

HIV status in lymphadenopathy: A study of 200 cases

Anil Kumar Suri^{1*}, Dimpi Ohri², Puneet Kaur³, Ankur Suri⁴

¹Professor, ³Assistant professor, Department of Pathology, Gian Sagar medical college and hospital, Patiala, Punjab, INDIA.

²Fellowship, Department of Uropathology, KEM Hospital, Mumbai, Maharashtra, INDIA.

⁴Assistant Professor, Department of Pharmaceutics, Rayat-Bahra Campus, Patiala, Punjab, INDIA.

Email: drsuri.anil@gmail.com, chiti1978@gmail.com, suri.ankur1@gmail.com

Abstract

Introduction- Generalized lymphadenopathy was one of the characteristic manifestations of AIDS epidemic, even before its etiology was recognized. 1 Cervical, axillary and inguinal lymph nodes are usually involved. 2 Tuberculous cervical lymphadenitis is being increasingly recognized and diagnosed with an increase in HIV infection. 3 FNAC is an important diagnostic tool in the evaluation of lymphadenopathy in HIV. (4) Most opportunistic infections and malignancies can be correctly diagnosed, with immediate institution of treatment. 5 Histopathological examination of lymph node biopsies is the gold standard of diagnosis and is helpful in differentiating between reactive and malignant conditions, which closely resemble each other. 6 **Material and Methods:** 200 patients with lymphadenopathy were tested for HIV status, and subjected to either fine needle aspiration or biopsy of the lymph nodes. Epidemiological data, as well as the results of biochemical, cytological and histopathological findings were then compiled. **Results:** The number of HIV positive cases was found out to be 9 (4.5%). All the nine patients were HIV-1 positive. Among the HIV positive cases, males were 7 and females were 2 and 7/9 had cervical lymphadenopathy. The final diagnosis was tuberculosis in 4 cases (44.5%), suppurative lymphadenitis in 3 (33.3%) and reactive hyperplasia in 2 cases (22.2%). **Conclusion:** We studied the epidemiological data, HIV status, cytopathological and histopathological findings in 200 patients with lymph node enlargement. While in patients who were HIV negative, the most common cause of lymphadenitis was reactive hyperplasia, in HIV positive patients, it was tuberculosis. This is because it is a very common opportunistic infection in AIDS, and endemic in our area.

Keywords: lymphadenopathy, HIV.

*Address for Correspondence:

Dr. Anil Kumar Suri, 66 North Avenue, Bhadson Road, Patiala, Punjab, INDIA.

Email: drsuri.anil@gmail.com

Received Date: 17/03/2016 Revised Date: 07/04/2016 Accepted Date: 05/05/2016

Access this article online

Quick Response Code:	Website: www.medpulse.in
	DOI: 08 May 2016

INTRODUCTION

Lymphadenopathy is one of the commonest clinical presentations of Acquired immunodeficiency syndrome (AIDS). The lymphoid tissue is a major reservoir for the virus and provides it a significant replicative advantage in that it provides a milieu of activated target cells that allows for efficient virus spread.⁷ The process of

mobilization and activation of immune competent cells directed against the virus paradoxically contributes to the propagation of virus replication.³ In patients with Human Immunodeficiency Virus (HIV), there a wide range of differentials for generalized lymphadenopathy including early HIV infection itself, TB, cryptococcosis, cytomegalovirus, toxoplasmosis, Kaposi's sarcoma and many more.⁸

MATERIAL AND METHODS

The present study was performed on 200 patients with enlarged lymph nodes who presented to the Pathology Department of Government Medical College, Patiala for FNA, or whose biopsies were sent to the department of histopathology. The HIV status of all these 200 patients of lymphadenopathy coming for FNAC/biopsy was determined. The epidemiological data was compiled, and cytopathological and histopathological findings were documented.

