IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 15, Issue 11 Ver. I (November. 2016), PP 62-65
www.iosrjournals.org

"Spectrum of Pathological Lesion in Superficial Lymphnode Biopsy in A Tertiary Health Centre of Western Rajasthan"

Neelu Gupta[1], Pooja Agarwal[2]
[1](Pathology Department, Sardar Patel Medical College, Bikaner, Rajasthan, India)
[2](Pathology Department, Sardar Patel Medical College, Bikaner, Rajasthan, India)

Abstract :
Aim : *Aim of the study is to analyse the Spectrum of pathological lesion in superficial lymph node biopsy and to Correlate with age, sex and various sites of lymph node biopsy. Materials and Methods: The prospective study conducted from August 2014 to July 2016 in Sardar Patel medical college, Bikaner, Rajasthan. The study included 120 cases of superficial lymph node biopsies received in the pathology department. Results: Out of 120 superficial lymph node biopsies received 95(79.17%) were from cervical region followed by, axillary lymph nodes in 22 cases (18.33%) and 3(2.5%) were from Inguinal region with male predominance affecting all age groups. Most common condition involving the lymph node was found to be tuberculosis followed by neoplastic lymphadenopathy. Conclusion- tuberculosis is the most common cause of lymphadenopathy in western Rajasthan. Still, high levels of lymphomas and metastatic nodes are present. The institution of lymph node biopsy would significantly enhance early diagnosis and thus, the timely institution of appropriate treatment protocols.*
Keywords: *Biopsy, superficial lymph nodes, pathologic lesions, tuberculosis.*

I. Introduction

The lymph nodes along with the spleen, tonsils and mucosa associated lymphoid tissue play a central role in the control of immune response.[1] The meaning of lymphadenopathy is disease of the lymph node which is synonymously used with swollen lymph node. Excision biopsy of the most accessible peripheral lymph node provides material to establish an early diagnosis and is a vital part of the management.[2] Superficial 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. Among the peripheral nodes, those in the upper part of the body (cervical, supraclavicular, axillary) are preferentially biopsied than lower limb nodes (popliteal, inguinal or femoral) as the former are more likely to yield definitive diagnosis. [4] Lymph node enlargement can be classified as-a) Reactive hyperplasia b) Inflammatory c) Lymphoma d) Non-neoplastic conditions e) Primary tumor and tumor like conditions f) metastatic tumor. Aim of the study is to analyses the spectrum of pathological lesion in superficial lymph node biopsy and to correlate with age, sex and various sites of lymph node biopsy.

II. Materials and Methods

The prospective study conducted from August 2014 to July 2016 in Sardar Patel medical college, Bikaner, Rajasthan. The study included 120 cases of superficial lymph node biopsies received in 10% formalin in the pathology department. The tissue was processed by means of paraffin-wax processing which consists of following steps: - Tissue processing, Section cutting, H & E staining, Reticulin staining in some cases, Periodic acid schiff staining in some cases, review under light microscope.

III. Results

Results of the study are shown in the tables 1, 2, 3 given below. Out of 120 cases of lymphadenopathy, number of cervical lymphadenopathy were 95, axillary lymphadenopathy were 22 and inguinal lymphadenopathy were 3; the incidence being 79.17%, 18.33% and 2.50% respectively (Table 1).

Table 1: Site of lymph node biopsy

Site of Lymph node Biopsy	No. of cases	Percentage
Cervical Lymph node	95	79.17
Axillary Lymph node	22	18.33
Inguinal Lymph node	3	2.50

The highest number of cases was recorded in 2nd decade (27; 22.50%). The youngest patient was a 1½ year old child, and the oldest one was 70 year old. The average age at the time of diagnosis was 30.72 years. Out

of 120 cases, 76 (63.33%) were males and 44 (36.67%) females. Male to female ratio was 1.73:1. Out of 120 cases, numbers of cases due to tubercular lymphadenitis were 48; incidence being 40%, which was maximum followed by neoplastic lymphadenopathy and non-specific reactive lymphadenitis number of that, was 43 and 27; incidence being 35.83% and 22.50% respectively (Table 2).

