

Diagnostic Utility of FNAC in HIV Positive Lymphadenopathy Cases.

Dr. Nishith Thakor^{1*}, Dr. Meena Patel², Dr. Hansa Goswami³

¹ Post Graduate Resident, ² Assistant Professor, ³ Professor & Head, Department of Pathology, B.J.Medical College, Ahmedabad.

Abstract:

Aims and Objective - This Study has been undertaken to evaluate the role of Fine needle aspiration cytology (FNAC) in Forty Human Immunodeficiency Virus (HIV) positive Lymphadenopathy patients. **Materials and Method:** Forty HIV positive Patients with Lymphadenopathy were subjected to FNAC over a period of 8 months (January 2016 to August 2016). FNAC was done as a routine procedure using twenty two gauge needle with standard precautions. Smears obtained were stained with May-Grunwald-Giemsa (MGG), Papanicolaou (PAP) and Haematoxylin & Eosin (H&E). Special stain used was Ziehl-Neelsen (ZN) for Acid Fast Bacilli (AFB). **Result:** Maximum Number of cases were reported in the age group of thirty one to forty years, majority of the patients were Males. Cervical lymphnodes were the most common site encountered. The most common diagnosis was Tuberculous Abscess (42.5%) followed by reactive lymphadenitis (27.5%). **Conclusion:** FNAC is simple and safe investigative procedure for lesions of lymph nodes in HIV patients. It obviates surgical excision and guides subsequent therapy and management. Many opportunistic infections can also be found out with this procedure.

Key Words: FNAC, HIV, Lymphadenopathy, Tuberculous abscess.

Introduction:

Acquired immunodeficiency syndrome (AIDS) is known to be caused by a lymphotropic retro-virus, first described by French investigators and later by investigators in United States. AIDS was first recognized in 1981. It has become clear that this syndrome represents the most severe form of a broad spectrum disease¹. AIDS is a fatal illness that breaks down the body's immunity and leaves the victim vulnerable to life-threatening opportunistic infections, neurological disorders or unusual malignancies². In India the human immunodeficiency virus (HIV) epidemic is now more than a decade old and has emerged as one of the most serious public health problems in our country³. Lymphadenopathy is one of the earliest manifestations of HIV. This may be due to the presence and effects of HIV. Lymphadenopathy may also be a manifestation of opportunistic infections, lymphoid malignancy developing in an immunodeficient individual. Fine needle aspiration cytology (FNAC) can serve as an alternative method and may be practiced for the diagnosis of opportunistic infections in



* Corresponding Author:

Dr. Nishith Thakor,
E-mail: thakor16@gmail.com

HIV/AIDS viz. Tuberculosis, histoplasmosis, toxoplasmosis and malignant conditions such as Kaposi sarcoma and lymphoma⁴. FNAC has become the primary

investigative procedure for mass lesions on HIV-positive patients, particularly in the assessment of lymphadenopathy. The procedure is rapid, easily performed and in many cases obviates excision while guiding subsequent therapy or observation.

Materials and Methods:

This study consisted of forty FNAC samples obtained from lymph nodes of HIV positive patients over a period of 8 months (January 2016 to August 2016) at B J Medical College, Civil hospital, Ahmedabad. HIV positivity was confirmed by ELISA test. After taking written consent, taking detailed clinical history and doing detailed physical examination, aspiration was done with standard precautions using twenty two gauge needle. Smears were immediately fixed in 95% alcohol. Four to five smears of each case were stained with May Graunwald Geimsa (MGG), Papanicolaou stain (PAP) and Hematoxylin and Eosin stain (H&E). For MGG, air dried smears were used while for other stains, smears fixed in 95% alcohol were used. Special stains used were Zeil -Neilsen (ZN) for AFB and Periodic Acid-Schiff (PAS) for fungi. Cytopathological diagnosis had been recorded in each case.

Result:

Out of forty patients had been studied two (5%) had inadequate material, in which no opinion was possible. The maximum number of cases (32.5%) was found to be in 31 - 40 years of age group followed by 21 - 30 years (22.5%) (Table-1). In our study, youngest patient was five year female and oldest was sixty three year male. Cervical group of lymph nodes were found to be the most common site, twenty five out of forty cases (62.5%) had cervical lymphadenopathy. Other sites were Inguinal and supraclavicular. Male to female ratio was found out to be 3:1.

Table 1: Sex wise distribution of cases among different age groups.

Age(in years)	Male	Female	Total	Percentage
1-10	-	1	1	2.5
11-20	4	2	6	15
21-30	7	2	9	22.5
31-40	10	3	13	32.5
41-50	6	1	7	17.5
>50	4	-	4	10

Table 2: Diagnosis given in all cases encountered.

