

Peripheral Lymphadenopathy in Nigerian adults

Adesuwa N. Olu-Eddo¹, Chibundu E. Ohanaka²

Departments of Pathology¹ and Surgery², University of Benin Teaching Hospital, Benin City, Nigeria.

Abstract

Objective: To review the pathology of lymph node disorders in adults with primary peripheral lymphadenopathy.

Methods: A 20-year (1985-2004) retrospective study of lymph node biopsies at the University of Benin Teaching Hospital, Benin City, Nigeria.

Results: Of the 427 lymph node biopsy specimens received, 238 (55.7%) were from males and 189 (44.3%) from females. Localized lymphadenopathy was observed in 380 (89%) cases. Cervical lymphadenopathy predominated comprising 250 (58.5%) cases. Tuberculosis lymphadenitis and metastatic disease were the major causes of lymph node enlargement constituting 114 (26.7%) and 113 (26.5%) cases respectively. While tuberculosis was commonest in young adult females (15-24 years old) and rare above the age of 45 years, metastatic disease was the predominant cause of lymph node enlargement above 45 years. Non Hodgkin's lymphoma and Hodgkin's lymphoma (HL) constituted 69 (16.2%) and 43 (10.1%) cases respectively. HL occurred mostly in young adult males presenting with cervical lymphadenopathy (peak-age = 15-24 years). Non specific lymphadenitis and onchocerciasis comprised 81 (19.0%) and 4 (0.9%) cases respectively. Kaposi's sarcoma, cat scratch disease and sarcoidosis constituted one case each.

Conclusion: The pattern of disease is similar to that of other third world countries (JPMA 56:405;2006).

Introduction

Chronic peripheral lymph node enlargement in adults signifies an underlying disease and has continued to pose a diagnostic dilemma to the physician. Several reports from the tropics document tuberculosis and other infectious aetiology as major causes of lymph node enlargement.¹⁻⁴ In contrast, malignancies are reported as the predominant causes of lymph node enlargement in the developed countries with rarity of infections.^{5,6} However, an upsurge in the incidence of tuberculosis attributed to the advent and preponderance of HIV infection has been documented worldwide.^{7,8}

Considering the plethora of diseases that may cause lymphadenopathy, it is essential to define the pattern of disorders presenting primarily as lymph node enlargement in a particular environment.

Although several studies on peripheral lymphadenopathy have been done in various parts of Nigeria¹⁻⁴, none of these studies addressed lymphadenopathy in adults specifically.

The pattern in adults is likely to be different from that in children. While metastatic cancer is documented widely as a major cause of lymphadenopathy in adults, a contrasting rarity of metastatic cancer has been consistently reported in children.^{9,10} Moreover, reactive hyperplasia to

minor stimuli has been reported as a significant cause of lymphadenopathy in children with a yet developing immune system.¹¹ Furthermore, there is paucity of information on the spectrum of diseases affecting lymph nodes in this environment.

This study aims at defining the causes of peripheral lymphadenopathy and the pattern of lymph node distribution in adult patients seen in the University of Benin Teaching Hospital, Benin City, Nigeria. It is believed that information derived from this study will be of immense value to the attending physician and also form a baseline data for research.

Materials and Methods

All cases of lymph node biopsies received at Department of Pathology, University of Benin Teaching Hospital, Benin City, Nigeria from January 1st, 1984 - December 31st, 2003 were reviewed. The cases in adults 15 years of age and above, formed the focus of this retrospective study. Specimens received from patients below the age of 15 years were excluded.

Clinicodemographic data regarding age, sex, anatomical site of nodal biopsy and clinical information were obtained from request cards and case files. The relevant slides were retrieved from the archives of the Department of Pathology. Where necessary, new slides

were made from formalin fixed, paraffin embedded blocks and stained with haematoxylin and eosin stains. Special stains including Ziehl Neelsen, Giemsa and Gomori's methenamine silver were used where indicated.

Metastatic lymph nodes associated with evidence of primaries elsewhere in the body were excluded from the study.

Results

A total of 427 lymph node biopsies were obtained from adults (15 years old and above) constituting 77.2% of the total number of lymph node biopsies received in the Department during the 20 year period of study (1984-2003). Two hundred and thirty eight (55.7%) specimens were of males while 89 (44.3%) were of females giving a male to female ratio of 1.3:1. The age range was 15-100 years with

a mean age of 39.2 years (SD ± 18.7).

