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CLINICO PATHOLOGICAL PROFILE OF CERVICAL LYMPHADENOPATHY IN CHILDREN AGE GROUP (1YEAR TO 12YEARS)

Dr. Ruthala Bhargav

Senior Resident, Department of paediatrics , Andhra Medical College, Visakhapatnam Andhra Pradesh,India.

ABSTRACT **OBJECTIVES:**To study clinical and pathological correlation in pediatric cases with cervicallymphadenopathy and to assess the etiological factors in pediatric cervical lymphadenopathy. **MATERIALS AND METHODS**:Children from 1 year to 12 years of age admitted with cervical lymphadenopathy in the pediatric department. It is a prospective, cross-sectional study. **RESULTS:** Out of 60 children,majority of the study subjects belong to 5-8 years (45%), followed by 9-12 years (43.3%) and 1-4 years (11.7%). Majority were females (53.3%), Males constitute 46.7%. In patients with Swelling Size of 1-2cms, 54.1% reported with reactive lymphadenitis in FNAC. In patients with Swelling Size of 2-4cms, 38.9% patients reported with Chronic Non Suppurative Lymphadenitis in FNAC and with Swelling Size of >4cms, 60% patients reported with TB Lymphadenitis in FNAC. The association between them was found to be statistically significant. **CONCLUSION:** In the present study, FNAC report shows that 41.7% patients with reactive lymphadenitis. 40% patients reported with Chronic Non Suppurative Lymphadenitis. 16.7% patients reported with TB Lymphadenitis. 1.7% patients reported with Hodgkins lymphoma.

KEYWORDS : Cervical lymphadenopathy, lymphadenitis, FNAC

INTRODUCTION:

Lymph node enlargement is a common problem in children and evaluation of child with lymphadenopathy is a common clinical scenario for paediatricians. Palpable nodes in the cervical region are found in about 80-90 % of children[1] .

Cervical lymphadenopathy has been a common presentation in the course of a number of diseases. This condition is generally not a disease by itself rather it might be a symptom of many underlying conditions. These conditions can be of neoplastic or inflammatory and may include metastatic carcinoma ,lymphoma , infectious diseases , tuberculosis etc. since the cervical lymphadenopathy is not a manifestation of single disease , hence diagnosis becomes very difficult.Most patients can be diagnosed on the basis of careful history and physical examination. This study presents a methodical clinical approach as well as treatment to the patients presenting with cervical lymphadenopathy. There are about 800 lymph nodes in the body, out of which 300 are located in the neck[2] .

Generalized lymphadenopathy is defined as enlargement of two or more non contagious lymph node regions3 . . Causes include systemic infections, malignancies, Regional lymphadenopathy is defined as the enlargement of lymph nodes within contiguous anatomic regions4. It most often occurs due to the presence of an infectious or inflammatory process in the region drained by the lymph node(s). Infectious etiologies is the common cause for regional lymphadenopathy.

Until recently lymph node biopsy was the investigation of choice for cases withlymphadenopathy, especially when malignancy is suspected. However, fine needle aspirationcytology has been advocated as an alternative procedure in recent times. It has been found tobe a useful adjunct diagnostic technique. It is a rapid, simple,reliable, cost effective, safe technique with good diagnostic accuracy. It can obviate the need for surgical biopsy[4].

The dilemma to approach a child with lymphadenopathy, its evaluation andmanagement, considering various differential diagnoses, stimulated us to take up this study.

MATERIALS AND METHODS:

Study Site :King George Hospital in the Department of pediatrics, Andhra medical college. Study Population Children from 1 year to 12 years of age admitted with cervical lymphadenopathy in the pediatric department. Study Design is a prospective, cross-sectional study. Sampling technique All patients from 1 year to 12 years of age admitted(OP and IP) with cervical lymphadenopathy during period of September 2019 to December 2019 were included in the study until sample size is attained. All patients those who satisfies both the criteria were only selected for the study.

