

## LYMPH NODE BIOPSY: SPECTRUM AND CLINICAL SIGNIFICANCE AS DIAGNOSTIC TOOL AT TERTIARY CARE CENTRE

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**ABSTRACT: BACKGROUND & OBJECTIVE:** Lymph node biopsy is an important tool for diagnosis, staging & prognosis determination. This study was undertaken to determine the histopathological spectrum of lymphadenectomies at a tertiary care Centre at Rajasthan. **METHODS:** In a cross sectional observational study, 573 histologically diagnosed lymph node biopsies from January 2008 to December 2012 were reviewed. The patient's history, clinical features & definite pathologic findings were reviewed. **RESULTS:** 573 patients (Male 306, Females 267) maximum biopsies were cervical (53.5%), Axillary (22.8%). Overall biopsies revealed TB (63.3%), Chronic Non Specific Lymphadenitis (13.4%), Reactive Hyperplasia (6.4%) & Lymphoproliferative disorder (2%). 76 patients were suspected to have Metastatic lesion clinically, but it was found in 29 (5.06%) on histological evaluation. Tubercular lymphadenitis was the commonest diagnosis in all age groups. CNSL (20.6%) was commonest in 1-20 years, Metastatic (15.3%) in 61-80 years. **CONCLUSION:** Lymph node biopsy plays an important role in establishing the cause of lymphadenopathy. Tubercular lymphadenitis is the commonest finding in spectrum of diseases affecting lymph nodes from this region.

**KEYWORDS:** Lymph node, biopsy, lymphadenitis, tuberculosis.

**INTRODUCTION:** The lymph nodes along with the spleen, tonsils and mucosa associated lymphoid tissue play a central role in the control of immune response.<sup>1</sup> Because the normal immune response leads to proliferation and expansion of one or more of the cellular components of lymph nodes, it leads to significant lymph node enlargement.<sup>2</sup> In everyday practice, lymphadenopathy is a common finding in a large proportion of the patients. Most patients can be diagnosed on the basis of a careful history and physical examination. Significant lymphadenopathy is defined as a lymph node with a diameter exceeding one cm for cervical and axillary nodes and 1.5 cm for inguinal nodes.<sup>3</sup> The broad etiologic categories of lymph node enlargement include: (i) an immune response to infective agents (e.g. bacteria, virus, fungus); (ii) inflammatory cells in infections involving the lymph node; (iii) infiltration of neoplastic cells carried to the node by lymphatic or blood circulation (i.e. metastasis); (iv) localized neoplastic proliferation of lymphocytes or macrophages (e.g. leukemia, lymphoma); and (v) infiltration of macrophages filled with metabolic deposits (e.g. storage disorders).<sup>4</sup> Several reports have shown TB and other infections to be the major causes of lymphadenopathy in tropical countries,<sup>5</sup> while malignancies have been the predominant etiology in developed countries.<sup>6</sup> Lymph node excision or fine needle biopsy as a therapeutic and diagnostic measure to determine the etiology of the underlying illness has long been a practice. This study was undertaken to determine the histo-pathological spectrum of lymphadenectomies at a tertiary care Centre at Rajasthan.

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**MATERIALS & METHODS:** This was a cross-sectional study of 573 cases of peripheral lymph node biopsies diagnosed in the Department of Pathology in a large tertiary care teaching hospital in Jaipur Rajasthan India from January 2008 to Dec 2012.

Cases were retrieved from the departmental archives and were reviewed. The clinical details were noted from histopathology requisition form. Sections from formalin fixed, paraffin embedded blocks and stained with H and E, stains were studied in all cases. Special stains including Ziehl Neelsen, periodic acid Schiff and Gomori's methenamine silver were used where indicated.

En bloc lymph node dissection in known cases of primary or associated with evidence of primaries elsewhere in the body was excluded from the study.

**RESULTS:** A total of 573 lymph node biopsies were received during the period under review. Out of these, 53.4% (306 cases) were males and 46.59% (267 cases) females giving a male to female ratio of 1.1:1. The age range was 3-80 years.

Most cases were seen in the age group of 21-40 years (301 cases, 52%) and the least cases were seen in the age group above 60 years (26 cases, 4%).

Amongst 573 cases of lymph node biopsies analysed in present study, non-neoplastic cases were 90.9% and neoplastic cases were 9.07%. The present study included 63.3% tuberculous lymphadenitis 13.7% chronic non-specific adenitis, reactive hyperplasia 6.4% and 5.7% lymphoid neoplasm.

