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A CLINICOPATHOLOGICAL STUDY OF CERVICAL LYMPHADENOPATHY AND ROLE OF FINE-NEEDLE ASPIRATION: A HOSPITAL BASED STUDY IN EASTERN U.P.

Pathology

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ABSTRACT

Background: Fine Needle Aspiration Cytology (FNAC) is a reliable and least expensive method suitable for developing countries like India for the investigation of cervical lymphadenopathy. Knowledge about the pattern of lymphadenopathy is useful in pathological reporting as well as in many clinical settings with diagnostic dilemma. This is a baseline study to investigate the pattern of cervical lymphadenopathy by FNAC in a population of eastern U.P. The objective was to study the distribution of various diseases in cervical lymphnodes based on age,sex,predeliction for site and duration of symptoms in all age groups.

Methods: A retrospective study of one year duration was conducted at the Heritage Institute Of Medical Sciences,Varanasi by analyzing the case reports on cervical lymph node FNAC of patients all age groups and both genders having the neck swelling for more than four weeks. Review of all cytological reports were done according to standard guidelines and the diagnosis was classified and correlated with patients' age and other relevant parameters to explore the pattern and association.

Results: This study showed that the incidence of cervical lymphadenopathy was maximum in age range of 15-59 years with male preponderance. Reactive lymphoid hyperplasia was most prevalent diagnosis on cytological evaluation.Non neoplastic conditions were more common in first three decades of life while malignancies(primary or metastatic) were more common in elderly population.

Conclusions: From this study it can be concluded that in cervical lymphadenopathy clinical evaluation followed by FNAC is most reliable diagnostic tool, which is easy to perform, cost effective, speedy and accurate results can be obtained. The technique reduces the need for more invasive and costly procedures, especially in a Third World country. Culture and histopathology, however, should be considered in cases where repeated fine-needle aspiration cytology is non-diagnostic.

KEYWORDS

Lymphadenopathy, Tubercular lymphadenitis, FNAC

INTRODUCTION

Enlarged cervical lymph node is a common clinical condition encountered in hospitals. Enlargement of lymph node>1cm^2 indicates a clinical feature of regional/systemic disease and serves as an excellent clue to the underlying diagnosis. Persistent enlargement of lymph node necessitates detailed investigations to reveal an underlying pathology.[1]

FNAC is simple, reliable ,rapid and inexpensive method to establish the diagnosis of lesion and masses in various sites and organs[2].Thus the value of FNAC lies in making a diagnosis and also in early direction of appropriate investigations.[2]

In developing countries like India ,acute upper respiratory infections, suppurative skin infections and tuberculosis are the major cause of regional lymphadenopathy. It has been stated that any significant lymph node enlargement not subsiding or remaining static in size for more than two weeks after conventional antibiotics needs to be thoroughly investigated.[3]

Although there are few studies depicting the clinicopathological presentation of cervical lymph node in children, same type of studies in general population are fewer.The purpose of this descriptive study was to describe the pattern of lymphadenopathy with demographic and clinical profiles of the patients presenting in the OPD of an Indian hospital in eastern U.P.This would help the doctors attending patients in India to have a basic idea about prevalence of different cervical lymphadenopathies for easier case detection and better therapeutic outcome.

MATERIALS AND METHODS

A descriptive cross-sectional study was carried out for a period of 1 year in the Pathology department at Heritage institute of medical sciences, Varanasi. All the patients,who underwent Fine Needle Aspiration cytology for cervical lymphadenopathy as diagnostic investigation were included in the study. With prior administrative approval, the data was collected by using a predesigned proforma. Thus information like age, sex, site of lymph node involvement, other clinical features with time interval between initiation of symptoms and care seeking etc.,were gathered by reviewing the stored case sheets of 50 patients who underwent FNAC during the study period i.e., from October 2016 to September 2017.

Acute infective lymphadenitis cases(<4weeks duration) were excluded from this study.This was done to avoid unnecessarily doing FNAC in acute infected or inflammed lesions, which may harm the prognosis of the patient.