The following rapid antibody qualitative immunoassay tests were used-

1. Bioline test (immunochromatography based assay for detection of antibodies to HIV 1/2)
2. Triline test (immunochromatography based assay for detection of antibodies to HIV 1/2)
3. Trispot test (immunoassay assay for detection of antibodies to HIV 1/2)

RESULTS

Out of 200 cases, 122 were males and 78 were females with a mean age of 33.8 years.(TABLE I). The maximum number of cases (19%) were in third decade followed by 15 % in the second decade and 14.5 % in the first decade.14 % cases each were seen in the fourth and sixth decades. Rural patients were slightly more than urban patients, with the rural to urban ratio being 1.6:1. Most patients belonged to the upper lower (73), or lower (55) class. The number of literate patients was 112, and the illiterate patients were 88 in number. Patients with cervical lymphadenopathy comprised 70 % cases, those with inguinal and axillary lymph nodes comprised 7.5% and 6.5 % cases respectively, while submandibular, mesenteric, supraclavicular and submental nodes were seen in 5%, 4.5%, 3.5% and 3% patients respectively. Among the 159 cases that had come for FNAC, the cytological findings were reactive lymphadenitis in 65 cases (40.9%), tubercular in 39 (24.5%), metastasis in 32 (20.1%), suppurative pathology in 18 (11.4%) and primary malignancy in 5 cases (3.1%). (TABLE V). The number of HIV positive cases was found out to be 9(4.5%) (TABLE II)and all were HIV- I. Out of the 159 lymphadenopathy patients that had come for FNAC, 7 cases (4.4%), and out of 41 lymphadenopathy patients that had come for biopsy, 2 cases (4.8%) were HIV positive. (TABLE II) Among the 41 biopsy cases, reactive lymphadenitis was seen in 13 cases (31.7%), tubercular lymphadenitis in 12 cases (29.3%), metastasis in 10 (24.4%), primary malignancy in 4 (9.8%) and suppurative pathology in 2 cases (4.8%). Thus in our study, maximum cases were of reactive lymphadenitis followed by tubercular lymphadenitis. (TABLE VI) Out of 9 HIV positive patients, 7 were males and 2 females (TABLE III), and 7 of them had cervical lymphadenopathy. 4 were diagnosed as tuberculosis, 3 as suppurative lymphadenitis, and the remaining 2 as reactive lymphadenitis. (TABLE 7)

Table 1: Age and Sex wise distribution N=200

Age(in Yrs)	Lymphadenopathy patients			
	Male	Female	Total	Percentage
0-10	20	9	29	14.5%
11-20	18	12	30	15.0%
21-30	16	22	38	19.0%

31-40	16	12	28	14.0%
41-50	11	12	23	11.5%
51-60	21	07	28	14%
>60yrs	20	04	24	12.0%
Total	122	78	200	100%

Table 2: Number of HIV positive cases N=200

Type of procedure	Lymphadenopathy patients		HIV positive	
	No of cases	No. of cases	Percentage	
FNAC	159	07	4.4%	
Biopsy	41	02	4.8%	
Total	200	09	4.5%	

Table 3: Age and Sex wise distribution of HIV positive patients N=09

Age(in Yrs)	Male	Female	Total	Percentage
0-10	--	--	--	0
11-20	01	--	01	11.1
21-30	--	01	01	11.1
31-40	03	--	03	33.3
41-50	02	01	03	33.3
51-60	01	--	01	11.1
Total	07	02	09	100

Table 4: Region wise distribution of lymphadenopathy in HIV positive patients N=09

Group of LN involved	No. of cases	Percentage
Cervical	07	77.8%
Axillary	01	11.1%
Supractavicular	01	11.1%
Total	09	100%

Table 5: Cytological findings in FNAC cases N=159

Cytological Diagnosis	No. of cases	Percentage
Reactive lymphadenitis	65	40.9%
Tubercular lymphadenitis	39	24.5%
Metastatic	32	20.1%
Suppurative	18	11.4%
Primary malignancy	05	3.1%
Total	159	100%

Table 6: Histopathological findings of biopsy cases N=41

Histopathological Diagnosis	No. of cases	Percentage
Reactive lymphadenitis	13	31.7
Tubercular lymphadenitis	12	29.3
Metastatic	10	24.4
Primary malignancy	04	9.5
Suppurative	02	4.8
Total	41	100

Table 7: Diagnosis of lymphadenopathy in HIV positive patients N=09

Diagnosis of lymphadenopathy in HIV positive patients	On FNAC	On biopsy	Total	Percentage
Tubercular lymphadenitis	03	01	04	44.5
Suppurative	02	01	03	33.3
Reactive lymphadenitis	02	--	02	22.2
Total	07	02	09	100