Most common group for lymph node biopsy was cervical (53.5%) and least common was inguinal(4.1%)

Out of total 573 cases, primary neoplasm of lymph nodes were 33 cases (5.7%) and secondary neoplasm of lymph node were 18 cases (3.2%) in which most common was metastatic squamous cell carcinoma in 10 cases followed by adenocarcinoma in 8 cases.

Tuberculosis was the most common cause of lymphadenopathy. Females were more frequently affected compared with males with a female to male ratio of 1.6:1. Most of the patients were of 21-40 years.

Reactive lymphadenitis was the second most common cause of lymphadenopathy. Of the 138 lesions, 119 (86.2%) were chronic non-specific lymphadenitis, 10 (7.2%) were follicular hyperplasia and 9 (6.5%) were sinus histiocytosis.

Among the malignant lesions, lymphomas were more common accounting 5.7% and metastatic carcinoma 3.2%. Malignant lesions were predominantly observed in males Mixed cellularity was the most common subtype among the HLs.

**DISCUSSION:** In this study we determined frequency distribution of histopathologic findings of lymph node biopsies.

Analysis of lymphadenopathy in primary care practice has shown that more than two-third of patients have non-specific cause or upper respiratory illness (viral or bacterial) and less than 1% have malignancy. In one study, 186 of 220 patients (84%) referred for evaluation of lymphadenopathy had a benign diagnosis. 112 of 186 (63%) patients with benign lymphadenopathy had a non-specific or reactive etiology.<sup>7</sup>

Tubercular lymphadenitis is still a common cause of cervical lymphadenopathy. The condition most commonly affects children and young adults, but can occur at any age.<sup>8</sup> The

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commonest diagnosis in present study was tubercular lymphadenitis (63.3%), most of the patient being in the age group of 21-40yrs. A study done by Danpat et al. revealed tuberculosis in 51% of cases.<sup>9</sup> Several other studies have also reported high incidence of tuberculosis in biopsied lymph nodes.<sup>10</sup>

In the present study, out of 138 cases of reactive lymphadenitis, 119 cases (86.2%) were chronic non-specific lymphadenitis, 9 cases (6.5%) were sinus histiocytosis, and 10 cases (7.2%) were follicular hyperplasia. In a study by Reddy et al that included 63 cases of reactive lymph nodes, 54 cases (85.71%) were non-specific reactive hyperplasia, whereas nine cases (14.29%) were follicular hyperplasia.<sup>10</sup>

In the present study, lymphoreticular malignancies accounted for 5.7% of all cases, while metastatic disease accounted for 3.2% of all cases. In a study by Sinclair et al, 63.29% of cases were lymphoma, while 17.72% of cases were metastatic deposits.<sup>11</sup>

In the present study, there were 18 cases of metastatic malignancy, of which 10 cases (55.55%) were metastatic squamous cell carcinoma, and 8 cases (44.44%) were metastatic adenocarcinoma. In a study by Rao et al of 14 metastatic tumours, metastatic bronchogenic carcinoma was found in eight cases (57.15%), and metastasis from an unknown primary was found in three cases (21.43%), while metastases from carcinoma of the stomach, pancreas and testes contributed to one case each (7.14%).<sup>12</sup>

In our study, the most common cause of generalised lymphadenopathy was granulomatous lymphadenitis, followed by reactive lymphadenitis. Although this study relates to the histopathological study of lymphadenopathy in India, a similar incidence of reactive lymphadenitis, granulomatous lymphadenitis and neoplastic lesions has been found in studies conducted in other developing countries.<sup>12,13,14</sup>

**CONCLUSION:** This study highlights the importance of lymph node biopsy in diagnosing generalised lymphadenopathy. It has shown that in developing countries, such as India, tuberculosis is the leading cause of generalised lymphadenopathy. From this study, it is concluded that cervical lymphadenopathy is a common clinical problem and the commonest cause was tuberculosis followed by reactive hyperplasia, lymphoma and metastatic nodes.

