

Changing Trends in Lymph Node Lesions in Owerri, South East Nigeria

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Abstract

Aim: The objective of this study is to define the common causes of both peripheral and visceral lymphadenopathy in Owerri and compare with the previous studies. **Methodology:** The surgical day books, the histology request, and report forms, as well as the operative findings, were used to retrieve the biodata of patients, history, clinical and histologic diagnoses. **Results:** The mean age was 37.41 years with age range of 2 to 84 years. The peak age of lymphadenopathy was in the 11-20 years age group. There was a female preponderance giving a male to female ratio of 1:1.2. The commonest disease involving the lymph nodes in this study is metastatic carcinomas which constituted 50% (28 cases). The second commonest lesion was reactive lymphoid hyperplasia which contributed 17.86% (10/56), tuberculous lymphadenitis 14.29% (8/56), the lymphomas constituted 8.93% (5 cases), dermatopathic lymphadenitis and Kikuchi-Fujimoto disease (KF) contributed 3.57% (2 cases) and a single case (1.79%) of chronic non-caseating granulomatous inflammation. **Conclusion:** Contrary to the previous belief that infectious and inflammatory diseases were the commonest cause of lymphadenopathy in the developing world, this study demonstrated that malignant neoplastic disease is taking a pride of place in lymphadenopathy in our environment.

Keywords: Lymph nodes; Owerri; Nigeria

Introduction

Lymph node enlargement is a clinical sign with unpredictable definitive diagnosis since the causes are protean. Lymph nodes tend to occur in groups, particularly in areas where the lymphatics converge to form larger trunks as in the neck, axilla, groin, lung hilum and paraaortic regions.^[1] Clinically, lymphadenopathy may be peripheral or visceral. Peripheral lymphadenopathies are easily detected by routine physical examination and are often biopsied as they are easily accessible for lymphadenectomy, which is a minor surgical procedure. Visceral lymphadenopathy, on the other hand, requires laparotomy or sophisticated imaging techniques for detection.^[2] In view of the avalanche of possible differential diagnoses, it is imperative for the clinicians to have the knowledge of the common causes of lymphadenopathy in their locality.^[3]

The objective of this study is to define the common causes of both peripheral and visceral lymphadenopathy in Owerri and compare with the previous studies.^[4,5]

Methodology

The archives of the Department of Pathology, FMC Owerri were the source of the data used in this study. Lymph node biopsies submitted to the department from January 1, 2014, to December 31, 2016, was reviewed. The surgical daybooks, the histology request, and report forms, as well as the operative findings in the case notes, were used to retrieve the bio data of patients, clinical history, clinical and histology diagnoses. The histology slides were reviewed and unsatisfactory slides were reproduced

by making of 2-3 µm tissue sections from the formalin-fixed paraffin embedded tissue blocks and stained with hematoxylin and eosin (H&E). These were analyzed using simple statistics.

Results

A total of 56 lymph node biopsies met the criteria for this study in the period under review constituting 28.43% of the entire lymphoreticular lesion submitted to the Department of Pathology, FMC Owerri, in the past five years. The mean age was 37.41 years with age range of 2 to 84 years. The peak age of lymphadenopathy was in the 11-20 years age groups. There was a female preponderance with a male to female ratio of 1:1.2

Regional lymphadenopathy constituted 96.9% (54/56) while generalized lymphadenopathy made up 3.1%. Visceral lymph nodes constituted 25%. Neoplastic lesion made up 58.93% of the lymph node diseases in this study. The most involved group of lymph nodes was the cervical group 15 (26.79%) followed closely by an axillary group of lymph nodes 14 (25%). This is shown in Table 1.

The commonest disease involving the lymph nodes in this study is metastatic carcinomas which constituted 50% (28 cases). The second lesion was reactive lymphoid hyperplasia which made

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Table 1: Showing the relative frequency of regional lymph node involvement.

s/n	Regional lymph nodes	Freq	%
1	Cervical	15	26.79
2	Axillary	14	25.00
3	Omental	6	10.71
4	Inguinal	5	8.93
5	Mesenteric	4	7.14
6	Intramammary	3	5.36
7	Generalized	2	3.57
8	Cubital fossa	1	1.79
9	Greater curvature	1	1.79
10	Mesocolic	1	1.79
11	Iliac	1	1.79
12	Antral	1	1.79
Total		56	100.00

Table 2: Summarizes the histological diagnosis, age groups involvement and the sex distribution.