The cases were divided into pediatric (Age <14 years),adult (15–59 years) and elderly (>60 years). Patient's primary symptom was painless neck swelling.Many pediatric patients had no additional symptom during presentation. Associated symptoms were mostly cough, weight loss (mostly in adult age group)and history of fever before 4 weeks. Sometimes, mostly in elderly, there was history of alteration of voice, pain during swallowing or blood tinged sputum. The patients were investigated by FNAC of neck swelling to get a cytological diagnosis in each case. The patients presenting with painful swelling or recent fever (within a month) with or without antibiotic therapy were not subjected to FNAC. FNAC was done by 10 cc disposable syringes with 24 G needle. Three or four punctures were done and ultrasonic guidance was sought where required. Smear was drawn in clean glass slides. Two slides were kept in 100% alcohol for fixation and used for hematoxylin-eosin and papanicolaoustain. Remaining slides were air dried for May-Grunwald Giemsa stain and Zeihl-Neelsen (ZN) stain. All the necrotic material suspected of tubercular origin were routinely subjected to cytological analysis after ZN staining.

This method was similar to methods followed in different published studies in same type of Indian hospital setting with a primary objective of determining sensitivity and specificity of FNAC in cervical lymphadenopathy. Those studies depict the sensitivity of FNAC as 94% in pediatric age group[4], and 91.6–100% in general population[5]. The specificity was between 99 and 100%[4,5]

RESULTS

This study was carried out for a period of 1 year in the Pathology department at Heritage institute of medical sciences, Varanasi from October 2016 to September 2017.

The distribution of patients of cervical lymphadenopathy according to their age group is depicted in Table1. From the selected patients, maximum where in the age range of 15-59 years. The youngest patient was 3 years old while the oldest was 75years. 58% of patients in the study were males with sex ratio of 1.38:1.

Table 1	
Age	Total number of cases
<14 years	14(28%)
15-59 years	28(56%)
>60 years	08(16%)

Figure1 shows the consistency of lymphnodes in cervical lymphadenopathy.

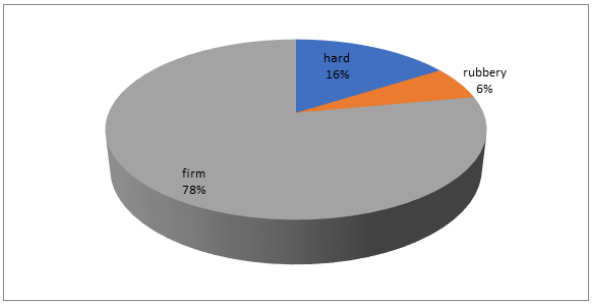
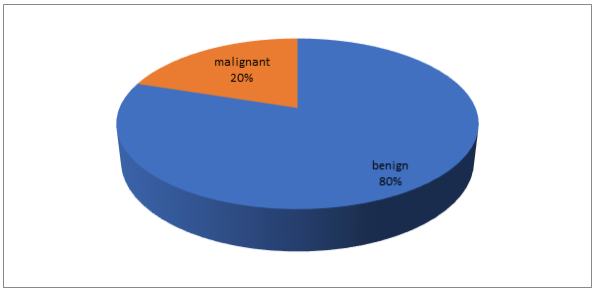


Figure 2 shows the incidence of benign and malignant lesions in cervical lymphadenopathy.In this study,80% cases were benign and remaining 20% were malignant.



Various diseases in cervical lymphadenopathy are illustrated in Table 2. Among the patients,30 cases(60%) had reactive lymphoid hyperplasia as major finding.

Table 2	
Disease	Cases
Reactive lymphoid hyperplasia	30
Granulomatous lymphadenitis	10
Malignancy (primary/metastatic)	10

Table 3 shows the distribution of various cases according to age groups. In age group of <14 year and 15-59 years Reactive lymphoid hyperplasia was most common with 92.8% and 57.14% cases respectively, while in age group of >60years,malignancy was the major cause with 87.5%cases.