Table-2: Incidence of various etiological factors with sex distribution

Etiology	Male	Female	Total	Percentage
Tuberculosis	23	25	48	40
Non- Hodgkin lymphoma	16	4	20	16.67
Metastatic Carcinoma	9	5	14	11.67
Hodgkin lymphoma	6	3	9	07.50
Non- specific reactive lymphadenitis	20	7	27	22.50
Non caseating granuloma	1	0	1	00.83
Microfilariasis (fig.2)	1	0	1	00.83
Total	76	44	120	100

Out of 43 cases of neoplastic lymphadenopathy, number of non-Hodgkin lymphoma was 20 with incidence being maximum that was 46.51% followed by metastatic carcinoma and Hodgkin lymphoma, numbers of cases were 14(32.56%) and 9(20.93%) respectively. Out of 48 cases of tuberculosis (Fig. 1), highest number of cases were noted in 2nd (14, 29.17%) and 3rd decade (14, 29.17%), thus in age group 11-30 years, maximum numbers of cases were present (28, 58.34%). Out of 20 cases of non-Hodgkin lymphoma, highest numbers of cases were present in 7th decade (6, 30%). In age group 41-70 year 14 cases (55%) of non- Hodgkin lymphoma present. All 9 cases of Hodgkin lymphoma were noted before 40 year of age. Out of 14 cases of metastatic carcinoma, highest numbers of cases were present in 5th (5, 35.71%) and 6th decade (5, 35.71%). After age of 40 years, 12 cases (85.71%) were seen (Table 3). Female to male ratio for tuberculosis was 1.09:1. Male to female ratio for non-Hodgkin lymphoma was 4:1. Male to female ratio for Hodgkin lymphoma was 2:1. Male to female ratio was 1.8:1 for metastatic carcinoma. Male to female ratio for non-specific reactive lymphadenitis was 2.86:1. With the help of microscopy and reticulin stain three architectural pattern of non-Hodgkin lymphoma noted in total 20 cases. Out of 20 cases of non-Hodgkin lymphoma, highest number was of diffuse lymphoma (15, 75%) followed by 3 cases (15%) of follicular lymphoma (Fig. 3) and 2 cases (10%) of follicular lymphoma transforming into diffuse lymphoma. Out of total 9 cases of Hodgkin lymphoma, highest 4 (44.44%) were of mixed cellularity type (Fig.4) followed by nodular sclerosis (3, 33.33%), lymphocyte predominant type (1, 11.11%) and lymphocyte depletion type (1, 11.11%).

Table -3: Distribution of cases according to Age groups

Age Groups (yrs)	T.B.	NHL	Mets	HL	NSRL	NCG	Filaria	Total	Percentage
0-10	6	2	0	4	8	0	0	20	16.67
11-20	14	2	0	1	9	0	1	27	22.50
21-30	14	1	1	2	5	0	0	23	19.17
31-40	9	1	1	2	2	0	0	15	12.50
41-50	3	3	5	0	1	1	0	13	10.83
51-60	1	5	5	0	1	0	0	12	10.00
61-70	1	6	2	0	1	0	0	10	8.33

T.B.-Tuberculosis, NHL-non-Hodgkin lymphoma, HL-Hodgkin lymphoma, NSRL- Non- specific reactive lymphadenitis, NCG-Non caseating granuloma, Filaria- Microfilariasis

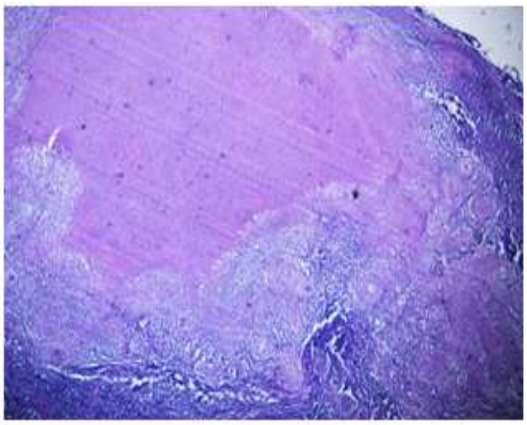

Figure 1: Lymph node- Tuberculosis. (40X, H&E stain)

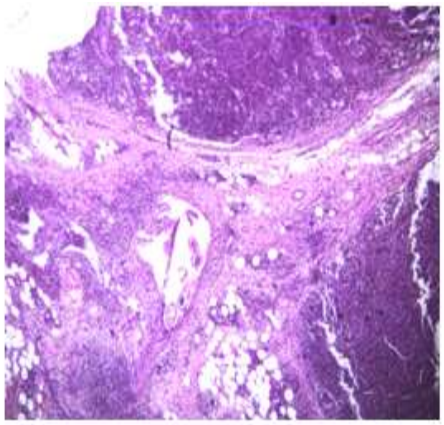

Figure-2: Lymph node- filarisis.(40X,H&E stain)

