Original Research Article

Evaluation of paediatric lymphadenopathy at a rural tertiary care centre

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ABSTRACT

Background: The aim and objectives of the present study was to determine the various etiologies of lymphadenopathy in children in our region and its associated clinical findings and prevalence of malignancy in children presented with significant lymphadenopathy.

Methods: Sixty-five patients with significant lymphadenopathy charts were reviewed retrospectively from department of Paediatrics and Paediatric Surgery during the period of September 2018-2020. Patient's records were evaluated in terms of age, gender, complaints, and characteristics of lymph nodes in terms of site, consistency, discharge, sinus and clinical course of a patient. Physical findings of all the cases were noted. Hematological and serological tests were done to know the source of infection. Clinical findings and laboratory results were corroborated with pathological diagnostic tests like FNAC and Excision biopsies in children with significant lymphadenopathy.

Results: The etiology was confirmed in 94% children and couldn't be diagnosed in 6% children presented with significant lymphadenopathy. On evaluation commonest etiology was infection with reactive hyperplasia in 58% of children secondary to bacterial or viral infections, Kawasaki disease, suppurative lymphadenitis in 17%, tuberculous lymphadenitis in 14%, and malignancy in 11%. Majority of children presented with cervical lymphadenopathy. An unusual presentation of Non Hodgkin lymphoma as intestinal obstruction with no significant mass per abdomen, a case of nasopharyngeal carcinoma presented as torticollis due to massive unilateral cervical lymphadenopathy were diagnosed.

Conclusions: The most widely encountered cause of lymphadenopathy in children was infection. Most of them are secondary to non specific viral or bacterial infections. The most important concern in children presenting with complaints of lymphadenopathy is the detection of underlying malignant disease. There was significant malignancy rate in our study in children with lymphadenopathy with few atypical presentations. Excisional biopsy is the gold standard method to confirm the diagnosis.

Keywords: Lymphadenopathy, Malignancy, Pediatric

INTRODUCTION

Lymph nodes are secondary lymphoid organs which play a major role in adaptive immunity. Antibody production, T-cell responses, and cytokine production all occur in lymph nodes. The term "lymphadenopathy" refers to lymph nodes that are abnormal in size, number, or consistency. Lymph nodes can enlarge by either

proliferation of normal cells that comprise the lymph node or infiltration by foreign or abnormal cells.¹

Examining the lymph nodes is an important aspect of the general physical examination of both well and ill children and adolescents. Thus, the challenge for the general pediatrician is to distinguish pathologic from non pathologic lymph node enlargement. Formulating a differential diagnosis requires consideration of several

important clinical features: age of the patient, size of the nodes, location of the nodes, quality of the nodes, whether lymphadenopathy is localized or generalized, time course of the lymphadenopathy and other associated symptoms because of its association with malignancy, lymphadenopathy can be a major source of parental anxiety.¹

Normally lymph nodes in the axillary and cervical regions are up to 1 cm in size, in the inguinal regions up to 1.5 cm in size, and in the epitrochlear location up to 0.5 cm in size. Palpable supraclavicular nodes are always considered abnormal. Enlargement of two or more non-contiguous lymph node regions is known as generalized lymphadenopathy, which occurs secondary to systemic infections and immunologic disorders.² The incidence of cervical lymphadenopathy is more when compared with lymphadenopathy of other sites because of location of more number of lymph nodes in the neck and increased incidence of infectious conditions in and around cervical region. The etiological profile of lymphadenopathy varies from country to country and region to region. In developing countries like India, acute upper respiratory infections, suppurative skin infections and tuberculosis are the major causes for regional lymphadenopathy with incidence varying from 38-45%.^{3,4}

Aim and Objectives

Aim and objectives of the present study was to determine the various etiologies of lymphadenopathy in children in our region and its associated clinical findings and prevalence of malignancy in children presented with significant lymphadenopathy.

METHODS

Sixty five patients who presented with significant cervical, axillary, inguinal, mesenteric and supraclavicular lymphadenopathy retrospectively were studied in current investigation. They were evaluated at Kamineni institute of medical sciences, department of paediatrics and paediatric surgery between September 2018 to September 2020.

Inclusion criteria

Inclusion criteria for current study were; patients between the age group of 1 month and 12 years, patients with lymphadenopathy with lymph node size of more than 1cm in cervical and axillary region or more than 1.5 cm in inguinal region or more than 0.5 cm in epitrochlear region and patients with lymph nodes which were hard, rubbery and matted.

Exclusion criteria

Exclusion criteria for current study were; palpable neck masses which were confirmed as thyroglossal cyst, branchial cyst, lymphangiomas, children who did not

follow up based on data in records and patients whose consent for fine needle aspiration cylogy or excision biopsy couldn't be obtained.

Procedure

Patients records were evaluated in terms of age, gender, complaints, characteristics of lymph nodes in terms of site, consistency, laterality, discharge, sinus and clinical course of a patient. Physical findings of all the cases were noted. Complete blood cell count, peripheral blood smear, erythrocyte sedimentation rate, chest radiography, ultra sonogram, additional tests like tuberculin skin test, CBNAAT, stain for AFB, throat swab culture, blood culture and serological tests for infectious agents like Epstein bar virus, cytomegalovirus, HIV, brucellosis were done.

