VOLUME - 12, ISSUE - 01, JANUARY - 2023 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

Pediatrics

A STUDY ON ETIOLOGY AND CYTOMORPHOLOGICAL PROFILE OF SIGNIFICANT LYMPHADENOPATHY IN CHILDREN AGED 1-12YEARS ATTENDING GOVERNMENT GENERAL HOSPITAL, KAKINADA

Dr. M.S. Raju — HOD and professor, Department of pediatrics, Rangaraya Medical College, Kakinada.

Dr. K. Satya Kumari — Assistant professor of pediatrics, Rangaraya Medical College, Kakinada,

Dr. Palavalasa Anusha — Final Year post graduate, Pediatrics, Rangaraya Medical College, Kakinada

ABSTRACT

Background: Lymphadenopathy is defined as the presence of one or more lymph nodes of more than 1 cm in diameter, with or without an abnormality in character.Cervical lymphadenopathy is common in pediatric population and presents either as a primary complaint of neck mass or as an incidental finding during clinical examination. An evidence-based evaluation frame work may reduce unnecessary diagnostic tests and therapies, as well as enable physicians to counsel their patients and caregivers appropriately. **Objectives:** To study the etiology and cytomorphology of significant lymphadenopathy in children aged 1 to12 years attending ggh Kakinada.To evaluate the various etiologies of lymphadenopathy in children using fine needle aspiration cytology(FNAC)as diagnostic tool. **Results:** Among cases with regional lymphadenopathy, the majority of patients [87.5%]had cervical lymphadenopathy.Leading cause of cervical lymphadenopathy were pharyngitis [30%] followed by2ndmost common tonsillitis [20%], scalp infections [11.7%] ,dental caries[10.8%]and otitis media[9.2%] .47.5% patients had reactive lymphadenitis in FNAC. **Conclusion:** pharyngits is the leading cause of cervical lymphadenopathy followed by tonsillitis .Fine needle aspiration cytology showed that maximum individuals had reactive lymphadenitis. On comparing outcome and FNAC, maximum patients who recovered showed reactive lymphadenitis.

KEYWORDS : Lymphadenopathy, FNAC, pharyngitis.

INTRODUCTION:

Lymphnode(LN) enlargement is a common clinical symptom in paediatrics, with palpable nodes detected in approximately 80-90 percent of children[1].LN enlargement can occur as a result of normal aging physiological changes or as a transitory reaction to a variety of benign local or systemic infections originating in the upper respiratory tract or skin.However,persistent infections such as tuberculosis and brucellosis,as well as significant illnesses such as malignancies and autoimmune disorders, as well as other unusual causes such as atypical mycobacterial lymphadenitis, SLE, brucellosis,or histiocytosis, might cause it. The aetiological profile differs from region to region since lymphadenopathy is a common manifestation of numerous illnesses.Acute upper respiratory tract infections TB ,and suppurative skin infections are the most common causes of regional lymphadenopathy in developing nations like India.

Because lymphadenopathy is not a symptom of a single disease,diagnosing it can be difficult and,it necessitates a thorough understanding of differential diagnosis of the cervical lymphadenopathy.For patients with lympha denopathy,this study provides a systematic clinical aproach as well as treatment.[2]

Until recently, lymphnode biopsy was the preferred method of diagnosis in cases with lymphadenopathy,particularly when malignancy was suspected. In recent years, however,fine needle aspiration cytology has been used as an alternative. Fine-needle aspiration cytology (FNAC) is a less invasive way of diagnosing lymphadenitis that is easy, rapid,and cost-effective.It is a useful diagnostic tool, especially in children[3].

We choose this study to learn about the disease burden of tuberculosis in our area,to examine various aetiologies, and to provide early intervention in cases of tuberculosis by employing FNAC for early lymphadenitis detection.

PATIENTS AND METHODS:

Study Design:

Hospital-based prospective observational study of inpatient and outpatients of age group 1 to 12 years in Tertiary care hospital,kakinada over 18 months period from January 2020 to July 2021.

Inclusion Criteria:

patients between the age group of 1yr to12yrs patients with lymphadenopathy with lymphnode size of

1) 1cm in the cervical and axillary region
2) 1.5cm in inguinalregion
3) 0.5 cm in other peripheral regions
4) Lymphnodes with discharging sinus and which were hard, rubbery and matted.

