International Journal of Biomedical And Advance Research

ISSN: 2229-3809 (Online)
Journal DOI:10.7439/ijbar
CODEN:IJBABN

Research Article

Spectrum of pathologic lesions in superficial lymph node biopsies –A one and half year study

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Abstract

Aim/Objective: The aim of this study is to analyse pathological spectrum of various neoplastic and non-neoplastic diseases affecting superficial lymph nodes in the neck, axilla and inguinal region and correlation with clinical findings.
Materials and Methods: The retrospective study conducted from January 2013 to June 2014 in Yenepoya Medical College, Mangalore. The study included 45 cases of superficial lymph node biopsies received in the pathology department.
Results: Out of 45 superficial lymph node biopsies received 28 were from cervical region followed by, axillary lymph nodes in 14 cases (31.2%) and 3 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 reactive hyperplasia. Suppurative lymphadenitis and lymphoma had equal incidence. BCG adenitis, metastasis and Kimura's disease were seen in the descending order of frequency.
Conclusion: Lymph node involvement by non-neoplastic diseases is much more common than the neoplastic processes with tuberculosis being the predominant disease.
Keywords: Biopsy, superficial lymph nodes, pathologic lesions

1. Introduction

Lymph node is one of the major anatomic components of the immune system in human body. Lymphadenopathy can be due to any disease process involving lymph nodes. Enlargement of lymph node is a very common clinical symptom seen in outpatient department of any hospital. Lymphadenopathy can occur at any age group and at any site of the body. It is mostly caused by benign disorders as transient responses to the local or general infections but sometimes by malignant processes[1]. Detail clinical history for symptoms and signs, size of lymph nodes, presence of generalised lymphadenopathy, and hepatosplenomegaly help to provisional diagnosis. Cytological examination of lymph nodes by fine needle aspiration smears can determine whether lymphadenopathy is due to benign or malignant condition. Diagnostic lymph node biopsy is one of the frequent procedures in surgical practice.

1.1 Aim/Objective

The aim of this study is to analyse pathological spectrum of various neoplastic and non-neoplastic diseases affecting superficial lymph nodes in the neck, axilla and inguinal region and correlation with clinical findings.

2. Materials and Methods

All superficial lymph node biopsies received in 10% formalin in the department during that period were included in the study. Paraffin embedded sections stained with haematoxylin and eosin from archives reviewed under light microscope. All biopsies were divided into 2 broad categories: neoplastic and non-neoplastic and sub-grouped into specific diagnosis with the help of histochemistry and immunohistochemistry(IHC) and also are grouped according to the site of superficial node which is biopsied ,sex and age of the patient.

3. Results

Results of the study are shown in the tables 1, 2, 3 given below. Majority of lymph nodes biopsied were from cervical lymph nodes, followed by axillary lymph nodes and inguinal lymph nodes in that order of frequency. Male to female ratio was 1.3:1.The youngest patient was found to be 1 month old male and oldest patient was 71 year old male with suppurative lymphadenitis in both cases, Histopathological diagnosis was found as follows, tuberculous lymphadenitis 14(31.2%)cases, reactive hyperplasia 9(20%)cases, suppurative lymphadenitis 7(15.6%)cases, malignant lymphoma 7 cases (15.6%)cases, BCG adenitis 5(11.1%)cases, while metastasis was found in 2(4.4%) cases and Kimura's disease, the least common condition was seen in only one case(2.2%).