Inclusion Criteria: Patients between the age group of 1 year to 12 years and Patients with cervical lymphadenopathy withLymph node size of > 1cm in cervical region.

Lymph nodes which were hard, rubbery or matted .Exclusion Criteria: Children with age >12 years and Children not willing to participate,Sample size of 60 patients Statistical analysisData entry and statistical analysis was performed with the help of Microsoft excel 2007 and SPSS version 20.0, while categorical variables are presented as number and percentages. Chi-square test is used to compare differences in categorical variables.The statistical significance level was fixed at $p<0.05$.

RESULTS:

Majority of the study subjects belong to 5-8 years (45%), followed by 9-12 years (43.3%) and 1-4 years (11.7%). Majority of the study subjects were females (53.3%). Males constitute 46.7%.86.7% of study subjects presented with complaint of fever and Cough was present in 53.3% study subjects. Sore throat was present in 20% patients, Loss of weight and appetite was present in 15% patients, pain was present in 11.7% patients, ear discharge was present in 6.7% patients and dental problems were present in 3.3%. 53.3% patients presented with symptoms of less than one month duration. 35% patients presented with symptoms of one month to six months duration. 11.7% patients presented with symptoms of more than six months duration.In 43.3% patients, lymphadenopathy is in upper anterior cervical region. In 36.7% patients, lymphadenopathy is in posterior cervical region. In 8.3% patients, lymphadenopathy is in Submandibularregion.In 5% patients, lymphadenopathy is in Posterior Auricularregion.In 3.3% patients, lymphadenopathy is in Supraclavicularregion.In 3.3% patients, lymphadenopathy is in Occipital region.In 61.1% patients, swelling size is 1-2cms. In 30% patients, swelling size is 2-4cms. In 8.3% patients, swelling size is >4cms.

In 86.7% patients, consistency is firm and in 13.3% patients, consistency is soft.In 90% patients, lymphnodes are mobile and in 10% patients, lymph nodes are matted.Tenderness is present in 16.7% patients.Tosillitis is present in 25% patients. Otitis media is present in 13.3% patients. Orodental infections were present in 3.3% and Rash is present in 1.7% patients.Neutrophilia is present in 58.3% patients. Lymphocytosis is present in 35% patients and Eosinophilia is present in 6.7% patients.FNAC report(table 1.1) shows that 41.7% patients with reactive lymphadenitis. 40% patients reported with Chronic Non Suppurative Lymphadenitis. 16.7% patients reported with TB Lymphadenitis. 1.7% patients reported with Hodgkins lymphoma.

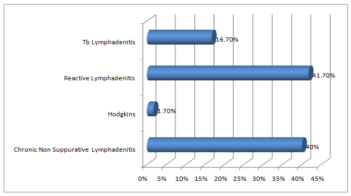

Table .1.1
Mantoux test was positive in 15% patients.Chest X Ray showed abnormality in 13.3% patients. Antibiotics was taken by 81.7% patients. Anti tubercular therapy was taken by 16.7% patients. Chemotherapy was taken by 1.7% patients.

Chi-square: 32.222, Df: 3, P value: 0.001, Statistically significant.Majority of patients with matted (83.3%) reported Tb Lymphadenitis with FNAC. Majority of patients with mobility (46.3%) reported Reactive Lymphadenitis with FNAC. The association between them was found to be statistically significant.

DISCUSSION:

This study is aprospective, cross sectional observational studydone at King george hospital,in the Department of pediatrics with a sample size of 60. All patients from 1 month to 12 years of age admitted with cervical lymphadenopathy during September 2019 to december2019 towere included in the study.