Table 1 shows the site distribution of the various types of diseases and the frequency of enlargement of the different groups of lymph nodes.

Regional lymphadenopathy was observed in 380 (89.0%) patients while generalized lymphadenopathy occurred in 47 (11.0%) patients. The cervical group of lymph nodes were most frequently affected constituting 250 (58.5%) cases.

Tuberculosis and metastatic cancer were the commonest specific disorders of lymph nodes with a relatively equal incidence of 114 (26.7%) cases and 113 (26.5%) respectively and were also the commonest causes of cervical lymphadenopathy. Eighty one (19.0%) patients had non specific lymph node disorders. These included 29 (6.8%), 23 (5.4%), 20 (4.7%) and 9 (2.1%) cases of reactive hyper-

Table 1. Site distribution and histopathological diagnosis of patients with lymphadenopathy.

Site of biopsy			Histological Diagnosis							
Site of biopsy	Total	%	TB	Met	NHL	HL	Cat Scratch	Oncho	K.S.	Sarcoidosis
Cervical	250	58.5	85	59	30	35	1	-	1	1
Axillary	42	9.8	5	14	6	3	-	1	-	-
Inguinal	50	11.7	4	2	9	4	-	3	-	-
Generalized	47	11.0	15	20	12	-	-	-	-	-
Supraclavicular	6	0.2	1	3	-	-	-	-	-	-
Abdominal	32	7.5	4	15	12	1	-	-	-	-
Total	427	100	114	113	69	43	1	4	1	1

Oncho - Onchocerciasis
 KS - Kaposi's sarcoma
 TB - Tuberculosis
 Met - Metastatic
 NHL - Non Hodgkins Lymphoma
 HL - Hodgkins Lymphoma

Table 2. Age and Sex distribution of lymph node disorders.

Lymph node disorder	No. of cases	% of Total	M	%	F	%	M:F	Age range (Years)	Mean age (Years)
Tuberculosis	114	26.7	34	29.8	80	70.2	1: 2.4	15-80	27.2
Metastatic	113	26.5	68	60.2	45	39.8	1.5:1	15-100	51.3
NHL	69	16.2	53	76.8	16	23.2	3.3:1	15-85	44.6
HL	43	10.1	37	86.0	6	14.0	6.2:1	15-46	29.2
Onchocerciasis	4	0.9	1	25.0	3	75.0	1:3	20-28	22.2
Sarcoidosis	1	0.2	-	-	1	-	-	-	16
Cat scratch	1	0.2	-	-	1	-	-	-	57
Kaposi's S	1	0.2	1	-	-	-	-	-	26
Non specific	81	19.0	44	54.3	37	45.7	1.2:1	15-87	24.5
Total	427	100.0	238	55.7	189	44.3	1.3:1	15-100	39.2

M - Male
 F - Female

hyperplasia, sinus histiocytosis, chronic non specific lymphadenitis and dermatopathic lymphadenopathy respectively.

Table 2 shows the histopathological diagnosis of lymph node biopsies with their age and sex correlation while Figure shows the age distribution and peak ages of the four major specific lymph node disorders.

Tuberculous lymphadenitis occurred predominantly in young adult females. Of the 114 cases of tuberculosis encountered, 92.8% of cases occurred before the age of 45 years with a peak between 15-24 years and a sex ratio of 2.4 :1::F:M. In contrast, metastatic lymph node involvement was consistently the commonest cause of lymph node enlargement above the age of 35 years with a peak at 65-75 years (Figure).

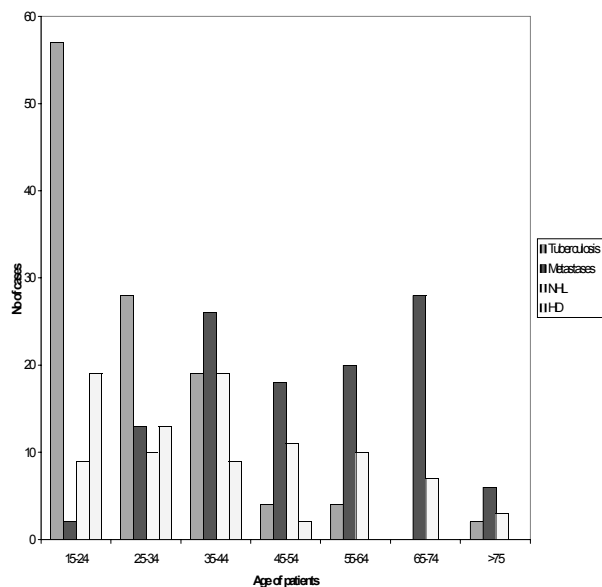


Figure. Age distribution of patients with the four major specific causes of Lymphadenopathy.