Table 1- Histological diagnoses of 45 cases of superficial lymph node biopsies

Diagnosis	No of cases	Percentage
Tuberculous lymph node	14	31.2%
Reactive lymph node	9	20%
Suppurative	7	15.6%
Malignant lymphoma	Hodgkin lymphoma (HL) - 2 Non-Hodgkin lymphoma (NHL)-5 Total - 7	4.4% 11.1% } 15.6%
BCG adenitis	5	11.1%
Metastasis	2	4.4%
Kimura's disease	1	2.2%

Table -2: Distribution of cases according to Age group, Sex and Site of lymph node biopsy

Age Group	Cervical LN		Axillary LN		Inguinal LN	
	Male	Female	Male	Female	Male	Female
0-9	5	4	3	3	-	-
10-19	3		-	-	-	-
20-29	2	3	1	-	-	1
30-39	1	3	3	1	1	-
40-49	-	1	1	1	-	-
50-59	3	1	-	-	-	-
60-69	1		-	-	1	-
70-79	1		1	-	-	-
Total	**28**		**14**		**3**	

Table -3: Distribution of cases according to age group and sex

Age groups	Tuberculous Lymphadenitis		Reactive Hyperplasia		Suppurative Adenitis		BCG adenitis		Non-Hodgkin's lymphoma		Hodgkin's lymphoma		Metastasis		Kimura's disease
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
0-9	1		2	-	2	2	3	2	-	1	-	-	1	-	1
10-19	2		-	-	-	-	-	-	1	-	-	-	-	-	-
20-29	1	2	2	1	-	-	-	-	-	1	-	-	-	-	-
30-39	2	2	1	1	-	1	-	-	-	-	2	-	-	-	-
40-49		1	-	-	-	1	-	-	1	-	-	-	-	-	-
50-59	2		1	1	-	-	-	-	-	-	-	-	-	-	-
-69			-	-	-	-	-	-	1	-	-	-	1	-	-
70-79	1		-	-	-	1	-	-	-	-	-	-	-	-	-
Total	9	5	6	3	2	5	3	2	3	2	2	-	2	-	1
	14		9		7		5		5		2		2		1

Reactive lymphoid hyperplasia was diagnosed with presence of active germinal centres containing heterogeneous population of lymphocytes, centrocytes, centroblasts and tangible body macrophages. Tuberculous lymphadenitis was diagnosed by the presence of caseating epithelioid granulomas which is diagnostic of tuberculosis. None of the 14 cases were found positive for Ziehl-Neelsen stain. Suppurative lymphadenitis was diagnosed by the presence of collection of neutrophils in the lymph node tissue. Five cases of Non-Hodgkin's lymphoma affecting 5 year to 63 year old with a male to female ratio of 3:2 and 2 cases of Hodgkin lymphoma affecting 32 and 38 year old ,both males were diagnosed. Hodgkin's lymphomas were diagnosed on the basis of presence of typical Reed-Sternberg cell which is a large cell with mirror image nuclei and prominent, eosinophilic, inclusion-like nucleoli and its variants. One was found lymphocyte predominant subtype and the other was of mixed cellularity subtype as classified according to Rappaport classification. Non-Hodgkin lymphoma was classified according to WHO classification of lymphoid neoplasms .Also found were two cases of metastasis in the lymph nodes, one case was found to be squamous cell carcinoma in the inguinal lymph nodes from carcinoma of penis in a 65 year old. The other case was metastasis in the cervical lymph nodes found in a male child of 4 and half year old from neuroblastoma which was later diagnosed as adrenal neuroblastoma. One case of Kimura's lymphadenopathy was seen which was the least common disease affecting lymph node was diagnosed by presence of reactive lymphoid follicles with germinal centre with eosinophilic microabcesses.