Age:

- In the present study, Majority of the study subjects belong to 5-8 years (45%), followed by 9-12 years (43.3%) and 1-4 years (11.7%). In patients with age group of 1-4 years, 71.4% patients reported with reactive lymphadenitis in FNAC. In patients with age group of 5-8 years, 51.9% patients reported with reactive lymphadenitis in FNAC. In patients with age group of 9-12 years, 46.2% patients reported with Chronic Non Suppurative Lymphadenitis in FNAC. The association between them was found to be statistically not significant.

- In a study conducted by Kumar BD et al5, Significant cervical lymphadenopathy is common in 4- 8 years group(43%)., followed by 8-12 years group (36%)

- In a study conducted by Mohan S et al6, majority were in the age group of 4-8 years (40.7%).

Sex:

- In the present study, Majority of the study subjects were females (53.3%). Males constitute 46.7%.(1:1.14). Majority (46.9%) females reported Chronic Non Suppurative Lymphadenitis with FNAC. Majority (53.6%) males reported Reactive Lymphadenitis with FNAC. The association between them was found to be statistically not significant.

- In a study conducted by Bilal JA et al7,Males were 49 (61.2%) and females were 31(38.2%) with a ratio of 1.5:1.

- In a study conducted by Ammari FF et al8, The sex ratio is 1:2 (M:F).

- In a study conducted by Dworskiet al9, The sex ratio is 1:1.38 (M:F)

Symptoms:

- In the present study, 86.7% of study subjects presented with complaint of fever and Cough was present in 53.3% study subjects. Sore throat was present in 20% patients, Loss of weight and appetite was present in 15% patients, pain was present in 11.7% patients, ear discharge was present in 6.7% patients and dental problems were present in 3.3%.

- In a study conducted by Mohan Set al6, On examination, organomegaly was present in 26.9 % Tonsillitis and/or pharyngitis in 21.5% skin lesions over scalp in 11.5%, orodental infections in 8.4% cases and ear infection in 6.9% cases. 2.3% cases with measles had rash.

Duration:

- In the present study, 53.3% patients presented with symptoms of less than one month duration. 35% patients presented with symptoms of one month to six months duration. 11.7% patients presented with symptoms of more than six months duration.

Site:

- In the present study, in 43.3% patients, lymphadenopathy is in upper anterior cervical region. In 36.7% patients, lymphadenopathy is in posterior cervical region. In 8.3% patients, lymphadenopathy is in Submandibular region. In 5% patients, lymphadenopathy is in Posterior Auricular region. In 3.3% patients, lymphadenopathy is in Supraclavicular region. In 3.3% patients, lymphadenopathy is in Occipital region.

- In a study conducted by Kumar BD et al5 Anterior cervical is most commonly affected group of lymph nodes(44.1%) followed by posterior cervical (32.5%).

- In a study conducted by Mohan S et al6, Out of 70 cases, anterior cervical nodes were commonly involved (44.28%) followed by posterior cervical lymph nodes (32.85%). Submandibular lymph nodes in 10% of cases, Occipital and Posterior auricular in 7.1% and 5.71% of cases respectively.

Size:

- In the present study, In 61.1% patients, swelling size is 1-2cms. In 30% patients, swelling size is 2-4cms. In 8.3% patients, swelling size is >4cms. In patients with Swelling Size of 1-2cms, 54.1% patients reported with reactive lymphadenitis in FNAC. In patients with Swelling Size of 2-4cms, 38.9% patients reported with Chronic Non Suppurative Lymphadenitis in FNAC. In patients with Swelling Size of >4cms, 60% patients reported with TB Lymphadenitis in FNAC. The association between them was found to be statistically significant.

Consistency:

- In the present study, In 86.7% patients, consistency is firm and in 13.3% patients, consistency is soft. Majority of patients with firm consistency (48.1%) reported Reactive Lymphadenitis with FNAC. All patients with soft consistency (100%) reported Chronic Non Suppurative Lymphadenitis with FNAC. The association between them was found to be statistically significant.

- Tenderness is present in 16.7% patients.