Exclusion Criteria:

1. Children age < 1yr and > 12yrs
2. Children having lymphadenopathy of size Less than significant lymphadenopathy.

Statistical Analysis:

Data analysed by using excel 2013 and represented in the form of tables and diagrams. Significance tested by applying appropriate tests wherever necessary.

RESULTS AND OBSERVATIONS:

A total of 120 children were included in th study.Among them,66 were males,54 were females.26 members are in between 1 to 4 years,50 members are in between 5 to 8 years, 44 members are in between 9 to 12 years.

Symptoms:

Figure.1 showing distribution of symptoms

sl.no	symptoms	total	percentage
1.	palpableswelling	120	100%
2.	fever	58	48.3%
3.	cough	51	42.5%
4.	pain	18	15%
5.	low&failure togainweight	37	30.8%
6.	eardischarge	11	9.2%
7.	sorethroat	26	21.7%

In the present study,all patients had palpable

swellings[100%] and 48.3% patients had fever as presenting complaint, 42.5% patients had cough as presenting complaint, 15% patients had pain and swelling, 21.7% patients had sore throat, 9.2% had ear discharge, 30.8% patients had loss of weight or failure to gain weight and loss of appetite as presenting complaints along with palpable swellings.

Groups of lymphnodesinvolved:
Figure 2 showing group of Lymphnodes involved

Sl.no	Group	Total	percentage
1.	Cervical	105	87.5%
2.	Axillary	5	4.2%
3.	Inguinal	4	3.3%
4.	generalized	6	5%

In this study, the maximum number of patients presented with cervical lymphadenopathy 87.5% and patients with axillary lymphadenopathy were 4.2% and with inguina lymphadenopathy were 3.3% and with generalized lymphadenopathy were 5%.

Associatedfindings:
Figure 3 showing associated findings

sl.no	associatedfinding	number	percentage
1.	HSM	2	1.67%
2.	pharyngitis	36	30%
3.	tonsillitis	24	20%
4.	scalpinfection	14	11.7%
5.	dentalcaries	13	10.8%
6.	otitismedia	11	9.2%

In the present study,30%patients had pharyngitis, 20% patients hadtonsillitis,11.7%patients had scalp infection with pediculosis,10.8%patients had dental caries, 1.67% patients had hepatosplenomegaly and 9.2%patients had otitis media.

Mantouxtest:
Figure 4 showing mantoux results

sl.no.	test	total	percentile
1.	positive	14	11.7%
2.	negative	106	88.3%

In the present study,11.7% patients had Mantoux test positive and 88.3%were negative.

FNAC:
Figure 5

sl.no.	finding	total	percentage
1.	ASL	19	15.8%
2.	RL	57	47.5%
3.	CGL	18	15%
4.	CNSL	24	20%
5.	HL	02	1.6%

In the present study, fine-needle aspiration cytology did in allchildren and reportswere the maximum patients had reactive lymphadenitis 47.5%, 20%patients had chronic nonspecific lymphadenitis,15.8%patients had acute suppurative lymphadenitis,15%patients had chronic granulomatous lymphadenitis in FNAC and 1.6% had findings suggestive of Hodgkin's lymphoma in fine-needle aspiration cytology.

Treatmentgiven:
Figure 6

sl.no.	treatment	total	percentage
1.	ABS	100	83.3%
2.	ATT	17	14.2%
3.	ACT	2	1.7%
4.	ATT+ABS	1	0.8%

In the present study, antibiotics were given to 83.3% patients and antitubercular therapy to14.2%cases and 0.8%had necrotizing granulomatous lymphadenitis and given with both antitubercular therapy and antibiotics, and 1.7% patients were referred to higher center for anticancer therapy.

Outcome:
Figure 7

sl.no.	outcome	total	percentage
1.	recovered	107	89.2%
2.	NFUP	13	10.8%

In the present study, patients were followed up for 6 months in cases of chronic granulomatous lymphadenitis on antitubercular therapy and 1 month in cases of other causes, and 89.2% patients recovered and 10.8% were lost follow-up

DISCUSSION

This study is a prospective, cross-sectional observational studydone at government general hospital, Rangaraya medical college, Kakinada in the department of paediatrics with sample size of 120.

All patients from 1 to 12 years of age attending out- patient department at GGH,Kakinada, and inpatients in wards and PICU with significant lymphadenopathy wereincludedin the study.

