
PERIPHERAL LYMPHADENOPATHY IN BASRAH. A HISTOPATHOLOGICAL STUDY OF 1167 CASES DURING (1980-1997) PERIODS

Sawsan S. Al-Harron^{*}, Suadad A. AL-Nakshabandi[#], Mohammed K. Al-Wiswasy[@]

^{*}M. Sc., FICMS Path, Lecturer, [#] M.Sc. Lecturer, [@] FRCPath, Assistant Professor, Department of Pathology, College of Medicine University of Basrah, Basrah; IRAQ.

Summary

A review of the histopathological examination reports of 1167 cases of peripheral lymphadenopathy (LAP) received in the Department of Pathology in Basrah Saddam Teaching Hospital (1980-1997) and from Al-Wiswasy Private Laboratory (1984-1997) in two different periods (1980-1989) and (1990-1997) was done. Tuberculous lymphadenitis was the commonest pathological lesion in both periods. It was responsible for 36.9% and 46.3% of the total cases respectively, with an 80% rise of cases per year in the 2nd period. Neoplastic LAP was responsible for 32.9% and 37.2% of the total cases in the two periods respectively, with 61% rise in the average number of cases per year in the 2nd period. In both periods, primary lymphoid tumours were more frequent than metastatic malignancy, with 106/74 cases in the 1st period and 141/90 cases in the 2nd period respectively with a ratio of 1.5:1 for both. Non-specific reactive hyperplasia and other inflammatory lesions account for 30.2% and 16.5% of peripheral LAP in the two periods respectively, with a 23% decrease in the average number of cases per year. The mean age, sex and site distribution of different pathological lesions were demonstrated. In all these varieties of peripheral LAP, males were affected more than females except in tuberculosis. Cervical lymph nodes were most frequently involved in both periods. A comparison of the results were made with similar studies.

Introduction

Peripheral lymphadenopathy (LAP) is a common problem encountered in clinical practice, it could be a sign of inflammation, non-specific reactive hyperplasia and other inflammatory lesions, lymphomas or metastatic malignancy^{1,2}.

Enlarged peripheral lymph nodes requiring investigations are defined as one or more nodes equal to or greater than 1 cm in diameter, newly recognized and not known to arise from a previously recognized cause. Multiple smaller nodes may also require investigations^{2,3}.

Correspondence to:

Dr. Suadad A. Al-Nakshabandi
Department of Pathology, University of Basrah
College of Medicine, Basrah, IRAQ.

Lymph node biopsy is an essential step in evaluating the nature of the patho-

logical process responsible for LAP as there is no single clinical feature that, by its presence or absence, can predict the histological diagnosis at biopsy examination^{4,5}.

In Iraq, primary tumour of lymphoid tissue is relatively common. It accounts for 9.3% of total cancer cases, ranking the 3rd most common cancer (Iraqi Cancer Registry 1995-1997)⁶, and the 2nd commonest cancer in Basrah forming (11.6%) in 1999⁽⁷⁾. Therefore, the major indication for lymph node biopsy is to exclude malignancy.

This work was undertaken in order to assess the relative frequency of various pathological lesions diagnosed by histopathological examination of enlarged peripheral lymph nodes.

Materials and Methods

The histopathological reports of patients with peripheral LAP diagnosed in the Pathology Department of Basrah Saddam Teaching Hospital (1980-1997) and AL-Wiswasy Private Laboratory (1984-1997) during two different periods (1980-1989) and (1990-1997) were reviewed.

The age and sex of the patients and the sites of the examined lymph nodes were recorded. The histopathological examination reports of peripheral LAP from a previously known cancer cases were excluded from this study, i.e. the study include only first time diagnosed cancer cases of peripheral LAP, whether primary or metastatic. The study excludes regional lymph nodes that were attached to surgical specimens of resected malignant tumours.

Results

The results are summarized in Table (I-V) and Figure (1-2). There were a total of 1167 cases of peripheral LAP in 18 years period (1980-1997). In the 1st 10 years period (1980-1989), there were a

total of 547 cases with an average number of 54.7 cases per year, of these 202 cases (36.9%) were tuberculosis (average number of 20.2 cases per year), 180 cases (32.9%) were neoplasms (average number 18 cases per year) and 165 (30.2%) were non-specific reactive hyperplasia and other inflammatory lesions (average number 16.5 cases per year), Table I, Figure (1), compared with a total of 620 cases in the 2nd 8 years period (1990-1997) with an average number of 77.5 cases per year, in which tuberculosis, neoplasms and non-specific reactive hyperplasia and other inflammatory lesions, were 287 cases (46.3%) with average number of 35.8 cases per year, 231 cases (37.2%) with average number of 28.8 years per year and 102 cases (16.5%) with average number of 12.75 cases per year respectively.

