly infiltrative, sputum smears are often negative and frequently the lesions are extrapulmonary³. HIV associated tuberculosis is therefore, not more infectious than tuberculosis in general⁴. The most common form of extrapulmonary involvement include lymphadenopathy.

Tuberculosis still remains the major health problem particularly in developing countries, despite the discovery of tubercular bacilli more than a hundred years ago and all the advances in our knowledge and newer diagnostic modalities.

Tuberculosis can involve any organ system of body, while pulmonary TB is the most common presentation, extra pulmonary TB is also important clinical problem^{5,6,7}. The study was done with the objective of early diagnosis and initiating optimal treatment. This will not only cure and individual but also reduces infection load in community. Fine needle aspiration cytology is very useful in diagnosis of tuberculosis⁸. Because of early availability of results, simplicity and minimal trauma and complications, FNAC is considered as valuable diagnostic test and gaining popularity⁹.

2. Material and Method

This is a 12 year retrospective analysis of the cytological smears and samples received in a tertiary care centre between Jan 2000 to March 2012.

A total of 17,640 smears are received, stained by papanicolaou stain. Out of 17,640 smears 1038 i.e. 5.88% turned out as tubercular lesions. AFB was done in many cases. Histopathological co- relation was found in 614 cases i.e. 59.15%. Feedback taken from clinicians and patients receiving anti tubercular therapy were followed up.

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Observations and Results

Table-1 Positive lesions in Male & Female

SEX	Total no. of cases	Percentage
M	317	30.53%
F	721	69.46%

Male:Female ratio 1:2.27

Table-2 Positive lesions at different sites

Site	SEX		Total	Percentage
	Male	Female		
Lymph nodes	297	678	975	93.93%
Breast	1	22	23	2.21%
Bones and joints	10	9	19	1.83%
Parotid	2	6	08	0.77%
Testis/Scrotum	4	0	04	0.38% (in males)
Chestswelling	2	2	04	0.38%
Pleural fluid	0	3	03	0.28%
Cheek	1	0	01	0.09%
Pancreas	0	1	01	0.09%

Table-3 Distribution according to age group

Site	<14 years		14-45 years		>45 years	
	M	F	M	F	M	F
	44	88	240	580	33	53
Total	132		820		86	
Percentage	12.71%		78.99%		8.28%	

3. Discussion

In our study tuberculosis was found to be more common in age group(14- 45yrs). This is the most productive age group and thus indirectly affects the economic development of country. Adriano et al 10 also reported that tuberculosis is a disease that affects mainly young adults. We found the youngest patient was 2yrs and the oldest was 90yrs of age. These figures are in close comparison with S Shamshad et al 9, and Steel's study 11 where youngest were 2yr, 1yr and oldest were 95 yr, 90yr respectively. Rajwanshi A 12 also reported that age of patient ranged from 1.5 to 72yrs. We observe that there is female preponderance among tubercular lesions with M:F 1:2.27 where as Rajwanshi A et al 12 founded 1:1.3.

The diagnostic value of FNAC of lymph nodes in tubercular lymphadenitis has been emphasized by several workers. Bloch M 13 lymph nodes were the most common sites in both the sexes. In India and other developing countries lymph node tuberculosis continues to be the most common form of extra pulmonary tuberculosis 14,15. In our study, amongst lymph nodes, cervical lymph nodes were most commonly involved i.e. 69.41% which is comparable with the findings of S Shamshad et al 9 in which it was 73.6% and Egea 16 reported it as 67.51%.

Other sites involved were breast 2.21% and more so in lactating breast. In bones TB was found in 1.83% cases followed by parotid, testis and chest swelling. Among the fluids TB was found positive in pleural fluid i.e. 0.28%. Tuberculosis of pleural effusion is categorized as extra pulmonary despite an intimate relationship between lung and pleura 17,18,19. This is followed by TB of cheek swelling and ultrasound guided pancreatic lesion, 0.9% each.

It was opinioned that absence of Acid Fast Bacilli in smears showing an otherwise characteristic, cytological picture of TB should not weigh against diagnosis of tuberculosis 13,20. This is also stated by Bhattacharya S et al 8 that diagnosis of Tuberculous can be made by demonstration of epitheloid granuloma with or without caseation even in absence of AFB.

We support Padmavaty et al 20 that in remote places where facility for proper Histopathological examination are not available FNAC may be simple and useful diagnostic adjuvant. Although histopathology with culture has been the gold standard of diagnosing tuberculosis but Fine Needle Aspiration cytology is gaining popularity because of its simplicity, minimal trauma, complications and also early availability of results.

Acknowledgment

My sincere and deep gratitude towards Professor Dr Neelkamal Kapoor for unconditional help in making this article.

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