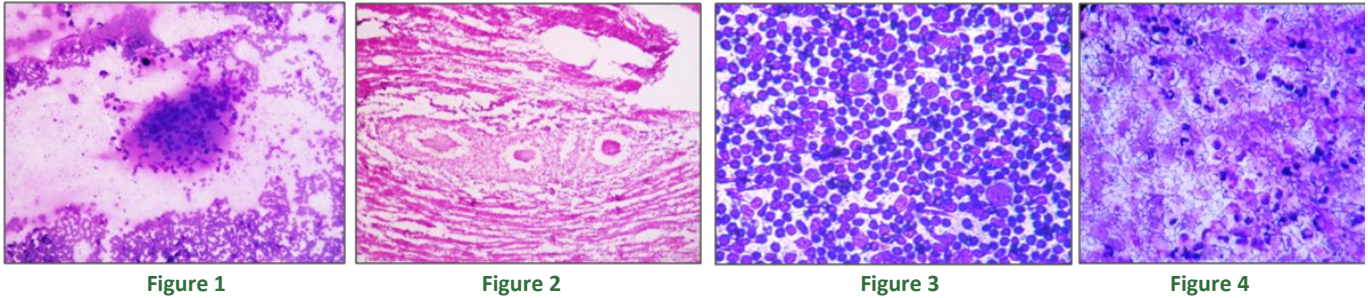


Figure 1

Figure 2

Figure 3

Figure 4

Legend

Figure 1 and 2: Tuberculous lymphadenopathy on FNAC and biopsy (10 X, MGG and HandE)

Figure 3 and 4: Reactive and suppurative lymphadenopathy on FNAC (10 X, MGG)

DISCUSSION

Enlargement of peripheral lymph nodes is a common clinical presentation of a variety of pathological conditions including local or systemic inflammatory conditions, lymphoreticular malignancies and metastatic malignant processes. It is also one of the earliest manifestations of HIV infection due to the presence and effects of the virus. It may also be a manifestation of opportunistic infections or lymphoid malignancies developing in immunodeficient individuals.⁹ We determined the HIV status of 200 patients with lymphadenopathy who came to the department of Pathology for FNAC, or whose biopsies were received in the department. Various other parameters including the age and sex distribution, lymph node regions involved, percentage of HIV positivity, histopathological and cytological findings were also studied. The findings were then compiled, statistically analyzed and compared with other studies. Out of total of 200 patients, 122 were males (61%) and 76 were females (39%), with a male to female ratio of 1.5:1, revealing male preponderance. The studies conducted by Pandit *et al* (1987)⁽¹⁰⁾ reported a ratio of 1.3:1, and Hirachand *et al* (2009)⁽¹¹⁾ reported a ratio of 1.1:1. On the contrary, Fatima *et al* (2011)⁽¹²⁾ found a female preponderance in their study. The preponderance of males over females in the lesions of lymph nodes in current study was almost in accordance with the previous studies. The mean age of the patients was 33.8 years, corroborated by Fatima *et al* (2011)⁽¹²⁾, in whose study, the mean age was 32.7 years. Out of the 200 patients with lymphadenopathy, 76 were from urban, and 124 were from the rural population. We used Kuppuswamy's scale to determine socio-economic status, and using this scale, most cases were found to belong to upper lower (73) or lower (55) class. A rural and lower socio-economic class population predominated in the study, because it was carried out in a government hospital catering to the demands of the common man, and this institute also has many villages in its vicinity. In this study, the percentage of HIV positive patients was calculated. Testing was done