Table II demonstrates the mean age of the patients and sex distribution in various pathological lesions of peripheral LAP during the two different periods.

The relative frequency and the mean age of patients with different neoplastic lymphadenopathies were shown in Table III. In both periods, primary lymphoid tumours (non-Hodgkins lymphoma and Hodgkins disease) were more frequent than metastatic malignancies. In the 1st period primary lymphoid tumours were 106 cases out of total 180 cases (58.8%), and it constitutes 141 cases out of total 231 cases (61%) in the second period, metastatic malignancies were detected in 74 cases out of the total 180 cases of neoplastic lesions (41.1%), and 90 cases out of total 231 cases of neoplastic lesions (38.9%) in both periods respectively.

Non-Hodgkin's lymphoma was the commonest primary tumour in the 1st period (34.4%), while Hodgkin's disease exceeded it in the 2nd period (32.5%). Diffuse large cell lymphoma was the commonest subtype of Non-Hodgkin's lymphoma in both periods (75.8% and

65.1%) respectively, and mixed cellularity Hodgkin's disease was the commonest subtype (65.9% and 69.3%) in both periods respectively. Adenocarcinoma was found to be the commonest metastatic carcinoma (52%), Table IV.

Table V and fig 2, show the site distribution of peripheral LAP. Cervical lymph nodes were the commonest site of involvement in 581 (49.8%), followed by axillary nodes 284 (24.3%), supra-

clavicular nodes 194 (16.6%) and inguinal nodes in 108 (9.3%).

Note:

$$\% \text{rise} = \frac{\text{Large no. of cases} - \text{small no. of cases}}{\text{Small no. of cases}} \times 100$$

$$\% \text{decrease} = \frac{\text{Large no. of cases} - \text{small no. of cases}}{\text{Large no. of cases}} \times 100$$

Table I. The relative frequency of various pathological lesions of peripheral LAP in two periods (1980-1989) and (1990-1997)

Lesion	1980-1989 (10 years)			1990-1997 (8 years)		
	No. of cases	Relative frequency %	Average no. per year	No. of cases	Relative frequency %	Average no. per year
Tuberculosis	202	36.9	20.2	287	46.3	35.8
Neoplasms	180	32.9	18	231	37.2	28.8
Non-specific reactive hyperplasia and other inflammatory lesions	165	30.2	16.5	102	16.5	12.75
Total	547	100	54.7	620	100	77.5

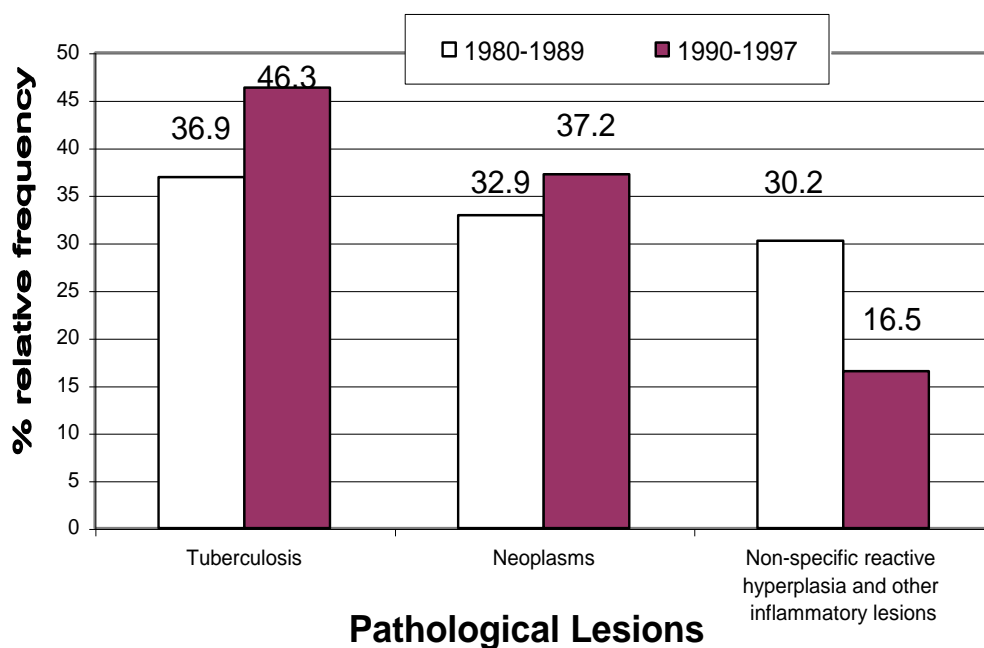


Figure 1.