3. Discussion

Palpable lymph nodes offer an important diagnostic clue to the aetiology of the underlying condition. Though fine needle aspiration cytology is commonly used to establish the etiological diagnosis, excision biopsy and histopathology of the lymph node remains the "gold standard" for diagnosis[2,3,4] of lymphadenopathy. In our study males were more commonly affected than females. Similar observation of male dominance was found in another study[5].Maximum number of lymph node biopsies were from cervical group of lymph nodes followed by axillary and the least common group of superficial lymph node involved was inguinal lymph nodes. Study has done by Khan et al[5]andRahman et al[6]also support this, as they found cervical group of lymph node as the most commonly involved nodes. It has been reported by several authors that tuberculosis is one of the predominant cause of lymph node enlargement in adults in tropics like India[7,8]. Study by Khan et al[5]and Umer MF et at[9]found tuberculosis in 33.3% and 55.4% respectively. Our study also supports this as it showed maximum percentage of tuberculous lymphadenitis. The variation of tuberculosis in percentage might be due to geographic variation, number of patients included in study and immunological status of the patients. Recently HIV infection has emerged as a cofactor for tuberculosis emergence[10]. Non-specific reactive hyperplasia of lymph node tissue was second most common lesion seen in our study with 20% of all cases. As seen in study by Lee et al[11]non-specific reactive hyperplasia is the foremost cause of lymphadenopathy seen in the United States, while a study conducted by Shaikh et al[12]found that reactive hyperplasia as the second most common cause after tuberculosis as in the present study.

In our study neoplastic conditions affecting lymph nodes were found as lymphoma in 15.6% and as metastasis in 4.4% of cases. The incidence is slightly lower than the findings of Al-Ghaithy et al [13]where they found malignancy in 22.5% cases. Variation in the percentage might be due to ethnical causes and patients included in the study. Contrary to our study a study done by Roy et al [14]showed lymphomas as the most common cause of lymphadenopathy (44.5%) followed by nonspecific reactive hyperplasia (21.5%), tuberculous lymphadenitis (18%) and metastatic nodes (8.5%) in the descending order of frequency. Our study showed more cases of Non-Hodgkin's lymphoma than Hodgkin's lymphoma which is similar to study done by Roy et al[14]. Also in western world NHL is reported more common than HL[15]. Metastasis comprises the second least common cause of superficial lymphadenopathies in our study constituting only 4.4% of all lymph node biopsies. There is a wide variation in metastatic tumours affecting lymph nodes. The study of Khan AU[5]reports 32%, Shaikh et al[12]7% and Na DG[16]reported 43.8% of metastatic tumors in lymph nodes.

Kimura's disease was seen as the least common cause of superficial lymphadenopathy in our study as well as other studies published case reports [17].

4. Conclusion

From this study it can be concluded that superficial lymphadenopathy is a common clinical problem affecting all age group and both sexes. Lymph node biopsy plays an important role in arriving at accurate diagnosis. The commonest cause of superficial lymphadenopathy is tuberculosis and Kimura's disease is the least common cause of superficial lymphadenopathy

