

PERIPHERAL LYMPHADENOPATHY IN NIGERIAN CHILDREN

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ABSTRACT

Aim: Peripheral lymphadenopathy remains an extremely common clinical problem in Paediatrics. To define the causes of lymph node enlargement in children in this environment.

Material and Methods: A 20 year (1984-2003) retrospective study was conducted on all lymph node biopsies received from children (0-14 years) at the Department of Pathology, University of Benin Teaching Hospital, Benin City, Nigeria. Information derived from this study should serve as a diagnostic guide to clinicians.

Results: A total of 126 lymph node biopsies were received from children constituting 22.8% of all lymph nodes biopsies received during the period of study. The mean age was 8.3 years (SD \pm 3.1 years). Most (66.7%) cases were males. Regional adenopathy was observed in 90.5% of cases. Overall, the cervical group of lymph nodes was most commonly affected comprising 64 (50.8%) cases. Tuberculosis was the predominant cause of peripheral lymphadenopathy constituting 61 cases (48.4%) and also the commonest cause of cervical lymphadenopathy (62.5%). Non-specific reactive changes, non-Hodgkin's lymphoma, Hodgkin's lymphoma and metastatic carcinoma were seen in 32 (25.4%), 22 (17.4%), 7 (5.6%), and 2 (1.6%) cases respectively. Kaposi sarcoma and sarcoidosis constituted one case each.

Conclusion: In conclusion, the pattern of disease is similar to that of other developing countries. The triad of symptoms including fever, fatigue and weight loss, were recurrent in tuberculous and lymphoma patients. It is thus, imperative to commence antituberculous therapy only after histological diagnosis.

Key Words: Cervical lymphadenopathy; Tuberculosis; Lymphoma; Children.

INTRODUCTION

Surgical biopsy of lymph nodes has assumed an important diagnostic role in the management of chronic lymphadenopathy in childhood¹⁻³. Reports of several authors in Nigeria and other parts of the tropics emphasize the role of infective aetiology in association with malnutrition in childhood peripheral lymphadenopathy¹⁻⁵. Tuberculosis in particular has been documented in several studies as the major cause of childhood lymphadenopathy¹⁻⁵. In contrast, reports from the Western World implicate malignancy as the predominant cause of lymphadenopathy with relative rarity of infective conditions such as tuberculosis^{6,7}. Furthermore, generalized lymphadenopathy in association with human immunodeficiency virus infection has been documented worldwide⁸.

Nevertheless, the precise incidence of lymphadenopathy is unknown and remains one of the most common clinical problems encountered in

Paediatrics. Considering the avalanche of possible differential diagnoses, it is imperative for the clinicians to have knowledge of the common causes of lymphadenopathy in their locality. This study is thus aimed at defining the causes of lymph node enlargement in children in Benin City, Nigeria. It is believed that information derived from this study would be of immense value in the management of children with peripheral lymphadenopathy. Moreover, it would serve as a baseline for future research.

MATERIALS AND METHOD

All cases of lymph node biopsies accessioned at Department of Pathology, University of Benin Teaching Hospital, Benin City, Nigeria from January 1st, 1984 to December 31st, 2003 were reviewed. The cases in children 14 years of age or below, formed the focus of this retrospective study. Information regarding age, sex, anatomical site of nodal biopsy and clinical information were obtained from request cards and case files. Slides were retrieved from the archives of the Department of Pathology. Where

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

RESULTS

During the 20 year period of study (1984-2003), a total of 126 lymph node biopsies were obtained from children constituting 22.8% of the total number of lymph node biopsies received in the Department. Of these, 84 (66.7%) biopsies were in males while 42 (33.3%) biopsies were in females giving a male to female ratio of 2:1. The mean age of patients was 8.3 years (SD) \pm 3.1 years with an age range of 1.5-14 years. Figure I shows the histopathological diagnosis of lymph node biopsies with their sex correlation. All the diseases with the exception of sarcoidosis showed a male predominance. Table 1 shows the site distribution of the various types of diseases and the frequency of enlargement of the different groups of lymph nodes. Tuberculosis and non Hodgkin's lymphoma were the commonest specific disorders of lymph nodes constituting 61 (48.4 %) and 22 (17.4 %) cases respectively, and were the only causes of generalized

lymphadenopathy. Most cases (48.4%) of tuberculous lymphadenitis were in the cervical group of lymph nodes. Tuberculosis was also the commonest cause (62.5 %) of cervical lymphadenopathy. A review of BCG immunization status (Table 2) showed that while 68.5% of the non immunized children had tuberculous lymphadenitis, only 37.5% of the immunized children were infected. The triad of symptoms of fever, fatigue and loss of weight were recurrent in tuberculous and lymphoma patients (Table 3). Regional lymphadenopathy was observed in 114 (90.5%) cases. The cervical group of lymph nodes was most frequently affected constituting 64 (50.8%) cases. All the 7 (5.6%) cases of Hodgkin's lymphoma and the 2 (1.6 %) cases metastatic tumours encountered in this series involved only the cervical group of lymph nodes. The metastatic tumours were of nasopharyngeal origin. The four types of non specific reactive lymphadenopathy, when pooled together constituted 32 (25.4%) cases and were thus the 2nd commonest cause of lymph node enlargement in this series (Table 1). Kaposi sarcoma and sarcoidosis were rare, constituting one (0.8%) case each. Of forty five cases tested for human immunodeficiency virus (HIV) infection, HIV positivity was observed in four (8.89%) cases. These included the only case of Kaposi sarcoma and three cases of tuberculous lymphadenitis.