Table II. The mean age of the patients and sex distribution in the various pathological lesions of peripheral LAP in two periods

Lesion	1980-1989				1990-1997			
	No.	Mean age	M	F	No.	Mean age	M	F
Tuberculosis	202	28.8	89	113	287	32.8	108	179
Neoplasms	180	48.4	114	66	231	47.3	147	84
Non-specific reactive hyperplasia and other inflammatory lesions	165	23.4	93	72	102	25.7	62	40
Total	547		361	186	620		393	86

Table III. The relative frequency and the mean age of the patients in different neoplastic lesions of peripheral LAP.

Neoplastic lesion	1980-1989 (10 years)				1990-1997 (8 years)			
	No.	Average no. per year	Relative frequency %	Mean age	No.	Average no. per year	Relative frequency %	Mean age
Non-Hodgkin's lymphoma	62	6.2	34.4	52.5	66	8.2	28.6	50.3
Hodgkin's disease	44	4.4	24.4	43.4	75	9.4	32.5	42.3
Metastatic malignancy	74	7.4	41.2	48.8	90	11.2	38.9	46.5
Total	180	18	100		231	28.8	100	

Table IV. The histological types, number and percentages of 164 cases of metastatic malignancies.

Histological type	No.	%
Adenocarcinoma	85	52
Squamous cell carcinoma	51	31
Undifferentiated carcinoma	28	17
Total	164	100

Table V. The site distribution of peripheral LAP in the 1st and 2nd period

Lesion	Cervical nodes	Axillary nodes	Supra-clavicular nodes	Inguinal nodes	Total	%
Tuberculosis	266	118	76	29	489	41.9%
Neoplasms	192	115	77	27	411	35.2
Non-specific reactive hyperplasia and other inflammatory lesions	123	51	41	52	267	22.9
Total	581	284	194	108	1167	100
%	49.8%	24.8%	16.6%	9.3%	100%	

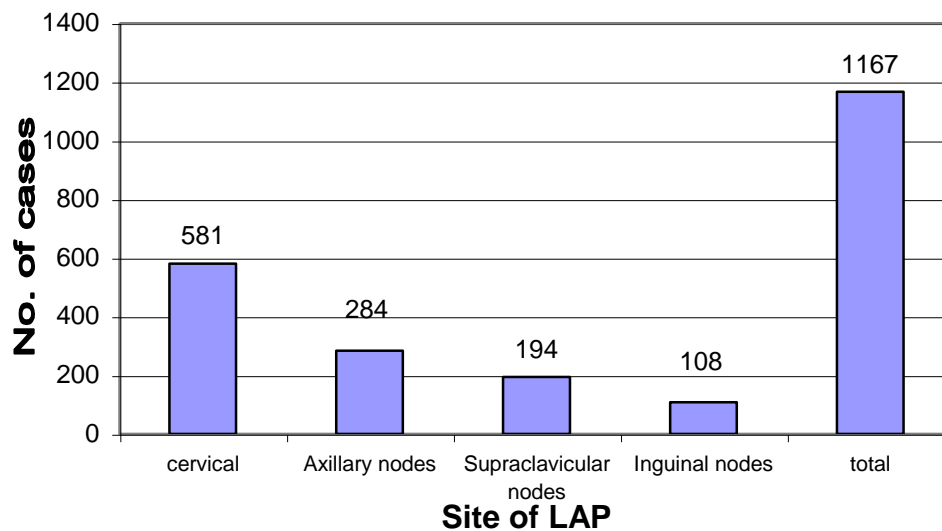


Figure 2.

Discussion

Enlarged peripheral lymph nodes occur in many conditions, either as a reaction to a local inflammatory process or associated with systemic diseases whose central focus is not in the lymphoreticular system, or due to neoplastic diseases^{1,8}.

In this study, tuberculous lymphadenitis was the commonest cause of peripheral LAP in both periods, followed by neoplasms and non-specific reactive hyperplasia and other inflammatory lesions. Tuberculous lymphadenitis was responsible for 36.9% and 46.3% of the total cases in the 1st and 2nd periods respectively. Tuberculosis is the most common cause of peripheral LAP in Basrah, and its incidence is rising from an average of 20.2 cases per year in the 1st period to 35.8 cases per year in the 2nd period, i.e. an increase of 80%. In an analysis of 759 cases of histopathologically diagnosed extrapulmonary tuberculosis in Basrah during the period (1985-1999), Al-Wiswasy found that the lymph nodes were the commonest site of involvement by extrapulmonary tuberculosis accounting for 72% of all cases⁹.