Table 3			
Age	Reactive lymphoid hyperplasia	Granulomatous lymphadenitis	Malignancy
<14 years	13	01	00
15-59 years	16	09	03
>60 years	01	00	07

Squamous cell carcinoma was the most common type among such cases in our study with 5 out of 10 cases while 2 cases were of poorly differentiated type.There were two cases of Non hodgkins lymphoma and one case of Hodgkins lymphoma.

Table 4 depicts the distribution of various cases between males and females.Most common cases among both males and females were reactive lymphoid hyperplasia with 44% cases among females and 62% in males.The malignant causes of cervical lymphadenopathy were more common among males.

Table 4			
Sex	Reactive lymphoid hyperplasia	Granulomatous lymphadenitis	Malignancy
Female	13	07	01
Male	18	02	09

The duration of symptoms were divided into early,intermediate and late according to the time interval between initiation of symptoms and care seeking.

Table 5			
Symptom duration	Reactive lymphoid hyperplasia	Granulomatous lymhadenitis	Malignancy
Early (4-6weeks)	13	03	00
Intermediate(6-12)	02	03	04
Late (>12weeks)	10	04	06

Patients who presented between 4-6 weeks were taken as early while >12 weeks was taken as late presentation,6-12 weeks was taken as intermediate duration. Patients with enlarged cervical lymph node due to malignancy presented late whereas Reactive lymphoid hyperplasia was most common among the patients presenting in early phase(Table 5).

Table 6 shows the distribution of cases according to the group of involved lymph nodes. The most commonly involved site was upper deep cervical group while the least common was middle deep cervical group of lymph nodes. Malignant cause of cervical lymphadenopathy was most common among upper deep cervical lymphnodes whereas benign cases were maximum in supraclavicular lymphnodes

Table 6			
Site of lymphadenopathy	Reactive lymphoid hyperplasia	Granulomatous lymhadenopathy	Malignancy
Submental	05	04	00
Supraclavicular	09	01	03
Upper deep cervical	08	00	07
Middle deep cervical	03	02	01
Posterior	05	02	00

DISCUSSION

Cytology of lymphnodes has become a very important tool for diagnosis of many diseases.In many clinical settings the knowledge about the pattern of lymphadenopathy in a geographic area is helpful to the clinician for deciding about the workup of a patient with cervical lymphadenopathy, specially in low socioeconomic zones where limited investigations are important part for patient management.

In the present study maximum cases were in the age range of 15-59 years amounting to 56% while minimum cases were observed in patients who were above 60 years in age,amounting to 16%.Similar data was observed in the studies by Melkundi et al[1],Meera bai et al[6],Biswas et al[3],Karthikarajan et al[7] and Shakya et al[8]

We observed that males were affected more than females with sex ratio of 1.38:1.This correlated with the studies by Meera bai et al[6],Richard schwarz etal[9],Sarda et al[10],Karthikarajan et al [7]and Shakya et al[8],all showing a slight male preponderance.

Most of the lymphnodes were firm in consistency amounting to 78% while remaining were hard to rubbery.It was also evident that most of the non neoplastic lesions were firm while the neoplastic lesions were hard or rubbery on plapation.These are similar to findings by Melkundi et al[1] who observed 78% as firm,Meera bai[6] with 70%and Chamyal et al[11] with 65.3% cases showing firm consistency.

We observed that 80% cases were benign while 20% were malignant lesions. These findings correlate well with the results reported by Ahmad et al[5],who found 86.4% as benign,Sarda et al[10] with 85.4%, Pamra et al[12] with 85.4%,Melkundi et al[1] with76% and Chamyal et al[11] with 57.2%.

Majority cases in our study were reactive lymphadenitis(60%).This could be because in the cervical region,most cases may be of acute lymphadenitis due to infection of the oral cavity,nose and ears[8].This correlated well with the findings of Ahmad et al[5] who reported 53.6%

as reactive lesions,Egea et al[13] as 55.1%,Shakya et al[8] and Khajuria et al[2].