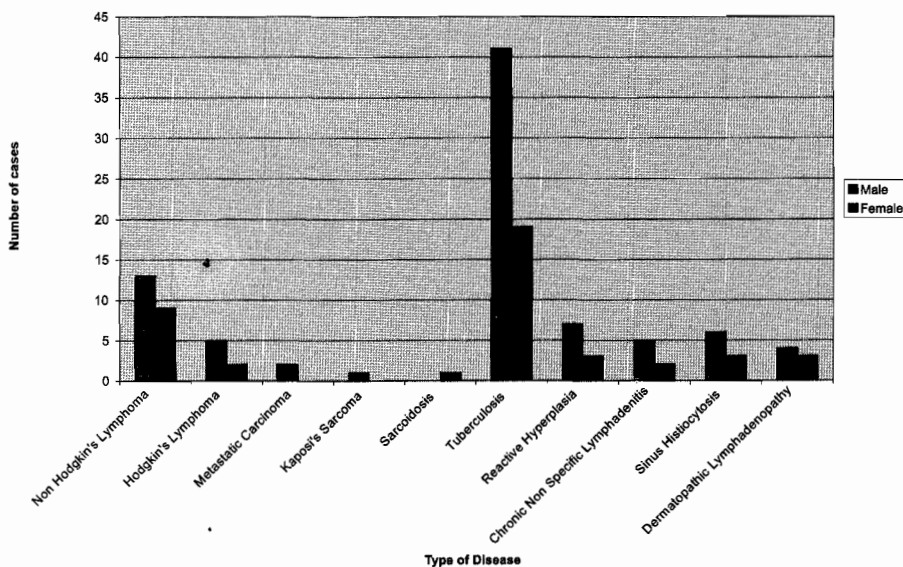


Figure I: Sex Distribution of Children with peripheral lymphadenopathy.

Table 1: Biopsies sites and Histological diagnosis

Histological diagnosis	Site of biopsy						Total	Percentage (%)
	Cerv	Ing	Axi	Sub	Supra	Gen		
Tuberculosis	40	8	3	3	2	5	61	48.4
Non Hodgkin's lymphoma	10	5	-	-	-	7	22	17.4
Hodgkin's lymphoma	7	-	-	-	-	-	7	5.6
Metastatic carcinoma	2	-	-	-	-	-	2	1.6
Kaposi's Sarcoma	-	1	-	-	-	-	1	0.8
Sarcoidosis	1	1	-	-	-	-	1	0.8
Reactive hyperplasia	1	4	3	2	-	-	10	7.9
Chronic non specific lymphadenitis	2	3	1	1	-	-	7	5.6
Sinus histiocytosis	1	3	2	1	-	-	8	6.3
Dermatopathic lymphadenopathy	-	4	2	1	-	-	7	5.6
Total no of case	64	29	11	8	2	12	126	100.0
Percentage (%)	50.8	23.0	8.7	6.3	1.6	9.5	100.0	

Cerv = Cervical., Ing = Inguinal., Axi = Axillary., Sub = Submandibular.,
Supra = Supraclavicular., Gen =Generalized

Table 2: BCG Immunization status

BCG immunization status	No of cases	Percentage (%) (total no of cases = 126)	No of Cases with tuberculous lymphadenitis	Percentage of Cases with tuberculous lymphadenitis (%)
Immunized	72	57.9	27	37.5
Non immunized	54	42.1	37	68.5

Table 3: Clinical signs and symptoms at presentation

Clinical Features	No of cases (N = 126)	Percentage (%)
Lymph node swelling	126	100.0
Fever	28	22.2
Night sweats	19	15.1
Joint pains	11	8.7
Weight loss	19	15.1
Fatigue	29	23.0
Splenomegaly	24	19.0
Hepatomegaly	15	11.9

DISCUSSION

Several reports show that tuberculosis is the predominant cause of lymph node enlargement in children in the tropics¹⁻⁵. This was also the finding in this study with tuberculous lymphadenitis constituting 48.4% of cases. It is noteworthy that in the Western countries, infections like tuberculosis have become rare, and malignant conditions including lymphoma are now, the predominant causes of lymph node enlargement^{6,7}.