Lesions encountered	Number of cases
Tuberculous abscess	17
Acute suppurative abscess	09
Reactive lymphadenitis	11
Non-Hodgkin's lymphoma	01
Inadequate material	02

During cytological examination, Tuberculous abscess (42.5%) was the most common lesion we found in our study (seventeen patients) (Table-2). All patients show caseous necrosis with epitheloid granuloma formation (Image 1) with inflammatory background. All

the patients underwent AFB stain. Nine patients (52.9%) showed positive AFB staining. (Image 2)

Chart 1 Distribution of lesions

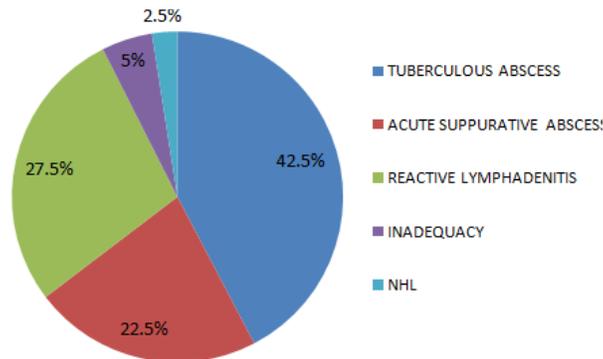


Image 1: Cytomorphological picture of Granuloma formation (PAP stain)

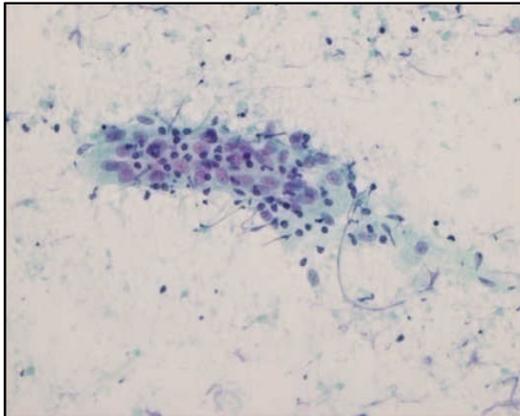
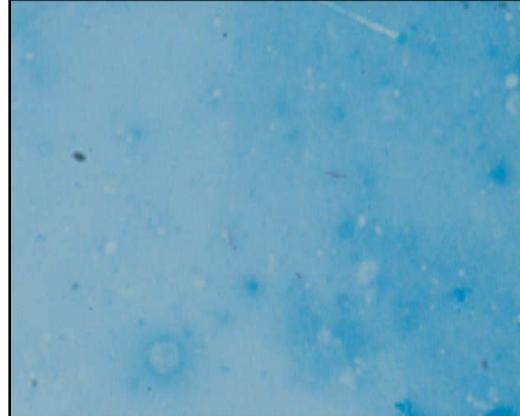


Image 2: Tubercle bacilli (AFB stain)



A total of nine cases (22.5%) showed acute suppurative infection as they showed plenty of acute inflammatory infiltrate over necrotic background. ZN stain and PAS stain were negative.

Image 3: Diffuse large B cell Lymphoma (NHL) (MGG stain)

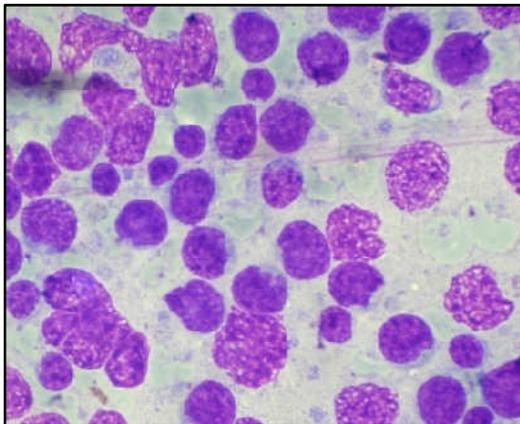
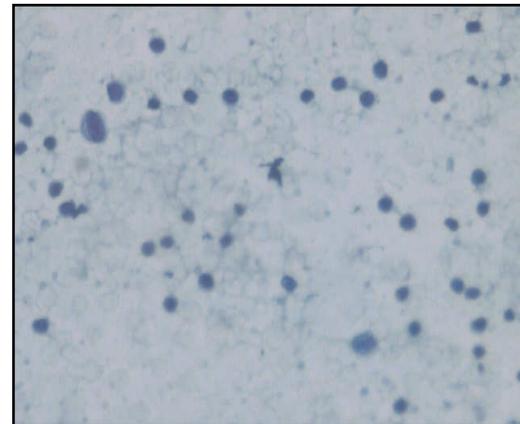


Image 4: Reactive Lymphadenitis (PAP stain)



One patient showed neoplastic proliferation of small lymphocytes with monomorphic population and it was reported as Non Hodgkin's Lymphoma (2.5%) (Image 3). Smear was suggestive of diffuse large B cell lymphoma though further typing was not possible.