Hodgkin's lymphoma was predominantly observed in young adult males with a peak age at 15-24 years, M:F ratio of 6.2:1, and no case above the age of 55 years.

Onchocerciasis occurred predominantly in young adult females between 20-28 years of age and affected the inguinal lymph nodes in 75% of cases.

Of 84 patients tested for human immunodeficiency virus (HIV) infection, HIV positivity was observed in 6 (7.1%) patients. These included four patients with tuberculous lymphadenitis, the only case of Kaposi's sarcoma and a case of non Hodgkin's lymphoma.

Discussion

Tuberculosis has been reported by several authors as

the predominant cause of lymph node enlargement in adults in the tropics.¹⁻⁴ This was also the finding in this study with tuberculous lymphadenitis constituting 26.7% of cases. The high incidence of tuberculosis has been attributed to the low socio-economic status and the attendant poor standard of living in the third world countries.¹² It is therefore not surprising that in the Western countries, infections like tuberculosis have become rare and malignancies including lymphoma are now, the predominant causes of lymph node enlargement.^{5,6} In this study, tuberculosis affected predominantly the cervical group of lymph nodes of young adult females with a peak at 15-24 years. Only 8 (7.2%) of 114 patients with tuberculous lymphadenitis were above 45 years of age. These are consistent with the findings of other authors in the tropics.^{1-4,12-14}

In this report, malignant tumours constituted 55.0% of cases. This is higher than the 30-40% reported in previous Nigerian studies¹⁻⁴ but lower than 65% documented in the western series.^{5,6} Metastatic lesions constituted 26.5% of cases which is also slightly higher than 18-22.3% observed in other local studies.¹⁻⁴ The relatively higher incidence of malignant and metastatic tumours observed in this series when compared to previous local studies may be due to the exclusion of children from this study. Consistent with previous reports¹⁻⁴, metastatic disease was the commonest cause of lymph node enlargement above the age of 45 years.

Lymphoma was the third commonest specific cause of lymphadenopathy constituting 26.2% cases. This is slightly lower than the 28.8% reported by Obafunwa in Jos¹ but higher than the 19.1% reported by Pindiga in Maiduguri.³ Most of these cases (17.4%) were of the non Hodgkin's lymphoma type. Hodgkin's lymphoma constituted 10.1% cases and showed marked predilection for the cervical group of lymph nodes in young adult males with paucity of cases above the age of 45 years and a striking M:F ratio of 6.2:1. These findings corroborate other previous reports from the tropics.^{1-4,13-15} Consistent with previous reports from Nigeria¹⁻⁴, and other parts of the tropics^{13,14}, regional lymphadenopathy was the rule (89.0%).

In this study, non specific reactive lymphadenopathy constituted 81 (19.0%) cases, which has been documented as a common cause of lymph node enlargement in the tropics and rates ranging from 15-22% have been observed in adults in previous Nigerian and other African series.^{1-4,13} Higher figures of 20.6-41.0% have however been observed in children.^{10,11} In this and most other series¹⁻³, the inguinal lymph nodes were most commonly affected.

The association of human immunodeficiency virus (HIV) infection with tuberculosis and tumours has been

widely documented.^{2,7,8} In this study, HIV positivity was observed in six (8.89%) of the 84 patients tested. These included four cases of tuberculous lymphadenitis, the only case of Kaposi's sarcoma encountered and a case of non Hodgkin's lymphoma.