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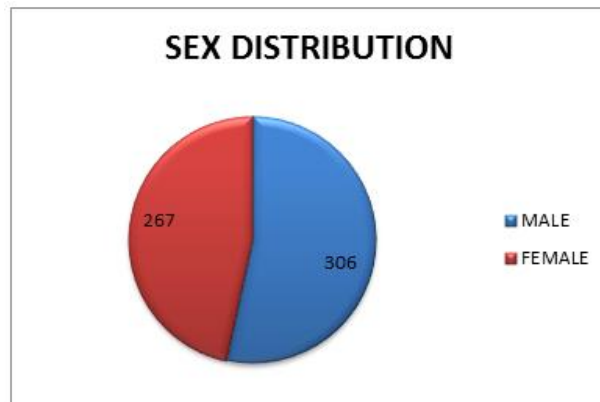


Figure 1

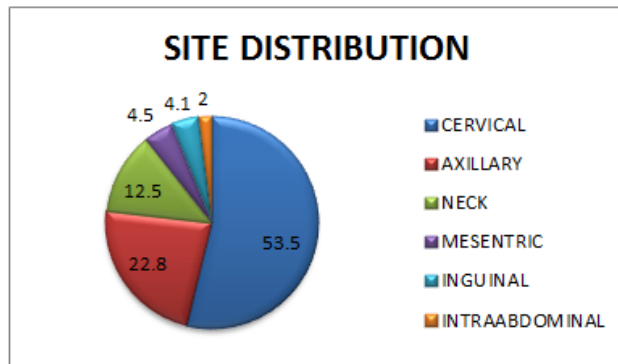


Figure 2

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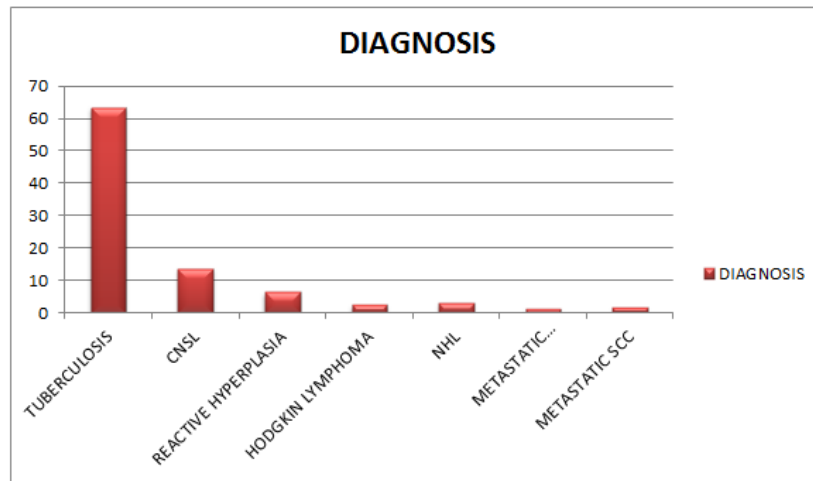


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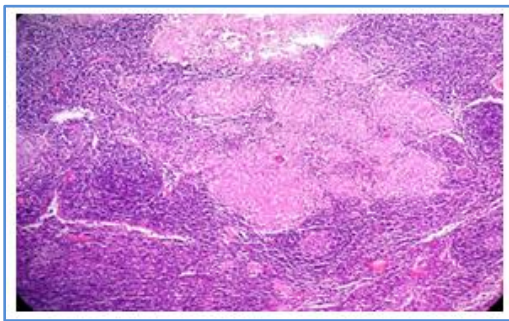


Figure 4 A

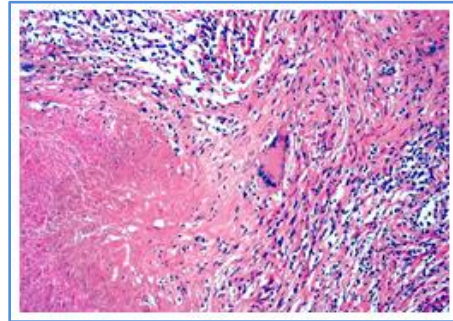


Figure 4 B

Tubercular lymphadenitis showing necrosis and giant cell (H & E, 40 x)