S/N	Age groups	Freq	%	RH	Tb	Met	NHL	HD	KF	DL	NCG
1	01-Oct	4	7.14	2	1	-	-	1	-	-	-
2	Nov-20	12	21.23	2	4	1	1	-	2	1	-
3	21-30	7	12.5	3	1	1	-	-	-	-	1
4	31-40	9	16.07	-	2	7	-	-	-	-	-
5	41-50	7	12.5	-	-	6	-	-	-	1	-
6	51-60	8	14.29	2	-	5	-	1	-	-	-
7	61-70	5	8.93	-	-	3	2	-	-	-	-
8	71-80	3	5.36	-	-	3	-	-	-	-	-
9	81-90	1	1.79	-	-	1	-	-	-	-	-
	Total	56	100	9	8	28	3	2	2	2	1
	%	----	----	16.1	14.3	50	5.36	3.57	3.57	3.57	1.79
	M:F	1:12	----	2:3.5	1:1	1:2.1	2:1	2:0	1:1	1:1	01:0

RH: Reactive Hyperplasia, Tb: Tuberculous Lymphadenitis, Met: Metastasis, NHL: Non-Hodgkin's Lymphoma, HD: Hodgkin's Disease, KF: Kikuchi-Fujimoto Disease, DL: Dermatopathic Lymphadenitis, NCG: Non-Caseating Granulomatous Inflammation.

Table 3: Shows a comparison of the two studies in FMC Owerri, all the figures are presented in percent of the lesions.

Title	M: F	Peak	RH	Tb	MET	NHL	HL	KF	Derm	NCG	RD	Onch
Egejuru [1]	1:1.2	11-20	16.6	14.3	50.0	5.36	3.57	3.57	3.57	1.79	---	---
Mbata [15]	1:1.3	20-29	32.62	28.37	19.15	12.06	4.96	---	----	----	0.71	0.71

1: Current study. RH: Reactive hyperplasia, Tb: Tuberculous lymphadenitis, Met: Metastasis, NHL: Non-Hodgkin's Lymphoma, HD: Hodgkin's Disease, KF: Kikuchi-Fujimoto Disease, Derm: Dermatopathic lymphadenitis, NCG: Non-caseating Granulomatous Inflammation, RD: Rosai Dorfman, Onch: Onchocerciasis.

up 17.86% (10/56), tuberculous lymphadenitis 14.29% (8/56), the lymphomas constituted 8.93% (5 cases), dermatopathic lymphadenitis and Kikuchi-Fujimoto disease contributed 2 cases each (3.57%) and a single case (1.79%) of chronic non-caseating granulomatous inflammation. Table 2 and Table 3 summarize the histological diagnosis, age groups involved and the sex distribution.

Discussion

A total of 56 lymph node biopsies met the criteria for this study in the period under review. The mean age was 37.41 years with age range of 2 to 84 years. The peak age of lymphadenopathy was in the 11-20 years age group. There was a slight female preponderance with a male to female ratio of 1:1.2 The mean age of the patients agreed with studies in Benin City, Ibadan, Malawi, Saudi Arabia. [6-9] However, other reports demonstrated mean ages between 8.3 ± 3.1 and 42.47 ± 15.64 years. [1,10] The gender ratio was similar to observations in Nepal, India, and South Africa. [11-13] Nonetheless, several other reports maintained a marked male preponderance. [3-7,9,10]

Regional lymphadenopathy constituted 96.9% (54/56) while generalized lymphadenopathy made up 3.1%. The most involved group of lymph nodes was the cervical group 15 (26.79%) followed closely by axillary group of lymph nodes 14 (25%), omental 10.71% (6), Inguinal 8.93% (5/56), mesenteric 7.14% (4/56), intramammary 5.36% (3/56), generalized 3.57% (2/56) and others 8.93% (5/56). Cervical lymphadenopathy is the leading regional lymph node enlargement in most studies ranging from 45.4% in a previous study in this center to 73.8% in Enugu. [14-18] However, axillary lymphadenopathy is the commonest in Ibadan even though the majority of the reports demonstrated that it is almost always the second regional lymphadenopathy after the cervical group. [2,7,9,12,14]

