Journal of the American Society of Cytopathology (2017) 6, 59–65

Available online at www.sciencedirect.com

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ORIGINAL ARTICLE

FNAC of lymph nodes in HIV positive patients—a diagnostic boon

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Received 20 October 2016; received in revised form 28 December 2016; accepted 29 December 2016

KEYWORDS
HIV;
FNAC;
Lymphadenopathy;
Cytological patterns;
AFB;
CD4 count

Objectives The goal of this study is to examine the fine-needle aspiration cytology (FNAC) features of lymph node lesions in human immunodeficiency virus (HIV)-positive patients and to evaluate the role of FNAC in diagnosis. This study also aims to analyze the cytological patterns and available clinicopathological parameters of FNAC.

Materials and methods This study was carried out in the Department of Pathology at Government Medical College Miraj and P.V.P.G.H. Sangli from August 2012 to July 2014. FNAC was conducted for all HIV-positive patients with lymphadenopathy referred into this department. A total 70 lymph nodes were aspirated from different sites in 60 HIV-positive cases.

Results The mean age of presentation was 32.4 years with a male predominance (66.7%). The cervical lymph node was the most commonly involved site (70%). The most common lesion was tuberculous lymphadenitis (66.66%) followed by reactive lymphadenitis (13.33%). The most common staining pattern in acid fast bacilli (AFB)-positive tuberculous lymphadenitis was grade 1 (87.88%). The overall AFB positivity in tuberculous lymphadenitis in the present study was 82.5%. The most common cytological pattern was caseous necrosis with epithelioid cell granulomas (60%). The mean CD4 count showed an inverse relationship with increasing grade of AFB positivity. The mean CD4 count was lowest in caseous necrosis—only pattern (330.2 cells/μL). All the cases were consistent with HIV type A lymphadenopathy. Two cases of malignancy was also seen.

Conclusions FNAC is a rapid and cheap procedure that can help in establishing the diagnosis in a large number of cases. It also helps in segregating the lesions that need further evaluation. Comparison of lymph node lesions with CD4 counts, AFB grading, and hematological alterations reflects immunity, stage of disease, and disease activity, thus aiding in better treatment.

Introduction

Lymph nodes are commonly involved in many disease processes during which they become enlarged and palpable.

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http://dx.doi.org/10.1016/j.jasc.2016.12.004

Table 1 Hemoglobin and total leukocyte count for the cases.

Parameters	Males, n (%)	Females, n (%)	Total, n (%)
Hemoglobin (mg/dL)			
≥12 (F) and ≥13.5 (M)	3 (5)	2 (3.3)	5 (8.33)
<12-10 (F) and <13.5-10 (M)	22 (36.7)	8 (13.3)	30 (50)
<10-7	15 (25)	9 (15)	24 (40)
<7	0 (0)	1 (1.7)	1 (1.67)
Total leukocyte count (cells/μL)			
<4000	3 (5)	1 (1.7)	4 (6.67)
4000-11,000	37 (61.7)	19 (31.7)	56 (93.33)

Such palpable enlargement of lymph nodes is termed as *lymphadenopathy* and is commonly aspirated for laboratory analysis to provide a diagnosis. Aspiration cytology of lymph nodes is used as a primary method of diagnosis in reactive, infective, and metastatic lymphadenopathy.[1] Fine-needle aspiration cytology (FNAC) of the lymph node can be used for microbiological examination to detect organisms. It can be used to detect an occult primary and classify neoplasm. Recurrent neoplasm can be detected at an early stage. It also helps clinicians in formulating line of treatment and monitoring the response to therapy and, in many cases, FNAC obviates excision.

Table 2 Distributions of cases of lymphadenopathy according to anatomical sites and cytological diagnosis.

Anatomic site	Number of cases, N (%)	Cytological diagnosis	Number of cases, n (%)
Generalized	2 (3.33)	Non-neoplastic lesions	56 (93.33)
Localized	58 (96.67)	Tuberculous lymphadenitis (TL)	40 (66.66)
Cervical	42 (70)	Reactive lymphadenitis (RL)	8 (13.33)
Axillary	7 (11.67)	Suppurative lymphadenitis (SL)	4 (6.67)
Inguinal	4 (6.67)	Chronic granulomatous lymphadenitis (CGL)	4 (6.67)
Submandibular	3 (5)	Neoplastic lesions	2 (3.34)
Supraclavicular	2 (3.33)	Non-Hodgkin lymphoma (NHL)	1 (1.67)
		Metastatic squamous cell carcinoma (MSCC)	1 (1.67)
		Inadequate for opinion	2 (3.33)
		Total	60 (100)

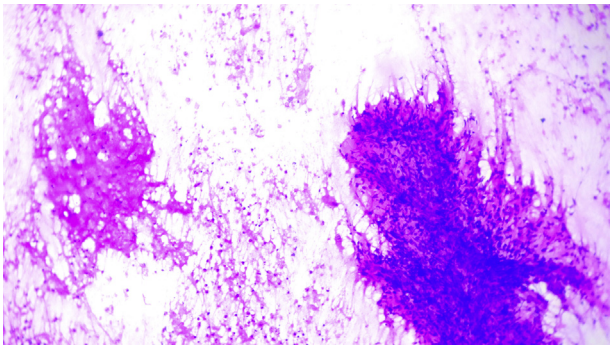

Figure 1 Photomicrograph showing caseous necrosis with epithelioid cell granuloma pattern (hematoxylin and eosin stain, 4×).

Lymphadenopathy is one of the earliest manifestations of human immunodeficiency virus (HIV) infection.[2] HIV was isolated from a patient with lymphadenopathy in 1983, and by 1984 it was demonstrated clearly to be the causative agent of AIDS.[3]

In 2015, the total number of people living with HIV (PLHIV) in India was approximately 2.1 million, with the state of Maharashtra having the second highest estimated number of PLHIV (n = 301,453; 14.24%).[4] Patients in developing countries such as India often face socioeconomic barriers that may not allow for expensive diagnostic procedures such as contrast-based imaging techniques. FNAC is a rapid, inexpensive, cost effective, safe procedure and it can be used as a routine outpatient department procedure. Thus, FNAC can prove to be a simple investigative technique to diagnose HIV-infected lymphadenopathy cases.

The purpose of this study is to share the authors' experience and identify various cytological patterns of lymph node lesions, to correlate with available clinicopathological parameters and segregation of HIV-infected lymphadenopathy cases for further evaluation.

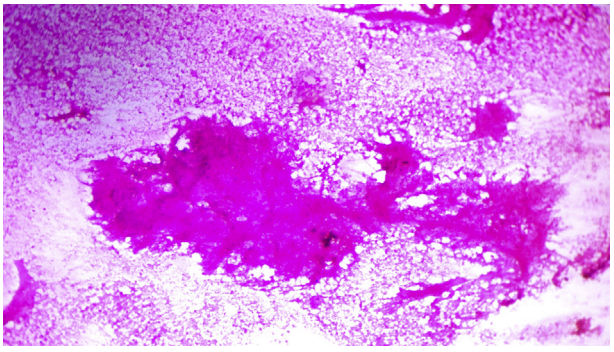

Figure 2 Photomicrograph showing caseous necrosis only pattern (hematoxylin and eosin stain, 10×).