in all patients irrespective of their previous HIV status. 3 rapid tests were performed i.e. Bioline, Triline and Trispot tests. The number of HIV positive patients was found to be 9 (4.5 %). A similar study was conducted by Naik *et al*⁽¹³⁾ in 2012 on patients in South India. Out of 3407 cases, 359 (10.53%) patients were positive for HIV, out of which 317(88.3%) had lymph nodes of the head and neck region. As his study was conducted in a highly endemic region, the percentage of HIV positive patients was higher compared with our study. In studies by Gill *et al* in 2007⁽¹⁴⁾ and Hsu *et al* in 2013⁽¹⁵⁾, the percentage was found to be 2.3% and 1.3 % respectively, but in both these studies, the already diagnosed cases had been excluded. So, the percentage was lower than ours. In our study, the male to female ratio in HIV positive cases was 3.5:1. Naik *et al*⁽¹³⁾, Gill *et al*⁽¹⁴⁾ and Shenoy *et al*⁽¹⁶⁾ reported ratios of 1.55:1, 1.5:1 and 5:1 respectively. As males belong to the high risk group, the preponderance of males in HIV positive patients in current study is in accordance with the previous studies. Out of 9 HIV positive cases, 33% each were in the fourth and fifth decades each. In study conducted by Gill *et al*, 48% of HIV-positive cases belonged to third decade, followed by fourth decade (36%),⁽¹⁴⁾ and in a study by Parikh *et al* (2012)⁽¹⁷⁾ the peak incidence was noted in fourth decade of life (32.5%). All of our patients were HIV-1 positive, which is similar to a study by Shobhana *et al*.⁹ In the present study, cervical lymphadenopathy comprised 140 cases (70%), inguinal 15 cases (7.5%), axillary; 13 cases (6.5%), submandibular; 10 cases (5%), mesenteric; 9 cases (4.5%), supraclavicular; 7 cases (3.5%) and submental; 6 cases (3%). Cervical lymph nodes, followed by axillary lymph nodes were the most common site of enlargement in other studies by Pandit *et al*⁽¹⁰⁾ and Gill *et al* as well.⁽¹⁴⁾ As far as HIV positive cases were concerned, cervical lymphadenopathy comprised 07 cases (77.8%), axillary 01 case (11.1%) and supraclavicular 01 case (11.1%). Studies by Sawhney *et al*,⁽²⁾ Reid *et al*⁽¹⁷⁾ and Parikh *et al*⁽¹⁸⁾ also concluded that cervical lymph nodes were the most common group of lymph node involved in

HIV positive patients, followed by axillary lymph nodes. Among the 159 cases that were subjected to FNA, reactive lymphadenitis was seen in 65 cases (40.9%), tuberculosis in 39 (24.5%), metastatic deposits in 32(20.1%), suppurative pathology in 18 (11.4%) and primary malignancy in 5 cases (3.1%). Similar results were obtained by Ahmed *et al*⁽¹⁹⁾, Bhuiyan *et al*⁽²¹⁾ and Hirachand *et al*⁽¹¹⁾ who reported reactive lymphadenitis in 53.6%, 50% and 41.5% of their cases respectively, which is similar to our study. The next most common pathology in these studies was tubercular lymphadenitis, seen in 32.8 %, 29.1% and 28% of their cases, which is in close concordance with our study. Among the 41 biopsy cases in our study, reactive lymphadenitis was seen in 13 cases (31.7%), tubercular lymphadenitis in 12 cases (29.3%), metastasis in 10 (24.4%), primary malignancy in 4 (9.8%) and suppurative pathology in 2 cases (4.8%). Our finding of preponderance of reactive and tubercular lymphadenitis was supported by Shrestha *et al*⁽²¹⁾ and Kamat *et al*⁽²²⁾. Among the 9 HIV positive patients found on FNA and biopsy as a whole, the following diagnoses were made; tuberculosis in 4 cases (44.5%), suppurative pathology in 3 cases (33.3%), and reactive lymphadenitis in 2 cases. Our finding of preponderance of tubercular lymphadenitis, followed by reactive lymphadenitis, were supported by Shenoy *et al*⁽¹⁶⁾ and Naik *et al*⁽¹³⁾. On the other hand, Saikia *et al*⁽²³⁾ and Kumarguru *et al*⁽²⁴⁾ found that reactive lymphadenitis was more common than tuberculosis. This could be because of endemicity of tuberculosis in the areas in which our study and studies by Shenoy⁽¹⁶⁾ and Naik⁽¹³⁾ were conducted.

CONCLUSION

Out of the 200 patients of lymphadenopathy included in the present study, males were predominant, with a male to female ratio of 3.5: 1, and a mean age of 33.8 years. The number of HIV positive cases was found out to be 9(4.5%) and all were HIV- I. In the HIV negative cases, reactive hyperplasia was the most common finding, while in the HIV positive cases; it was tuberculosis, owing to the fact that it is a common opportunistic infection in AIDS. This study also shows that a number of patients with lymphadenopathy, especially hailing from low socio- economic strata and low levels of literacy may be suffering from HIV infection. It reiterates the importance of HIV testing in these patients for early diagnosis, and control of the infection.

REFERENCES

1. Lederman MM, Margolis L. The Lymph Node in HIV Pathogenesis. *Semin Immunol.* 2008; 20(3):187-95.
2. Sawhney MPS. Lymphoreticular involvement in human immunodeficiency virus infection. *MJAFI* 2008; 64(1):45-7.