The commonest disease involving the lymph nodes in this study is metastatic carcinomas which constituted 50% (28 cases). Despite the reports that metastatic diseases involving the lymph nodes are commoner in developed countries, [19] our study showed that 50.0% (28/56) was due to lymphatic spread of malignant epithelial neoplasm. Several reports from Nigeria

appear to reflect an increase in the involvement of lymph nodes by either primary or secondary neoplastic diseases. For instance, the commonest cause of lymphadenopathy in Ibadan (35.7%) and Lagos (33.6%) was metastatic carcinomas.^[7,20] Similar report was made by Anthony and Al-Sohaibani et al.^[21,22] in the United Kingdom and Kingdom of Saudi Arabia respectively. Moreover, metastatic neoplasm to the lymph nodes constituted 19%, 26.7%, 19.97%, 12.57% in Kano, Benin City, India and Bangladesh respectively.^[2,6,12,17] The marked increase in the secondary carcinoma to the lymph nodes in this study could be due to the increased biopsies from intra-abdominal groups (visceral) on which constituted 25% (14/56) of all the biopsies studied. In Texas, USA Lu et al.^[23] reported that malignancies are more likely to be diagnosed from a supraclavicular, retroperitoneal and intra-abdominal group of lymph nodes. In this study, most of the people affected by secondary neoplasm were in the 4th and 6th decades of life. Similar observations were made in India and Netherlands respectively.^[24,25]

Non-specific reactive lymphoid hyperplasia was the second most common lesion and constituted 17.86% (10/56) in this study. However, three years ago Mbata et al.^[15] reported that reactive lymphoid hyperplasia was the commonest peripheral lymph node pathology Owerri and constituted 32.6%. Similar reports were made from Kano, India, Zimbabwe respectively.^[2,26,27] Moreover, our observation is relatively lower than reports from Benin City, Nepal, and India where non-specific hyperplasia constituted 25.4%, 19% 21.6% respectively.^[3,11,26] Tuberculous lymphadenitis is a common clinical finding in sub-Saharan Africa and the tropics. Chronic granulomatous inflammation constituted 16.07% (9/56) with tuberculous lymphadenitis making up 14.29% in this study. Sixty-two and a half percent involved the cervical group of lymph nodes and 37.5% occurred in patients below the age of 20 years. Several reports demonstrated that tuberculosis is a leading cause of lymph node enlargement in our environment.^[2-3,6,14,15] Similar reports were made from Ethiopia, Zimbabwe, Nepal, India and Bangladesh.^[11,17,26-29]

The primary malignancies of the lymphoid system constituted 8.93% (5 cases); two (3.58%) were Hodgkin's while 3 (5.37%) were non-Hodgkin's lymphoma. This is markedly lower than the report by Mbata et al.^[15] from the same center three years ago in which Hodgkin's and non-Hodgkin lymphoma constituted 5% and 12% respectively. Similarly, other reports from Nigeria showed the same trend. For instance, Ochicha and Olu-Eddo et al.^[2,6] reported that lymphomas constituted 24% and 26.3% of the causes of lymphadenopathy in Kano and Benin City respectively. Furthermore, higher frequencies were reported from DR Congo, India and Saudi Arabia were lymphomas constituted 47.2%, 44.5%, 44.3% respectively.^[9,10,26] There was no defined predilection for the regional group of nodes as the cervical, axillary, inguinal groups and generalized patterns were represented with insignificant differences.

Conclusion

Dermatopathic lymphadenitis and Kikuchi-Fujimoto disease (KFD) contributed 2 cases each (3.57%). These lesions are

inflammatory in nature; while the former follows chronic dermal inflammatory responses the latter is idiopathic. Aramide et al.^[7] reported that 1.6% of lymph node lesions in UCH Ibadan were due to Dermatopathic lymphadenitis. Moreover, 0.3% and 0.5% were reported in South Africa and India respectively.^[9,12] Kikuchi-Fujimoto disease is a rare, self-limiting disease, which is characterized by regional lymphadenopathy. It occurs worldwide with a higher prevalence among Asians and women below the age of forty years.^[30] Akingbami et al.^[30] reported a case of KFD in a 41-year-old female in Lagos. In this study, the cases of KF occurred in people less than 25 years of age with no sex predilection. Similarly, Famularo et al.^[31] reported a single case of KFD in Rome, Italy.

Limitations

The most important limitation of this study was the incomplete records observed during the data collection which led to rejection of some cases of lymph node biopsies in the departmental archives. The authors were also compelled to out-of-pocket spending to ensure the research was given adequate funding as there was no grant attracted for it.

Ethical considerations

The research ethical clearance was obtained from research ethics committee, FMC Owerri

Conflict of Interest

All authors disclose that there was no conflict of interest.

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