- In P.C.Chamyalet al10 series firm nodes constituted 65.5%, hard 29.1%, cystic 3.6% and soft 1.8%.

- In a study conducted by Bilal JA et al7, The majority of the patients; 96.2% (n=77) had firm, non-tender (83.8%, n=67) and mobile nodes (87.5%, n=70).

Mobility:

- In the present study, In 90% patients, lymph nodes are matted and in 10% patients, lymph nodes are mobile. Majority of patients with matted (83.3%) reported Tb Lymphadenitis with FNAC. Majority of patients with mobility (46.3%) reported Reactive Lymphadenitis with FNAC. The association between them was found to be statistically significant.

- In a study conducted by Jha BCA et al10, patients showed matted lymph nodes in 38.3% of cases.

- In a study conducted by Mohan S et al6, In 83.8% patients nodes were discrete and mobile. Matted in 16.2%, out of which 2 had discharging sinus formation.

Blood Counts:

- In the present study, Neutrophilia is present in 58.3% patients. Lymphocytosis is present in 35% patients and Eosinophilia is present in 6.7% patients. In patients with Eosinophilia, 100% patients reported with reactive lymphadenitis in FNAC. In patients with Lymphocytosis, 47.6% patients reported with Tb Lymphadenitis in FNAC. In patients with Neutrophilia, 62.9% patients reported with Chronic Non Suppurative Lymphadenitis in FNAC. The association between them was found to be statistically significant.

- In a study conducted by Mohan S et al6, 37.1% of children had leucocytosis. Neutrophilia was found in 45.71% and lymphocytosis in 21.42%.

FNAC:

- In the present study, FNAC report shows that 41.7% patients with reactive lymphadenitis. 40% patients reported with Chronic Non Suppurative Lymphadenitis. 16.7% patients reported with TB

Lymphadenitis. 1.7% patients reported with Hodgkins lymphoma. Majority of patients with no tenderness (83.3%) reported Chronic Non Suppurative Lymphadenitis with FNAC. Majority of patients with tenderness (60%) reported Reactive Lymphadenitis with FNAC. The association between them was found to be statistically not significant.

- In a study conducted by Mohan S et al6, 51 patients (72.85%) were diagnosed with Reactive lymphadenopathy. 16 patients (22.85%) were diagnosed with tuberculous lymphadenopathy. 2 patients (2.85%) were having Hodgkins Lymphoma.
- As per the findings of Khan et al.12 reactive hyperplasia was the most frequent form of lymphadenitis in children followed by granulomatous involvement.
- In the present study, Mantoux test was positive in 15% patients.
- In the present study, Chest X Ray showed abnormality in 13.3% patients.
- In a study conducted by byJha BCA et al,11 series showed 16% positivity.

Treatment:

- In the present study, Antibiotics was taken by 81.7% patients. Anti tubercular therapy was taken by 16.7% patients. Chemotherapy was taken by 1.7% patients.
- In the present study, 91.7% patients recovered after the treatment.
- In a series by Kanlikama M et al.,13 all patients recovered by combination of antituberculous therapy and surgical management.
- In the present study, Majority of patients with no follow up (60%) reported Chronic Non Suppurative Lymphadenitis with FNAC. Majority of patients with recovery (43.6%) reported Reactive Lymphadenitis with FNAC. The association between them was found to be statistically not significant.