3. Rajasekaran S, Gunasekaran M, Jayakumar DD, JaYaganesh D, Bhanumathi V. Tuberculous cervical lymphadenitis in HIV positive and negative patients *Ind J tub* 2001;48:201.
4. Vanisri HR, Nandni NM, Sunita R. Fine needle aspiration cytology findings in human immunodeficiency virus lymphadenopathy. *Indian J Pathol Microbiol* 2008; 51(4):481-4.
5. Jayaram G; Chew MT-Fine needle aspiration cytology of lymph nodes in HIV-infection individuals. *Acta Cytol* 1997; 41(3):811-6.
6. Rahman A. Md. Biswas MA, Siddika ST, Sikder AM. Histopathological Evaluation of Lymph Node Biopsies:A Hospital Based Study. *J Enam Med. Col* 2004;2(1):18-20.
7. Baroni CD, Vitolo D, Uccini S.Immunohistopathogenesis of PGL in HIV patients. *Research in Clinic and Laboratory* 1990; 20(1):1-10.
8. Khalil MZ. Clinical approach to Lymphadenopathy. *Ann Nigerian Med* 2012; 6:11-17.
9. Shobhana A, Guha SK, Mitra K, Dasgupta A, Neogi DK. People living with HIV infection/AIDS- A study on lymph node FNAC and CD4 count. *Indian Journal Medical Microbiology* 2002; 20:99-101.
10. Pandit AA, Candes FB, Khubchandani SR.FNAC of lymph nodes *Journal of postgraduate medicine* 1987; 33:134.
11. Hirachand S. Lakhey M. Akhter J. Thapa B.Evaluation of the needle aspiration cytology of lymph nodes in Kathmandu medical college teaching hospital. *Kathmandu Univ Med. J* 2009; 7(28):139-42.
12. Fatima S, Ahmed SAZ, Hasan SH. Spectrum of cytological findings in patients with neck lymphadenopathy – experience in a tertiary care hospital in Pakistan. *Asian Pacific J Cancer Prev* 2011; 12:1873-1875.
13. Naik BR. Impact of HIV on head and neck in south India: a cytology study. *International Journal of Head and Neck Surgery* 2012; 3(1):11-14.
14. Gill PS, Arora B. Gill M. Lymphadenopathy –An important guiding tool for detecting hidden HIV cases – 6 year study. *Journal of international association of physicians in AIDS care* 2007; 6(4)269-72.
15. Hsu DTS, Ruf M, O'shea S, Costelloe S, Peck J, Tong C.Diagnosing HIV infection in patients presenting with glandular lever-like illness in primary care. *HIV Medicine* 2013;14(1):60-63.
16. Shenoy R, Kapadi SN, Pai KP, Kini H. Maliya S. Khadilkar UN et al. Fine needle aspiration diagnosis in HIV-related lymphadenopathy in Mangalore, India. *Acta Cytol* 2002; 46(1):35-39.
17. Parikh UR. Goswami HM; Nanavati MG. Bisen V, Patel S, Menpara C B et al. Diagnostic utility of FNAC in HIV positive lymphadenopathy. *Journal of Clinical Research Letters* 2012;3(2):8-10.
18. Reid AJ, Miller RF, Kocjan GI. Diagnostic utility of fine needle aspiration (FNA) cytology in HIV infected patients with lymphadenopathy. *Cytopathology* 1998; 9(4):230-9.
19. Ahmed N, Issar S, Ashraf MS. Comparison of FNAC and excision biopsy in diagnosis of cervical

- lymphadenopathy. *Pakistan Journal of Surgery*. 2009; 25(2): 72-4.
20. Bhuiyan MD, Md Hossain, Fakir AY, Hossain T. Role of FNAC in diagnosis of cervical lymphadenopathy. *Bangladesh Journal Of Otorhinolaryngology* 2008; 14(2):63-5.
 21. Shrestha AK, Chalise PR, Shrestha MI. Lymph node biopsies; a hospital based retrospective study. *JNMA* 2009; 48(176):306-9.
 22. Kamat GC. A 10 year histopathological study of generalized lymphadenopathy in India. *S Afr Fam Pract* 2011; 53(3):267-70.
 23. Saikia UN, Dey P, Jindal B; Saikia B. Fine needle aspiration cytology in lymphadenopathy of HIV positive cases. *Acta cytol* 2001; 45(4); 589-92.
 24. Kumarguru B, Kulkarni MH, Kamakeri NS. FNAC of lymph nodes in HIV positive patients. *Scientific Medicine Journal* 2009; 1(2):67-70.

Source of Support: None Declared
Conflict of Interest: None Declared