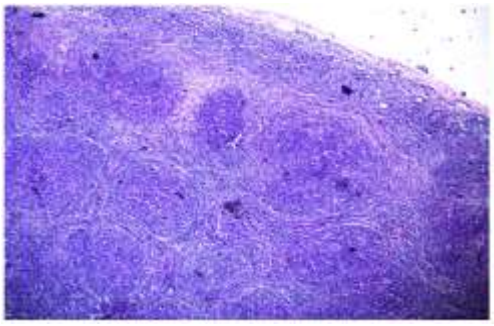

Figure 3: Lymph node- follicular lymphoma.(40X, H&E stain)

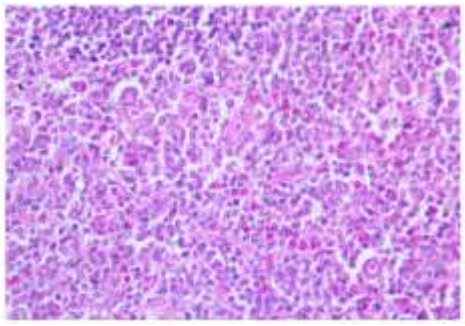

Figure 4: Lymph node- mixed cellularity Hodgkin lymphoma. (40X, H&E stain). Reed sternberg cell (Inset).

IV. Discussion

The index study comprised of an analysis of one hundred twenty cases of lymphadenopathy. Out of 120 cases, incidence of cervical, axillary and inguinal lymphadenopathy was (95, 79.17%), (22, 18.33%) and (3, 2.50%) respectively. Similar order of incidence were observed in studies by Panchal jaimin et al [5] (2014, Karnataka), Ageep AK [6] (2012, Sudan) and Apoorva saraswat et al[7] (2015, Rajasthan). Maximum number 27 out of 120 cases (22.50%) were in 11-20 year age group; with mean age was 30.72 years and age range from 11-30 year involved (50, 41.67%) cases. Mean age of 33.9 year and 26.2 year was noted in study by Abdulkader Mohammed Albasri et al [8] (2014, Saudi Arabia) and Mogre D A [9] (2014, Maharashtra) respectively. Age range from 11-30 year involved 42.91% cases in study by Abdulkader Mohammed Albasri et al[8] (2014, Saudi Arabia) .Thus lymphadenopathy is most prevalent in adolescent and young adults in present study and other studies also. Male to female ratio was 1.73:1 for the index study. Male predominance was also noted in studies by Roy A et al [4] (2013, South India) (1.7:1) and by Abdulkader Mohammed Albasri et al [8] (2014) (1.14:1). Tuberculosis was most common cause of lymphadenopathy in the index study (48,40%). In study by Mogre D A [9] (2014, Maharashtra) 56% cases were of tuberculosis and a study by Sobia Sadiq Naseem et al [10] (2011, Pakistan) 60.83% cases were of tuberculosis, which was highest in these studies. . In these reference studies non-specific reactive lymphadenitis was second common cause of lymphadenopathy. While in the index study neoplastic lymphadenopathy was second common cause of lymphadenopathy after tuberculosis. Cases of neoplastic lymphadenopathy were 43(22.5%) and cases of non-specific reactive lymphadenitis were 27(22.5%). This was because sardar patel medical college is associated with cancer institute which deals with referral cases from other states also. Among 43 cases of neoplastic lymphadenopathy non-Hodgkin lymphoma (20, 46.51%) was most common followed by metastatic carcinoma (14, 32.56%) and Hodgkin lymphoma (9, 20.93%). Non-Hodgkin lymphoma was also most common among neoplastic lymphadenopathy in studies by Panchal jaimin et al [5] (2014, Karnataka) and Roy A et al [4] (2013, South India). In the index study prevalence of tuberculosis was maximum between ages of 11-30 years (28, 58.34). Similar results were noted in other studies like by Abdulkader Mohammed Albasri et al[8] (2014, Saudi Arabia) and Mogre D A [9] (2014, Maharashtra), where prevalence of tuberculosis was maximum among 11-30 year ages. In the index study Prevalence of non-Hodgkin lymphoma is maximum after 50 years of age.