Lymph node biopsy is a time tested diagnostic procedure practiced worldwide and is the main stay of treatment in many centers in the tropics. While yields of 63-100% have been reported in various Nigerian studies¹⁻⁴, the yield in this centre was 95%. Despite these encouraging results, fine needle aspiration cytology (FNAC), which is cheaper, and less invasive is presently, advocated as a first line diagnostic procedure. The usefulness of FNAC in the rapid diagnosis of lymph node masses has been attested by a few Nigerian authors.¹⁶ However, FNAC is not yet established as a routine diagnostic procedure in our institution. This unfortunately, has often resulted in undue delay in the diagnosis of lymph node masses.

Conclusion

The pattern of disease observed in this study was similar to that of other third world countries. Tuberculosis, metastatic tumours and lymphomas had nearly equal incidences and presented mostly with cervical lymphadenopathy. Hence the empirical use of antituberculous therapy without histological diagnosis may cause a delay in the diagnosis of malignancy. However, the institution of fine needle aspiration cytology would significantly enhance early diagnosis and thus, the timely institution of appropriate treatment protocols.

References

- 1 Obafunwa JO, Olomu LN, Onyia NJ. Primary peripheral lymphadenopathy in Jos, Nigeria. *West Afr J Med* 1992; 11: 25-8.
- 2 Mandong BM, Nwana EJC, Igun G, Dakum AN. Surgical lymph node biopsies in Jos University Teaching Hospital, Jos, Nigeria. *Nig J Surg Res* 1999; 1: 63-7.
- 3 Pindiga UH, Dogo D, Yawe T. Histopathology of primary peripheral lymphadenopathy in North Eastern Nigeria. *Nig J Surg Res* 1999; 1:68-71.
- 4 Thomas JO, Ladipo JK, Yawe T. Histopathology of lymphadenopathy in a tropical country. *East Afr Med J* 1995; 72: 703-5.
- 5 Freidig EE, McClure SP, Wilson WR, Banks PM, Washington JA. Clinical-histologic-microbiologic analysis of 419 lymph node biopsy specimens. *Rev Infect Dis* 1986; 8: 322-8.
- 6 Sriwatanawongsa V, Cardoso R, Chang P. Incidence of malignancy in peripheral lymph node biopsy. *Am Surg* 1985; 51:587-90.
- 7 Markowitz N, Hansen NI, Hopewell PC, Glassroth J, Kvale PA, Mangura BT, et al. Incidence of tuberculosis in the United States among HIV infected persons. *Ann Intern Med* 1997;126:123-32.
- 8 Bem C, Patil PS, Bharucha H, Namaambo K, Luo N. Importance of human immunodeficiency virus-associated lymphadenopathy and tuberculous lymphadenitis in patients undergoing lymph node biopsy in Zambia. *Br J Surg* 1996; 83: 75-8.
- 9 Okolo SN, Nwana EJ, Mohammed AZ. Histopathologic diagnoses of lymphadenopathy in children in Jos, Nigeria. *Niger Postgrad Med J* 2003;10:165-7.
- 10 Lake AM, Oski FA. Peripheral lymphadenopathy in childhood. Ten-year experience with excisional biopsy. *Am J Dis Child* 1978; 132: 357-9.
- 11 Adelusola KA, Oyelami AO, Odesanmi WO, Adeodu OO. Lymphadenopathy in Nigerian children. *West Afr J Med* 1996;15: 97-100.
- 12 Narang P, Narang R, Narang R, Mendiratta DK, Sharma SM, Tgagi NK. Prevalence of tuberculous lymphadenitis in children in Wardha district, Maharashtra State, India. *Int J Tuberc Lung Dis* 2005; 9:188-94.
- 13 Abba AA, Bamgboye AE, Afzal M, Rahmatullah RA. Lymphadenopathy in adults. A clinicopathological analysis. *Saudi Med J* 2002; 23: 282-6
- 14 Getachew A, Demissie M, Gemechu T. Pattern of histopathologic diagnosis of lymph node biopsies in a teaching hospital in Addis Ababa, 1981-1990. *Ethiop Med J* 1999; 37:121-7.
- 15 Muthuphei MN. Cervical lymphadenopathy at Ga-Rankuwa Hospital (South Africa): a histological review. *Cent Afr J Med* 1998; 44: 311-2.
- 16 Thomas JO, Adeyi D, Amanguno H. Fine-needle aspiration in the management of peripheral lymphadenopathy reported in a developing country. *Diagn Cytopathol* 1999; 21:159-62.