SUMMARY AND CONCLUSION

- Majority of the study subjects belong to 5-8 years (45%), followed by 9-12 years (43.3%) and 1-4 years (11.7%).
- Majority of the study subjects were females (53.3%). Males constitute 46.7%.
- 86.7% of study subjects presented with complaint of fever and Cough was present in 53.3% study subjects. Sore throat was present in 20% patients, Loss of weight and appetite was present in 15% patients, pain was present in 11.7% patients, ear discharge was present in 6.7% patients and dental problems were present in 3.3%.
- 53.3% patients presented with symptoms of less than one month duration. 35% patients presented with symptoms of one month to six months duration. 11.7% patients presented with symptoms of more than six months duration.
- In 43.3% patients, lymphadenopathy is in upper anterior cervical region. In 36.7% patients, lymphadenopathy is in posterior cervical region. In 8.3% patients, lymphadenopathy is in Submandibular region. In 5% patients, lymphadenopathy is in Posterior Auricular region. In 3.3% patients, lymphadenopathy is in Supraclavicular region. In 3.3% patients, lymphadenopathy is in Occipital region.
- In 61.1% patients, swelling size is 1-2cms. In 30% patients, swelling size is 2-4cms. In 8.3% patients, swelling size is >4cms.
- In 86.7% patients, consistency is firm and in 13.3% patients, consistency is soft.
- In 90% patients, lymphnodes are matted and in 10% patients, lymph nodes are mobile.
- Tenderness is present in 16.7% patients.
- Tonsillitis is present in 25% patients. Otitis media is present in 13.3% patients. Orodental infections were present in 3.3% and Rash is present in 1.7% patients
- Neutrophilia is present in 58.3% patients. Lymphocytosis is present in 35% patients and Eosinophilia is present in 6.7% patients.
- ESR is raised in 58.3% patients.
- FNAC report shows that 41.7% patients with reactive lymphadenitis. 40% patients reported with Chronic Non Suppurative Lymphadenitis. 16.7% patients reported with TB Lymphadenitis. 1.7% patients reported with Hodgkins lymphoma.
- Mantoux test was positive in 15% patients.
- Chest X Ray showed abnormality in 13.3% patients.
- Antibiotics was taken by 81.7% patients. Anti tubercular therapy was taken by 16.7% patients. Chemotherapy was taken by 1.7% patients.
- 91.7% patients recovered after the treatment.
- In patients with age group of 1-4 years, 71.4% patients reported with reactive lymphadenitis in FNAC. In patients with age group of 5-8 years, 51.9% patients reported with reactive lymphadenitis in FNAC. In patients with age group of 9-12 years, 46.2% patients reported with Chronic Non Suppurative Lymphadenitis in FNAC. The association between them was found to be statistically not significant.
- Majority (46.9%) females reported Chronic Non Suppurative Lymphadenitis with FNAC. Majority (53.6%) males reported Reactive Lymphadenitis with FNAC. The association between them was found to be statistically not significant.
- In patients with Swelling Size of 1-2cms, 54.1% patients reported with reactive lymphadenitis in FNAC. In patients with Swelling Size of 2-4cms, 38.9% patients reported with Chronic Non Suppurative Lymphadenitis in FNAC. In patients with Swelling Size of >4cms, 60% patients reported with TB Lymphadenitis in FNAC. The association between them was found to be statistically significant.
- Majority of patients with firm consistency (48.1%) reported Reactive Lymphadenitis with FNAC. All patients with soft consistency (100%) reported Chronic Non Suppurative Lymphadenitis with FNAC. The association between them was found to be statistically significant.
- Majority of patients with matted (83.3%) reported Tb Lymphadenitis with FNAC. Majority of patients with mobility (46.3%) reported Reactive Lymphadenitis with FNAC. The association between them was found to be statistically significant.
- In patients with Eosinophilia, 100% patients reported with reactive lymphadenitis in FNAC. In patients with Lymphocytosis, 47.6% patients reported with Tb Lymphadenitis in FNAC. In patients with Neutrophilia, 62.9% patients reported with Chronic Non Suppurative Lymphadenitis in FNAC. The association between them was found to be statistically significant.
- Majority of patients with no follow up (60%) reported Chronic Non Suppurative Lymphadenitis with FNAC. Majority of patients with recovery (43.6%) reported Reactive Lymphadenitis with FNAC. The association between them was found to be statistically not significant.

CONFLIT OF INTEREST:

This study has no conflict of interest to declare by any author.

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