

## Spectrum of Cervical Lymphadenopathy in Children at a Tertiary Care Teaching Hospital

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### ABSTRACT

**Introduction:** In children, cervical lymphadenopathy is a common presenting complaint. Common benign causes include bacterial infection, adenoviral illness, and tuberculosis whereas the malignancies causing generalized lymphadenopathy include leukemia, lymphoma or metastasis. FNAC allows the proper assessment of the cells aspirated from the swellings. The aim of this study was to audit of FNAC of neck swellings in paediatric patients.

**Material and Methods:** Present study was conducted in Department of Pathology, Santosh Medical College and hospital, Ghaziabad, UP, India. A total of 79 children (1 year to 15 years of age) with significant cervical lymphadenopathy being referred for FNAC were included. FNAC was done by a pathologist.

**Results:** Out of the 79 children in the study group, the predominant age group was 6-10 years with 41 cases (51.9%) followed by 21 cases (26.58%) in the age group 11-15 years. The common clinical symptoms observed were swelling in neck region in 79 cases (100%), followed by loss of weight and appetite in 41 cases (51.9%), fever in 37 cases (46.84%). Tuberculous lymphadenitis and Reactive hyperplasia were the commonest lesions noted on FNAC findings. The jugulodigastric group of lymph nodes was the commonly enlarged group of lymph nodes in our study. Generalized Lymphadenopathy was observed in 9 cases (11.39%).

**Conclusion:** Tuberculous lymphadenitis and reactive lymphadenopathy are still the most common condition in patients presenting with neck swellings in our region. The high degree of diagnostic accuracy, low cost and minimally disruptive nature of procedure makes fine needle aspiration cytology a highly desirable alternative to open biopsy for investigation of cervical Lymphadenopathy.

**KEYWORDS:** FNAC, Cervical Lymphadenopathy, Lymphadenitis.

### INTRODUCTION

In children, cervical lymphadenopathy is a common presenting complaint.<sup>1</sup> Lymphadenopathies are the pathological process of abnormality in size and consistency of lymph nodes. Common benign causes include bacterial infection, adenoviral illness, and tuberculosis whereas the malignancies causing generalized lymphadenopathy include leukemia, lymphoma or metastasis.<sup>2</sup>

Lymphadenitis refers to lymphadenopathies that are due to inflammatory conditions in which there is nodal enlargement, pain, skin changes, fever, oedema and/or pus formation.

In the pediatric age group, usually lymphadenopathies are caused by an infectious agent, often viral in origin. Enlarged, palpable lymph nodes are common due to reactive hyperplasia of the lymphoid tissue.<sup>3</sup> Cervical lymphadenitis is a frequently encountered problem in paediatric patients and most of the patients with this condition are treated successfully by their primary care physicians. Histological examination is however, frequently required to assist in the diagnosis and treatment of patients who do not respond to initial therapy or in whom there is a doubt for a neoplastic process.<sup>4</sup>

Fine Needle Aspiration Cytology is a procedure where by small amount of tissue or cells is aspirated from a pathological lesion with the help of fine 10ml disposable syringe of 21 or 22 Gauge needle. Virtually any superficial organ or tissue can be sampled through this procedure.

FNAC allows the proper assessment of the cells aspirated from the swellings. However its limitation lies in the fact that it does not allow evaluation of the morphology of the lesion. False-negative and false-positive results are known to occur in FNAC due to which a definitive diagnosis is necessary for cases with clinical suspicion.

Still FNAC is a simple investigation tool and is associated with minimal patient trauma and complication rate. The results of FNAC are rapidly available as compared to biopsy; moreover the cost of the procedure is considerably lower. Hence FNAC still remains a valuable diagnostic tool and is a recommended first line investigation of most of the neck swellings.

FNAC is an inexpensive, safe and quick procedure, and when performed by experienced worker is quite accurate.<sup>5</sup> It has contributed a great deal to transform cytology from a primarily screening tool to powerful diagnostic technique.<sup>6</sup> The diagnosis of neck swellings are a common clinical dilemma for surgeons. A large number of diseases can manifest as visible or palpable swelling in the head and neck region.

Though the incidence of lymphadenopathy in children

is high, few original studies on the subject were conducted. Majority of the studies were conducted to establish the causative organism. The aim of this study was to audit of FNAC of neck swellings in paediatric patients.

## MATERIALS AND METHODS

Present study was conducted in Department of Pathology, Santosh Medical College and hospital, Ghaziabad, UP, India. A total of 79 children (1 year to 15 years of age) with significant cervical lymphadenopathy being referred for FNAC were included. Persistent lymphadenopathy is defined as enlarged lymph nodes (>1.0 cm in diameter) and lasting for more than 2 weeks. In each instance detailed history along with a general physical examination was done for each patient. Demographic distribution was noted and associated diseases of the children were recorded. Initial work up of all patients included: detailed clinical examination, complete blood count, blood film, erythrocyte sedimentation rate (ESR), Mantoux test, histological testing by fine needle aspiration cytology (FNAC). Repeat Fine needle aspiration cytology was done in cases where the yield was inadequate in the first aspiration. FNAC procedure was performed by a pathologist, using a 24G needle attached to a 20ml syringe. Multiple sites were aspirated. Smears were stained accordingly using Giemsa, Ziehl Neilsen and H&E stains.