In studies by Abdulkader Mohammed Albasri et al[8] (2014, Saudi Arabia) 48.71% cases of non-Hodgkin lymphoma were of more than 50 year age. Similar results were noted in study by Roy A et al [4] (2013, South India). Maximum prevalence of metastatic carcinoma was noted after 40 years of age. In study by Ageep AK [6] (2012, Sudan) 92.59% case were more than 50 year of age. In studies by Sobia Sadiq Naseem et al [10] (2011, Pakistan), Roy A et al [4] (2013, South India) and Apoorva saraswat et al [7] (2015, Rajasthan) metastatic carcinoma was most prevalent among elderly patient. In the index study, tuberculosis was found more prevalent in females than males with female to male ratio 1.09:1 was noted. Female predominance for tuberculasis was also noted in other studies like Ageep AK [6] (2012, Sudan), Apoorva saraswat et al [7] (2015, Rajasthan) and Alladimohan [3] (2007, South India). Male predominance for non-Hodgkin lymphoma, Hodgkin lymphoma and metastatic carcinoma was found in the index study, which was also found in studies by Roy A et al [4] (2013, South India) and Sobia Sadiq Naseem et al [10] (2011, Pakistan). Incidence of diffuse lymphoma was found more than follicular lymphoma. Higher incidence of diffuse lymphoma was also found in other studies like by Roy A et al [4] (2013, South India) and Sobia Sadiq Naseem et al [10] (2011, Pakistan). Out of 9 cases of 4 cases were of mixed cellularity Hodgkin lymphoma (44.44%), followed by 3 cases were of nodular sclerosis Hodgkin lymphoma (33.33%). In study by Sobia Sadiq Naseem et al [10] (2011, Pakistan), Gupta et al [11] (1988, India) and Kaumudi Konkay et al [12] (2016, India), mixed cellularity Hodgkin lymphoma was most common followed by nodular sclerosis Hodgkin lymphoma.

V. Conclusion

Tuberculosis is the most common cause of lymphadenopathy in western Rajasthan. Still, high levels of lymphomas and metastatic nodes are present. The institution of lymph node biopsy would significantly enhance early diagnosis and thus, the timely institution of appropriate treatment protocols.

References

[1] Henry PH, Longo DL. Enlargement of lymphnodes and spleen. In: Kasper DL, Fauci AS, Longo DL, Braunwald E, Hauser SL, Jameson JL (eds). Harrison's principles of internal medicine. 16th ed. Mc Graw-Hill: New York; 2005: 343-8.
[2] Nadira Majid, MA Samad Talukder, Syed Mukarram Ali . Histodemography of Lymphadenopathy. Delta Med Col J. Jan 2013;1(1):8-12
[3] Alladimohan, M. Kumaraswamy Reddy,B. V. Phaneendra, Abha Chandra: Aetiology of peripheral lymphadenopathy in adults: Analysis of 1724 cases at a tertiary care teaching hospital in southern India. The national medical journal of india vol. 20(2), 2007.78-80.
[4] Roy A, Kar R, Basu D, Badhe BA. Spectrum of histopathologic diagnosis of lymph node biopsies: A descriptive study from a tertiary care center in South India over 5½ years. Indian J Pathol Microbiol 2013;56:103-8.
[5] Panchal Jaimin and Pushpalatha Pai , Spectrum of pathologic lesions in superficial lymph node biopsies –A one and half year study, IJBAR; 2014; 05: 09.
[6] Ageep AK. Assessment of adult peripheral lymphadenopathy in Red Sea State, Sudan. Int J Trop Dis Health ; 2012; 2 : 24-32.
[7] Apoorva Saraswat, Akash Rajender, Kunal Purohit, R. M. Jaiswal, Ritu Sharma, Divya Dubey. "Lymph Node Biopsy: Spectrum and Clinical Significance as Diagnostic tool at Tertiary Care Centre". Journal of Evolution of Medical and Dental Sciences 2015; 4(06): 1008-1014, DOI: 10.14260/jemds/2015/141.
[8] Abdulkader Mohammed Albasri ,Abeer Abdalla El-Siddig, Akbar Shah Hussainy, Ahmed Safar Alhujaily , Pattern of Lymph Node Pathology in Western Saudi Arabia Asian Pacific Journal of Cancer Prevention,, 2014; 15:4677.
[9] Dr Mogre D A: Chronic Cervical Lymphadenopathy: A ClinicoPathological Profile. paripex - indian journal of research.2014; 3(12):55-57.
[10] Naseem SS, Nagi AH, Ashraf M, Muhammad ASHRAF, Saira BİLAL, Maham AKHLAQ, Nausheen HENNA, Waqas SAMI A pattern of lymphadenopathies, seen in a tertiary care hospital in Lahore, Pakistan. Turk J Med Sci, 2011; 41,353-8.
[11] Gupta, B. D. Indian J Pediatr, 1988; 55: 395.
[12] Kaumudi Konkay, Tara Roshni Paul, Shantveer G. Uppin: Indian J Med Peadiatr Oncol. 2016; 37(1); 59-65.