Enlargement ofthe lymph nodes (LN) is a common clinical finding in paediatric practice.Approximately 80 90%ofchildren have palpable nodes.Lymphnode enlargement can occur as a result of normal aging physiological change or as a transitory reaction to a variety of benign local or systemic infections originating in the upper respiratorytract or the skin.Chronic infections such as tuberculosis and brucellosis, as well as dangerous illnesses such as malignancies and autoimmunedisorders, and other rare causes such as atypical mycobacterial lymphadenitis, SLE,brucellosis,or histiocytosis, can cause it.

The aetiological profile differs from region to region since lymphadenopathy is a common presentation of numerous diseases.Acute upper respiratory infections,suppurative skin infections,and tuberculosis are the leading causes of regional lymphadenopathy in developing countries like India.Because lymphadenopathy is not a symptom of a single disease, diagnosis can be difficult and it needs a thorough understanding of the differential diagnosis olympha denopathy. This study offers a systematic clinical approach as well as treatment protocol for patients with lymphadenopathy.

In the present study, maximum number of patients belonged to 5-8 years which was 41.7% and those from 9-12 years constituted 36.7% followed by 1-4 years with21.6%.In a study conducted by BHARGAVETAL[4],significant lymphadenopathy is common in age group 5-8 years with 45% followed by 9-12 years 43.3% and 1-4years constituted11.7%.

In the present study,majority of patients were males 55% and females constituted 45%with male to female ratioof 1.2:1.In a study conducted by Bal Kishan ET al[5], 100 patients were taken and the results obtained had maximum females with 52% and males 48% with a male to female ratio of 1:1.08.

In the present study, all patients presented with palpable swelling 100% and fever was a major symptom in 48.3% followed by cough in 42.5% patients and 30.8% patients had a loss of weight or failure to gain weight or loss of appetite as complaintand 21.7% patients had a sore throat as presenting complaint and pain of swelling in15% and 9.2% patients presented with ear discharge and 42% patients had morethanone symptom.In a study conducted by

NageswaraoETal[6],50 patients were taken and the maximum subject presented with palpable swelling in 88% followed by fever in 44%patients and cough in21%cases.

In the present study,30%patients had pharyngitis on examination and 20%patients hadtonsillitis and11.7% patients had scalp infection in the form of pediculosis,and10.8%patients had dentalcaries on examination and 1.67%had hepatosplenomegaly on examination.

In the present study, maximum patients had duration of swelling <1 month with 68.3% and 1-6 months duration was 17.5% and >6 months duration was seen in 14.2%patients.

In a study conducted by Pradeep Reddy ET al[7], 100 patients were taken and results obtained where maximum patients had duration within 1-6months71%. Proportion of patients with<1month duration in various studies.

In the present study, maximum patients had regional lymphadenopathy with 95%among which , maximum patients had cervical lymphadenopathy 87.5% and axillary lymphadenopathy constituted 4.2% followed by inguinal lymphadenopathy 3.3% and generalized lymphadenopathy was seen in 5%patients.

In the present study, cervical lymphadenopathy constituted 87.5% and in cervical lymphadenopathy, maximum patients had anterior cervical lymph nodes involved in 35.8% followed by posteriorcervicallymphnodesin 28.3%and submandibularconstituted9.2%andposterioraurricularin 9.1%andoccipital4.1% and supraclavicular0.9%. In a study conducted by Deva Kumar B ET al[8], maximum patients had anteriorcervically mphnodesinvolvedin 44.1%followed by posterior cervical32.5%.In the presentstudy, majority ofpatients had swelling sizeof 1-2cms in 81.6%followed by 2-4cms in 15.8% and >4 cms in 2.5%. Among patients with 1-2cmsswelling size, maximum individuals had reactive lymphadenitis in FNAC and among 2-4cms maximum cases had acute suppurative lymphadenitis in FNAC and among individuals with swelling size>4cms maximum had acute suppurative lymphadenitis in FNAC which is statistically significant.In a study conducted by RizwanETal[9],89 patients were taken and results obtained.42.7%had tubercular lymphadenitis and 57.3%patients had non tuberculous cervical lymphadenopathy and among those with tubercular lymphadenopathy,81.6% had swelling >1.5cm and 18.4% had swelling of 1-1.5cmand in non tuberculous swelling out of 51, 80.4% patients had swelling size 1-1.5cm and19.6%patients had swelling size >1.5cm.