Further studies confirm and pinpointed inadequate chemotherapy and BCG immunization as a major cause of the deterioration in the epidemiological situation of the disease. The economic embargo on Iraq with associated nutritional problems and poor housing condition created further circumstances for the disease re-emergence¹⁰.

The present study, like other previous studies, showed a high prevalence of tuberculous lymphadenitis, in Baghdad¹² and Mosul¹¹, reported a relative frequency of 26.1% and 36.8% was respectively reported. Similarly Abdullah, et al.¹³ in Saudi-Arabia found a relative frequency of 37.9%. Also tuberculosis is common and forms a major health problem in other parts of the world¹⁴.

Neoplasm was the 2nd most common group of the diseases accounting for 32.9% and 37.2% of the total cases in the two periods respectively, with an increase from 18 cases per year in the 1st period to 28.8% cases in the 2nd period (i.e. 61% rise). In Al-Wiswasy study of the total new cancer cases in Basrah (excluding leukaemia) for the year 1999, a rise of 41% was found compared with the year 1990 with 263% rise of

lymphomas only⁷. This may be due to the effect of economic embargo and radiation effect of depleted uranium (DU) missile used in the 1991 war by USA and UK military forces against Iraq. The primary lymphoid tumours (Hodgkin's disease and Non-Hodgkin's lymphoma), were more frequent than metastatic malignancy with a ratio of 1.5:1 in both periods. In Baghdad¹² and in Mosul¹¹, a ratio of 1.08:1 and 1:1.1 was reported respectively. While in Saudi Arabia¹³ a reported ratio was 5:10. Non Hodgkin's lymphoma was the commonest primary tumour in the 1st period, while Hodgkin's disease was the commonest in the 2nd period with 113% rise from an average of 4.4 cases per year in the 1st period to 9.4 cases per year in the 2nd period, Table III, nearly equal incidence of non-Hodgkin's lymphoma and Hodgkin's disease (10.9% and 11.1%) respectively was found in Baghdad¹² and (8.7% and 8.1%) respectively in Mosul¹¹, similarly reported in Saudi Arabia¹³ (17.4% and 15.5%) respectively.

Diffuse large cell lymphoma was the commonest type of non-Hodgkin's lymphoma in both periods (75.8% and 65.1%) respectively, while mixed cellularity was the commonest subtype of Hodgkin's disease forming (65.9% and 69.3%) in both periods respectively. This is in agreement with other studies^{11,2,17}.

The lymph nodes are one of the most common sites of metastatic malignancy & sometimes constitute the first clinical manifestation of the disease¹⁸. In this study, adenocarcinoma was the commonest metastatic carcinoma 52% followed by squamous cell carcinoma 31% & undifferentiated carcinoma, Table IV. This is in consistent with other studies¹¹⁻¹⁵.

Non specific reactive hyperplasia and other inflammatory lesions was the third cause of peripheral LAP. In this study accounting for 30.2% and 16.5% in the two periods respectively, with a decrease

from 16.5 cases per year in the first period to 12.75 cases per year in the 2nd period, a decrease of 23%. This is due to the increase in the relative frequency of tuberculosis from 36.9% to 46.3% and neoplasms from 32.9% to 37.2% in the two periods respectively. Similarly reported by other studies in Baghdad¹² and Mosul¹¹ (31.6% and 25.9%) respectively. In Saudi Arabia¹³, the relative frequency of non-specific reactive hyperplasia and other inflammatory lesions accounting for 16.2% of the total cases.

Table II. The mean age of patients with tuberculosis was (28.8 years, 32.8 years), neoplasms (48.4 years, 47.3 years) and non-specific reactive hyperplasia and other inflammatory lesions (23.4 years, 25.7 years), in the 1st and 2nd period respectively. This is in agreement with other studies in Iraq, Alash, et al¹², found the mean age for tuberculosis, neoplasms and non-specific reactive hyperplasia (27.1 years, 40.2 years and 26.6 years) respectively and Al-Dewachi, et al¹¹ in Mosul, reported the mean age of tuberculosis (29.5 years), neoplasms (42.5 years) and non-specific reactive hyperplasia and other inflammatory lesions (26.6 years) and also similarly reported by other studies¹³.

In the three types of peripheral LAP, males were more affected than females except in tuberculosis which show female preponderance (M:F ratio, 1:1.5).