In this study,reactive lymphoid hyperplasia seemed to be the most frequent form of lymph node disease among children and patients upto 60years.On the other hand,in elderly patients,malignant involvement of lymphnodes was more frequent.In similar studies by Ahmad et al[5],Sarda etal[10] and Melkundi et al[1],malignant lymphadenitis was frequent finding among elderly patients. This emphasises the need of early investigations in such patients when they present to the clinician with non specific symptoms.

This study also highlighted that the incidence of malignant lymphadenopathy was predominant among males as compared to females with similar correlations in studies by Naeimi etal[14],Alam kiran et al[15] and Biswasetal[3].

Squamous cell carcinoma was the most common type among such cases in our study with 5 out of 10 cases while 2 cases were of poorly differentiated type.There were two cases of Non hodgkins lymphoma and one case of Hodgkins lymphoma.In the study by Biswas et al[3], Hajdu etal[16], Engzell et al[17] and Sardaetal[10] also,this was the predominant type.

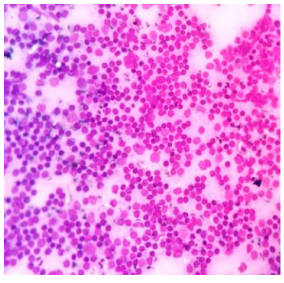
We also observed that patients with enlarged cervical lymph nodes due to malignancy presented later i.e. after 12 weeks from onset ofsymptoms. On the contrary,non neoplastic lesions were resented early and in intermediate duration.These are similar to the findings by Biswas et al[3], Khajuria et al[2] and Shakya et al[8].

Most of the cases in our study had lesions in the upper deep cervical region while minimum cases were in middle deep cervical region.On the other ,majority of cases with malignant lesions were present in the upper deep cervical region.These findings correlate with study by Meera bai etal[6].

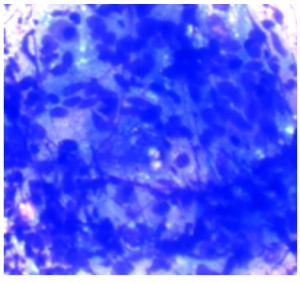
The findings in this study can act s first hand knowledge regarding age,sex distribution of lesions in lymph nodes,their mode of presentation,predeliction for site etc.It will help the doctors especially at primary care level to think in a systematic way for detection,referral of cases early and avoid diagnostic delays.It can be very helpful for usual primary health care levels where improved diagnostic facilities are yet not easily available.From all the above findings a protocol can be formulated for evaluation of such cases.

CONCLUSION

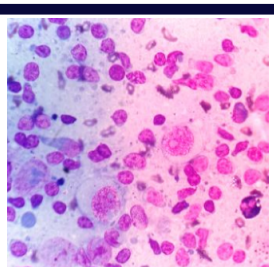
It can be concluded from this study that clinical evaluation followed by FNAC is very reliable diagnostic tool in case of cervical lymphadenopathy, which is easy to perform, cost effective and speedy accurate results can be obtained. The findings of the present study may act as first-hand knowledge regarding age-sex distribution of lymph node diseases, their mode of presentation and predilection for different lymph node groups. It will help the care giver doctors, especially at primary care level, to think in a systematic way for detection/referral of the respective cases early and thereby avoiding the diagnostic delay in cases like TB/Cancers of lymph nodes. It can be specially helpful for the urban or rural primary health care levels where, in many places, improved diagnostic facility to detect lymph node diseases is yet to be available due to scarcity of resources.



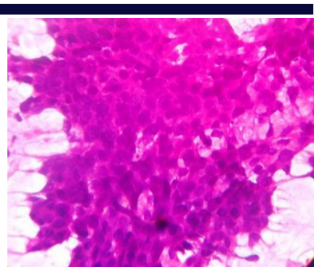
Reactive lymphadenitis, MGGx100



Granulomatous lymphadenitis, MGGx400



Non Hodgkins Lymphoma, MGGx400



Squamous cell carcinoma, MGGx400

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