**Table 1: Cytological Diagnosis of 79 cases of cervical lymphadenopathy**

S. No.	Cytological Diagnosis	Number of cases	Percentage
1.	Tubercular Lymphadenitis	37	46.84
2.	Reactive Hyperplasia	31	39.24
3.	Pyogenic lymphadenitis	5	6.33
4.	Langerhan Histiocytosis	2	2.53
5.	Hodgkin's Lymphoma	1	1.27
6.	Unsatisfactory results	3	3.8
	<b>Total</b>	<b>79</b>	<b>100%</b>

**Table 2: Gender wise distribution of Cases**

S. No.	Age group	Males	Females
1.	1-5 years	10	7
2.	6-10 years	24	17
3.	11-15 years	15	6

**Table 3: Sites of lymphadenopathy**

S. No.	Site	No. of cases (%)
1.	Jugulodiagastric	34(43.04)
2.	Occipital	12(15.19)
3.	Submental	10(12.66)
3.	Posterior Cervical	8(10.13)
4.	Submandibular	7(8.86)
5.	Posterior Auricular	6(7.59)
6.	Supra Clavicular	2(2.53)

**Table 4: Symptom wise distribution of Cases**

S. No.	Symptom	Cases	Percentage
1.	Swelling in Neck	79	100
2.	Loss of Weight and Appetite	41	51.9
3.	Fever	37	46.84
4.	Cough	31	39.24
5.	Ear Discharge	19	24.05
6.	Coryza	12	15.19
7.	Headache	10	12.66
8.	Malaise	8	10.13
9.	Arthralgia	4	5.06

## RESULTS

Out of the 79 children in the study group, the predominant age group was 6-10 years with 41 cases (51.9%) followed by 21 cases (26.58%) in the age group 11-15 years. Out of the 79 children 49 were male and 30 were female.

The common clinical symptoms observed were swelling in neck region in 79 cases (100%), followed by loss of weight and appetite in 41 cases (51.9%), fever in 37 cases (46.84%).

Out of 79, whose FNAC was carried out, in 3(3.8%) cases FNAC was inconclusive due to unsatisfactory smears. Tuberculous lymphadenitis and Reactive hyperplasia were the commonest lesions noted on FNAC findings (Table 1). The jugulodigastric group of lymph nodes was the commonly enlarged group of lymph nodes in our study. Generalized Lymphadenopathy was observed in 9 cases (11.39%).

## DISCUSSION

The examination and management of palpable neck lymph nodes is a routine clinical exercise for the general practitioners and the pediatricians. Most of the etiologies of cervical lymphadenopathy are benign and usually subside spontaneously. It may be a sign of malignancy or systemic disease; hence consideration of other causes is very important. Cervical lymphadenopathy is a frequent occurrence in children in both the primary care and hospital setting. Park stated that 90% of children aged 4-8 years were found to have palpable cervical lymph nodes.<sup>7</sup>

In present study, the commonest cytopathological finding was Tubercular lymphadenitis followed by Reactive hyperplasia. Studies by Bhatia Gunjan & Bhatia Ravi, Eddy MP et al, Mishra SD et al, Khajuria R et al<sup>8-11</sup> have also shown similar findings. In our study there is male predominance which is similar to what is reported by Bhatia Gunjan & Bhatia Ravi.<sup>8</sup>

In the present study the predominant symptom was swelling in neck region in 79 cases (100%), followed by loss of weight and appetite in 41 cases (51.9%), fever in 37 cases (46.84%). In studies by Eddy MP et al.<sup>9</sup> the

commonest symptom was swelling in neck followed by fever and cough. In study by Bhatia Gunjan & Bhatia Ravi<sup>8</sup> the commonest symptom reported was swelling in neck region followed by loss of weight and appetite, ear discharge and fever.

To determine the accuracy of FNAC, often the FNAC findings are correlated with histological findings of the tissue biopsy specimens. Our aim was to help the clinician arrive at an early diagnosis. FNAC serves not only as a mode to offer tissue diagnosis but also helps as a preliminary screening procedure for conditions like lymphoma, tuberculosis and metastases.<sup>8</sup>

## CONCLUSION

It was concluded that tuberculous lymphadenitis and reactive lymphadenopathy are still the most common condition in patients presenting with neck swellings in our region. The high degree of diagnostic accuracy, low cost and minimally disruptive nature of procedure makes Fine needle aspiration cytology a highly desirable alternative to open biopsy for investigation of cervical Lymphadenopathy. The procedure is safe and free from complications and is well tolerated by the patients. There is no need of anesthesia and speedy results are obtained. So we conclude that it serves as a complementary diagnostic tool to histopathological examination.

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