In Baghdad¹², Mosul¹¹ and Saudi Arabia¹³, reported M: F ratio for tuberculosis 0.5:1, 1:2.7 and 2:1 respectively, and also these results is consistent with what has been reported by other studies^{15,19,20}.

Regarding the site distribution, cervical lymph nodes were the most frequently involved than other sites in both periods, followed by axillary, supracalvicular and inguinal nodes. Such findings were reported by other studies^{9,11-13,15,20}. This reflects the greater proportion of lymph nodes situated in the neck. It has also

suggested that lymphoid tissue of the tonsils and adenoid provide an easy entry for the mycobacteria; easily recognized and palpable lymph node in the neck, and cervical lymph node receive lymphatic drainage from areas regarded as common sites of infections and malignancy¹².

References

1. Van Den Oord JJ, Wolf – Peeters and Desmet VJ. The composite nodule structural and functional unit of the reactive human lymph node. *Am J Pathol* 1986; 122: 83-9.
2. Sinclair SW, Bechman E and Ellman L. Biopsy of enlarged superficial lymph nodes. *JAMA* 1974; 228: 602-603.
3. Solde S, O.S, Kounger JG and Hirschi RB. Predictors of malignancy in childhood peripheral lymphadenopathy. *J Pediat Surg* 1999; 34 (10): 1447-1452.
4. Luke MA and Oski FA. Peripheral lymphadenopathy in childhood. *Am J Dis Child* 1978; 132: 557-359.
5. Vassilkopoulos TP, Pagnalis GA. Applications of prediction rule to select which patients presenting with lymphadenopathy should undergo a lymphnode biopsy. *Medicine Baltimore* 2000 Sept; 79(5): 338-347.
6. Iraqi cancer registry, Ministry of Health, Iraqi Cancer Registry Centre, Baghdad, Iraq, 1999.
7. Al-Wiswasy MK, Histopathological study of 688 new cancer cases in Basrah for the year 1999. (unpublished data).
8. Greenfields S and Jordan MC. The clinical investigation of lymphadenopathy in primary care practice. *JAMA* 1978; 240: 1388-1393.
9. Al-Wiswasy MK. Histopathological study of 759 cases of extrapulmonary tuberculosis in Basrah: A private laboratory experience. *Medical Journal of Basrah University* 2001; 19(2).
10. Habib OS and Mohammed HT. Tuberculosis, the ancient current public health problem: A profile of the situation in Basrah over the last 2 decades. *Medical Journal of Basrah University* 2001; 19(2).
11. Al-Dewachi HS. Kheder HH and Al-Hasso TQ. Peripheral lymphadenopathy in Mosul: A retrospective study. *J Fac Med (Baghdad)*, 1990; 32: 193-199.
12. Alash NI, Abdul-Majeed BA and Al-Hashimi AS. Lymphadenopathy: A histopathological study of 1145 biopsies. *J Fac Med (Baghdad)* 1994; 36(2): 171-179.
13. Abdullah A. Abba, Afolabi E. Bamyboye, Mohammed AF. Zal and Rehan A. Rahmatulla. Lymphadenopathy in adults, a clinico pathological analysis. *Saudi Med J* 2002; 23(3): 282-286.
14. Dandapat MC, Mishra BM, Dash SP and Kar PK. Peripheral lymph node tuberculosis. A review of 80 cases. *Br J Surg* 1990; 77: 911-912.
15. Al-Ani WW, Lymphadenopathy, histopathological study in Basrah province. Basrah university of medicine 1997; a thesis.
16. Al-Fathal AH, Shahan S and Al-Humrany AR. Clinical and histopathological study of lymphoma in Basrah. *Basrah Journal of Surgery* 1998; 4(1): 21-23.
17. Mughal TI, Robinson WA, Padmos MA, Adu H. Hodgkins disease in Saudi Arabia. *Eur J Surg Oncol* 1985; 11: 41-45.
18. Kassim JM. Anderson pathology. 9th ed. St. Louis: CV Mosby PP.1990; 1429-1474.
19. Dandapat MC, Mishra BM and Dash SP. Peripheral lymphnode tuberculosis: A review of 80 cases. *Br. J Surg* 1990; 77(8): 911-912.
20. Obafunwa JO, Olomu IN and Onyia NJ. Primary peripheral lymphadenopathy in Jos, Nigeria. *West Africa J Med* 1992; 11(1): 25-28.
21. Wilmot TJ, James EF and Reilly LV. Tuberculous cervical lymphadenitis. *Lancet* 1957, 14: 1184-1187.