In the present study, maximum patients had firm consistency 83.4% followed by the soft in consistency of swellingin 16.6%.In a study by P.C.Chamyal ET al[10] firm nodes constituted 65.5%, hard 29.1%, cystic3.6%andsoft1.8%.

Among those, maximum cases had reactive lymphadenitis in FNAC and among softconsistency cases, maximum individuals had acute suppurative lymphadenitis inFNAC.

In the present study, maximum patients had non-tender swelling with 80%, and 20%patients had swelling with tenderness. Among patients with tender swelling maximum cases had acute suppurative lymphadenitis in FNAC with 62.5% and among patientswithnon-tender swelling maximum patients had reactive lymphadenitis with 56.3%.In a study conducted by Bilal ET al[11],the majority of patients had non-tender swelling with 83.8%and tender swelling constituted 16.2%. In the present study, the maximum number of patients had normal total leukocytecount 93%and among differential counts,74.2%patients had neutrophilia followed by 19.2% patients with lymphocytosis and 6.6%had eosinophilia. Among patientswith neutrophilia, maximum patients had reactive lymphadenitis in FNAC with 44.9% and among individuals with lymphocytosis maximum cases had reactive lymphadenitis in FNAC with 47.9% and among patients with eosinophilia maximum cases had reactive lymphadenitis in FNAC with 47.9%.

In the present study, maximum patients had raised ESR with 52.5% and 47.5%patients hadnormal ESR.

In the present study, fine needle aspiration cytology was done to all 120 patients. Out of 120 patients, maximum number of patients had reactive lymphadenitis with 47.5%followed by chronic nonspecific lymphadenitisin 20% patients followed by acute suppurative lymphadenitis in 15.8% individuals followed by chronic granulomatous lymphadenitis in 15% cases and 1.6%patients had Hodgkin'slymphoma in FNAC.

In a study conducted by Annam VET al[12], Of 324 cases, the cytomorphologic features observed were reactive lymphadenitis in 58.02% of cases, granulomatous lymphadenitis in 30.55%, suppurative lymphadenitis in 7.10% and malignancies in5.62%.

In a study conducted by MohansETal[13],72.85% patients had reactive lymphadenitis and 22.85% patients had tuberculous lymphadenopathy, and 2.85% patients had Hodgkin's lymphoma. As per the findings of Khan ET al[14] reactive hyperplasia was the most frequent form of lymphadenitis in children followed by granulomatous involvement.

In the present study, Mantoux was positive in 11.7% patients,and 88.3%patients had Mantoux negative whereas TB lymphadenitis constituted 15% suggesting patients with negative Mantoux may also manifest withTB lymphadenitis. In the present study, 83.3% patients were given antibiotics and 14.2% patients had tuberculous lymphadenitis and started with antitubercular therapy and 1 patient had infected tubercular lymphadenitis with necrosis and was given antibiotics with antitubercular therapy. 2 patients[1.6%] were diagnosed as Hodgkin's lymphoma and they were referred to higher centre for anti-cancer therapy for further management.

CONCLUSION:

The majority of patients belong to 5 to 8 years constituting 41.7% suggesting higher prevalence of infections among school going children.Majority of patients [87.5%]had cervical lymphadenopathy.Leading cause of cervical lymphadenopathy were pharyngitis [30%] followed by2nd most common tonsillitis [20%] ,scalp infections [11.7%] ,dental caries[10.8%] and otitis media[9.2%] .5% patients had a history of TB contact.Majority of patients had firm consistency of swelling with 83.4%. 80% of patients had non-tender swelling which suggest non-specific lymphadenitis.82.5% of patients had mobile swelling, out of which reactive lymphadenitis and non-specific lymphadenitis were the major findings in FNAC. 83.3% patients were started on antibiotics and 14.2% patients were started on antitubercular therapy and 1.7% patients were referred to a higher centre for anticancer therapy.89.2%patients recovered and10.8%lost to follow-up.Maximum individuals[28.5%]with raised ESR showed chronic granulomatous lymphadenitis and majority patients[73.7%] with normal ESR had reactive lymphadenitis in FNAC.On comparing outcome and FNAC, maximum patients [47.7%] who recovered showed reactive lymphadenitis.

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