Eleven Cases (27.5%) showed polymorphous cell population with mature and reactive lymphocytes and diagnosed as reactive lymphadenitis. (Image 4), though all cases were negative for AFB and ZN.

All 38 cases in which cytological diagnosis given were followed up histopathologically. Out of 38 cases, 19 cases were reported as Tuberculous abscess with cytological correlation with sensitivity of 90%. Nine cases were diagnosed as reactive lymphadenitis where as acute suppurative abscess was given as diagnosis in other 9 cases. One case was reported as Non Hodgkin's Lymphoma.

No opportunistic infection other than mycobacterium tuberculosis was found in the patients examined.

Discussion:

In the present study as well as study performed by Shenoy *et al*⁵ Mycobacterial infection was found to be more common because of increased prevalence of Tuberculosis in our country than in developed country.

The maximum number of patients were found to be in age group of thirty one - forty years followed by twenty one - thirty years. In a study by Bates *et al.*⁶ twenty two males and one female were found to be HIV-infected patients and their age ranged from nineteen to seventy two years. Further, cervical lymph nodes were the most commonly affected site. In a study performed by Shenoy *et al.*⁵, the male: female ratio was 5: 1, with cervical group of lymph nodes being the most commonly affected site. In the study performed by Shenoy *et al*⁵, one case of Mycobacterium avium intercellulare (MAI) lymphadenitis was reported that showed aggregates of pale histiocytes with foamy cytoplasm in the smears with poorly formed granulomas. The smear stained positive for both AFB and PAS, though MAI was not found in our study group.

In our study, nine cases (22.5%) were found to have acute suppurative infection. ZN and PAS were negative. In the study performed by Shenoy *et al.*⁵, acute suppurative lymphadenitis was observed in 2 (3%) patients. In the study performed by Bates *et al.*, and Reid *et al.*⁷ 7.4% and 7% patients showed acute suppurative infection ,respectively.

Eleven cases (27.5 %) showed reactive lymphadenitis in present study. Study conducted by shenoy et al 37.7% of patients showed reactive lymphadenitis. Bates *et al* found reactive hyperplasia in 46% aspirates and Reid *et al* found reactive hyperplasia in 57% aspirates, respectively. All cases of reactive lymphadenitis in present study were negative for AFB and PAS.

Non Hodgkin's lymphoma is one of the commonest malignancy in HIV lymphadenopathy cases. One case (2.5%) showed features of NHL, with smear showing possibility suggestive of Diffuse large B cell lymphoma (Image 3) In study by Shenoy *et al* 8.9% showed lymphoma, with Bates *et al* and Reid *et al* showing 4% and 5% respectively.

Kaposi sarcoma were found in western literature^{6,7}, though it was not found in our study and in shenoy *et al* study.

In the present study, evidence of opportunistic infections other than *Mycobacterium tuberculosis* was not found in any of the lymph nodes examined. No other opportunistic infections were encountered in the study conducted by Shenoy *et al*. In the study performed by Bates *et al*.⁶ one case of Histoplasma and one case of Cryptococcus were found.

Table 3 : Comparison of results of FNAC studies in HIV-positive patients

Diagnosis	Bates et al ⁵ (1993) n=27	Reid et al ⁶ (1998) n=65	Shenoy et al ⁴ (2002) n=48	Present study n=40
Mycobacterial Infection	22%	15%	48.2%	42.5%
Reactive lymphadenitis	46%	57%	37.7%	27.5%
Lymphoma	4%	5%	8.9%	2.5%
Kaposi sarcoma	15%	2%	-	-
Acute abscess	7.4%	7%	2.7%	22.5%
Others (including inadequacy)	5.6%	14%	2.5%	5%

Conclusion:

FNAC is the primary and safe investigative procedure for lesions of lymph nodes in HIV patients. Procedure is rapid and easily performed it obviates the need of excision, guides subsequent therapy or observation and provide definite guidelines for management. Tuberculous abscess is most common lesion encountered in HIV Positive Lymphadenopathies which was also confirmed histologically with 90% sensitivity of FNAC to diagnose the lesion.

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