Figure 1: BCG adenitis-caseating epithelioid granulomas3717-13

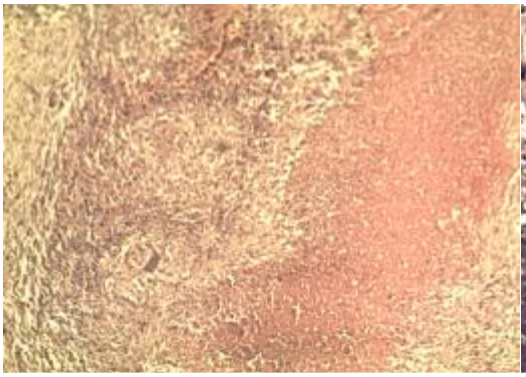


Figure 2: NHL-Burkitts lymphoma – Lymphoma cells with stary sky pattern 2123-13

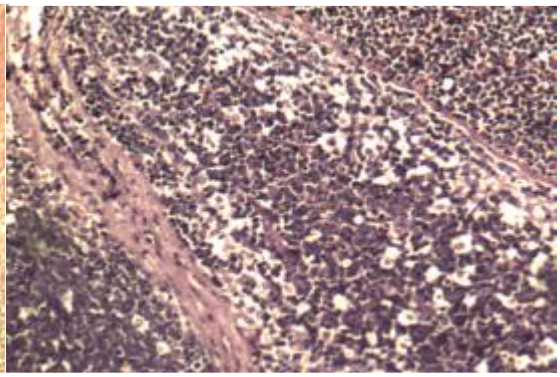


Figure 3: NHL-Diffuse large B cell lymphoma 1321-14

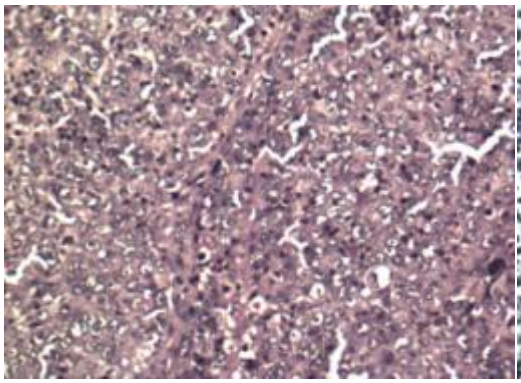


Figure 4: HL- mixed cellularity, numerous RS cells 2339C-14

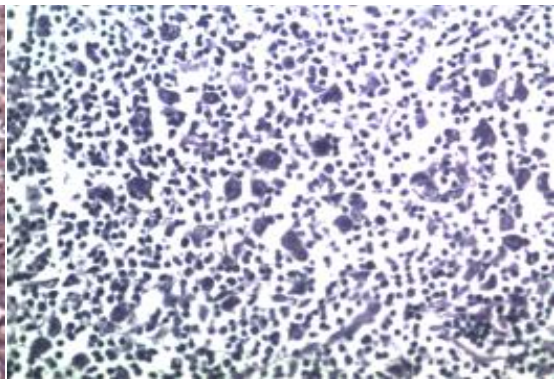


Figure 5: Neuroblastoma secondaries in the lymph node. 3279-13

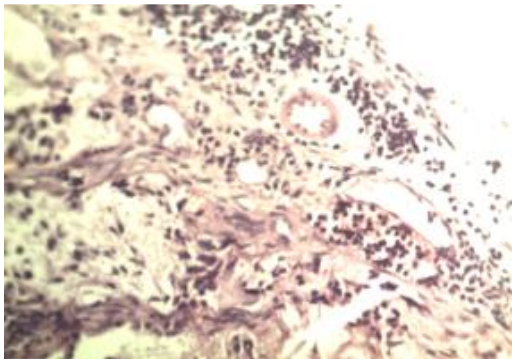


Figure 6: Reactive lymphnode 4481B-13

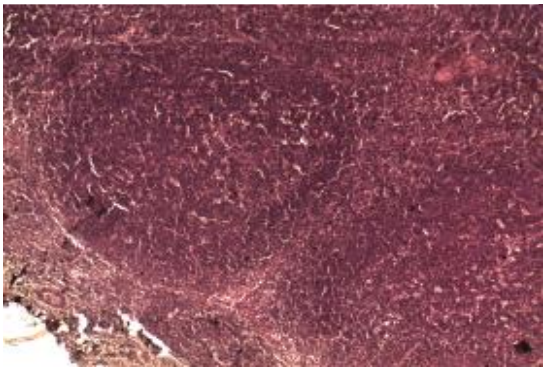
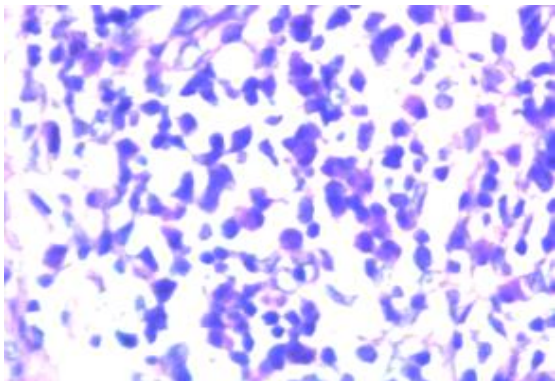


Figure 7: Kimura's lymphadenopathy- Eosinophilic abscess in the lymphoid follicles



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