In previous studies on peripheral lymph node enlargement, the cervical group of lymph nodes was most commonly affected¹⁻³. This was also our observation as more than half of the patients (50.8%) in this study presented with cervical adenopathy. In correlation with previous reports¹⁻⁵, the predominant cause of cervical lymphadenopathy was tuberculosis accounting for 62.5% of the cases of cervical lymphadenopathy (Table 1). Involvement of the cervical group of lymph nodes in tuberculosis is not unexpected as lungs infected by tuberculosis would naturally drain through the hilar lymph nodes to the cervical, mediastinal, and supraclavicular lymph nodes. The observation that relatively fewer (37.5%) of the immunized children when compared to the non immunized children (68.5%) had tuberculous lymphadenitis is not surprising. This demonstrates the value of immunization in preventing tuberculous infections. However, that 37.5% and 50% of the immunized children in this and Okolo's³ series respectively had tuberculosis shows a defect in the immunization programme. That only 57.1% of children had records of BCG put into immunization shows the need to intensify the efforts

the execution of the Expanded Programme of Immunization. Malignant lesions constituted 24.6% of cases which is similar to the observations of Ademiluyi in Lagos¹ and Adelusola in Ife². Furthermore, in keeping with previous reports from Nigeria^{1-3,10} and other parts of the world^{4,6}, the malignant lesions were predominantly (23.0%) lymphoma. In this series, in accordance with previous reports from Nigeria and other third world countries^{1-5,10-12}, lymphoma was 2nd commonest specific cause of lymphadenopathy. Most of these cases (17.4%) were of the non Hodgkin's lymphoma type. Though much lower than the 33% cases reported by Okolo³, it is interesting to note however that in the Ife series, Hodgkin's lymphoma was the predominant malignant cause of lymph node enlargement². All the 7 (5.6%) cases of Hodgkin's lymphoma encountered in this study involved the cervical group of lymph nodes. This is in keeping with the reports of several authors documenting the preponderance of superficial cervical lymphadenopathy as the presenting feature of Hodgkin's lymphoma¹⁻³. The preferential involvement of the cervical group of lymph nodes in Hodgkin's lymphoma is probably due to the easy accessibility of the cervical group of lymph nodes. Other factors such as infectious agents affecting portals of entry and varying lymph node susceptibility might also be responsible. The triad of symptoms including fever, fatigue and loss of weight were recurrent in patients with tuberculosis and lymphoma. Thus the empirical use of antituberculous therapy without histological diagnosis may result in a delay in the diagnosis of lymphoma. It is therefore, mandatory that the histological study of chronically enlarged lymph nodes be done before definitive treatment is started. Metastatic lesions were rare, constituting 2 (1.6%) cases and involved only the cervical group of lymph nodes. These cases seen were of nasopharyngeal origin. Slightly higher values of 8.6% and 4.9% were recorded by Ademiluyi in Lagos¹ and Okolo in Jos³ respectively. However, some authors did not observe cases of metastases in their series⁶. Interestingly, these observations contrasts sharply with the high incidences of metastatic lesions recorded in adults^{9,10}. Regional adenopathy was the rule as only 12 (9.5%) patients presented with generalized lymphadenopathy. These were also the findings of Adelusola in Ife² and Asindi in Calabar¹¹. It was striking to observe that in this series, all the cases with generalized lymphadenopathy were either diagnosed histologically as tuberculosis or non Hodgkin's lymphoma. Human immunodeficiency virus (HIV) infection has been associated with several infections and tumours. In this study, HIV positivity was observed in four (8.89%) of the 45 patients tested.

Three of these patients had tuberculous lymphadenitis while the fourth patient was the only case of Kaposi sarcoma encountered. All the four types of non specific reactive lymphadenopathy, when pooled together constituted 32 (25.4%) cases and were thus the 2nd commonest cause of lymph node enlargement in this series (Table 1). Non specific reactive lymphadenopathy is documented as a common cause of lymph node enlargement in children in the tropics and rates ranging from 20.6%-41.0% have been observed in previous Nigerian and other African series^{1-3,5}. In this and most other series¹², the inguinal lymph nodes were most commonly affected. This may be due to the tendency of children in the tropics to move around bare footed. However, considering the indications for biopsy, many patients with reactive lymphadenopathy may not have had biopsy of their lymph nodes. Indications for biopsy included failure to respond to antibiotic therapy, rapid increase in size of lymph nodes, hard-matted lymph nodes and difficulty in diagnosis. Lymph node biopsy is a time tested diagnostic procedure practiced worldwide. High yields of 75%-100 % have been reported in various studies^{10,13}. 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. Few Nigerian authors have attested to the usefulness of FNAC in the rapid diagnosis of Lymph node masses¹⁴. However, FNAC is not yet established as a routine diagnostic procedure in our institution. This unfortunately, has resulted in undue delay in diagnosis.

CONCLUSION

The pattern of disease observed in this study was similar to that of other developing countries. Thus, while tuberculosis was the predominant infective cause of peripheral lymphadenopathy, lymphoma was the major malignant cause. These two conditions may have similar clinical presentation. Hence 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 enhance early diagnosis and thus, the timely institution of appropriate therapeutic regimen.

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