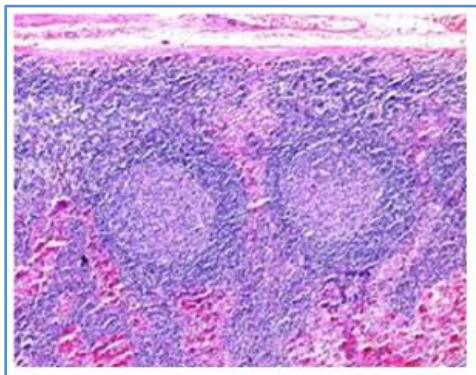


Figure 4 C

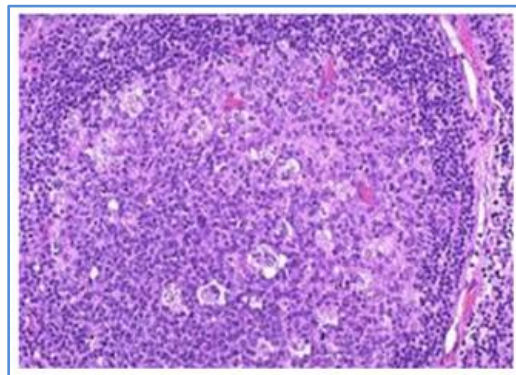
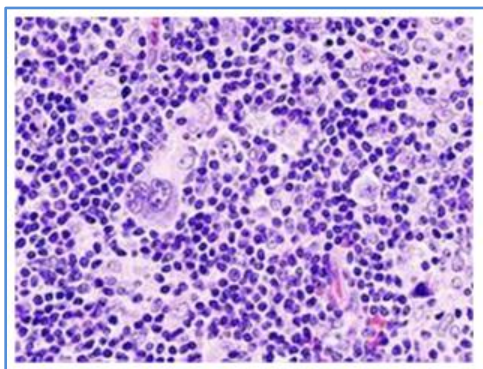


Figure 4 D

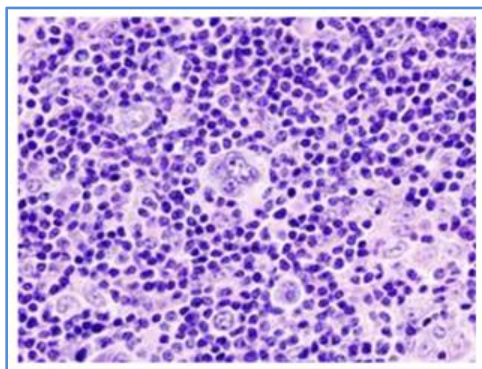
Reactive hyperplasia (H & E, 10x, 40x)

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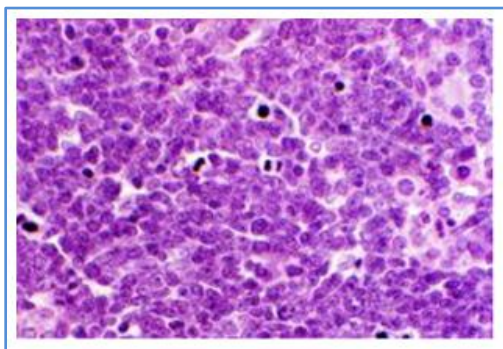


**Figure 4 E**

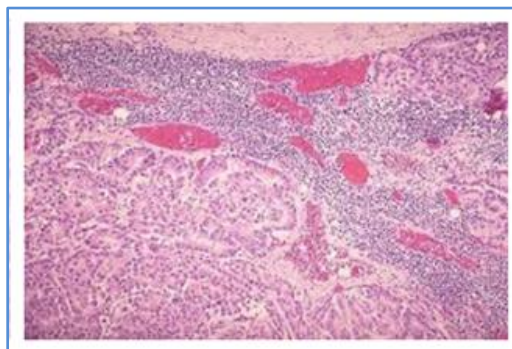


**Figure 4 F**

Hodgkin Lymphoma classical (E) and mixed cellularity type (F) (H & E, 40x)

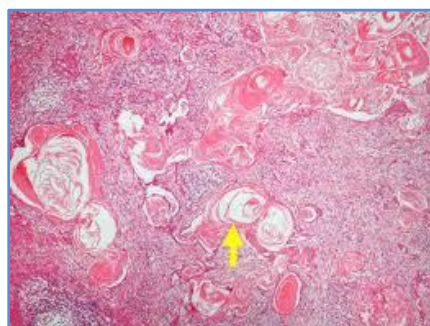


**Figure 4 G**



**Figure 4 H**

Non Hodgkin lymphoma (H & E, 40x) Metastatic adenocarcinoma (H & E, 10x).



**Figure 4 I**

Metastatic Squamous cell carcinoma (H & E, 10x)

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