Clinical findings and laboratory results were corroborated with pathological diagnostic tests like FNAC and excision biopsies as and when required. Excision biopsies was performed in the following conditions; lymph nodes that were hard in consistency, fixed to the surrounding tissue, increased rapidly in size unresponsive to antibiotics about 4 to 6 weeks, lymph nodes in supraclavicular region, presence of hepatosplenomegaly and mediastinal hilar lymphadenopathy on chest X-ray, presence of symptoms like fever of unknown origin, night sweats, weight loss, when there is difficulty in arriving at a diagnosis. Chest X-ray was done prior to excision biopsy to exclude mediastinal mass as biopsy is contraindicated in presence of it.

The diagnosis of reactive lymphoid hyperplasia was considered when; lymph node hyperplasia secondary to local infectious conditions of scalp, ear, nose, throat, teeth, upper respiratory tract, skin and soft tissue; hyperplasia was secondary to systemic infectious agents such as Epstein-Barr virus, Cytomegalovirus etc; or microscopic findings were consistent with reactive lymphoid hyperplasia.

RESULTS

A total of 65 children with significant local and generalized lymphadenopathy were noted during the period of study September 2018 to September 2020. Of the total number of patients enrolled in study 37 (57%) were female and 28 (43%) were males. It was observed that there were children with significant lymphadenopathy age group of 1 month to 3 years (N=9), 4 to 8 years (N=31), 9 to 12 years (N=25) comprising of 14%, 47% and 39% respectively. Majority of patients were in the age group of 4 to 8 years. In the analysis of history and findings of the patients with lymphadenopathy, the major in order of incidence were fever (54%), neck mass (53%), cough (31%), sore throat (23%), loss of appetite (15%), weight loss (12%), ear discharge (12%), loss of appetite (15%), tooth ache (12%), hepatosplenomegaly (6%), skin infection (9%),

night sweats (6%). Duration of lymphadenopathy of less than one month (56%) was seen in reactive lymphadenopathy, 1 to 6 months (17%) was mostly seen in cases with tuberculosis and more than 6 months in malignancies (6%). The lymphnodes with firm consistency was seen in reactive hyperplasia and TB lymphadenitis (70%), hard and rubbery in Hodgkins lymphoma and non hodgkins (7%) and soft in abscess (12%).

Figure 1: Clinical features in children presented with lymphadenopathy.

Figure 2: Distribution of cases based on site of lymphadenopathy.

Figure 3: Distribution of cases as per clinico-pathological diagnosis.

In current study maximum number of children presented with cervical lymphadenopathy in cervical region (35;

70%) followed by axillary (8; 12%), inguinal (4; 6%), mesenteric (4; 6%) and generalized (4; 6%). Non specific lymphoid hyperplasia was detected in most of the cases (58%) which was considered benign. The etiological factors of this reactive hyperplasia were upper respiratory tract infections, acute otitis media, Kawasaki disease, brucellosis, skin infections, orodental infection and few cases with unknown etiology with course. In all these cases the size of nodes regressed with course of antibiotics. Kawasaki disease was diagnosed in a patient with bilateral cervical lymphadenopathy with 4 out of 5 clinical diagnostic criteria fever lasting for more than five days, strawberry tongue, bilateral conjunctivitis, inflammation of lip, mouth and tongue and bilateral cervical lymphadenopathy. Confirmed later with ECHO changes. Tuberculous lymphadenitis was seen in 14% cases and majority of them presented with unilateral cervical lymphadenitis as matted lymphnodes in most of the cases. Four patients presented with acute abdomen features in whom exploratory laparotomy was done found to have significant mesenteric lymphadenopathy (6%). A patient presented with recurrent vomiting and pain abdomen with no palpable mass on examination had significant mesenteric lymphadenopathy was diagnosed with non Hodgkin's lymphoma (burkitt's lymphoma) and remaining 3 cases it was reactive hyperplasia on histopathology findings in mesenteric lymphnodes which caused collapse of the bowel lumen and acute intestinal obstruction.

Figure 4: Clinico etiological diagnosis of lymphadenopathy

In current study, four cases (6%) presented with generalized lymphadenopathy diagnosed as nasopharyngeal carcinoma, acute lymphoblastic leukemia in which child had history of failure to thrive, recurrent respiratory infections and long duration of fever, a child with fever of unknown origin and weight loss diagnosed with HIV, a child with benign course of reactive hyperplasia. In current study incidence of malignancy was 11%. Four patients with Hodgkin's and non

Hodgkin's lymphoma presented with fever, night sweats and unexplained weight loss in whom lymph nodes were fixed and rubbery in consistency. An unusual presentation of a child with torticollis secondary to massive unilateral cervical mass. On ultrasonogram, there was significant unilateral cervical lymphadenopathy with multiple nodes and supraclavicular lymphnodes diagnosed as nasopharyngeal carcinoma.

DISCUSSION

Lymphadenopathy is an extremely wide spread, but rarely malignant condition encountered in pediatric age group.⁵ It is most frequently seen in cervical region. The most common cause of cervical lymphadenopathy is infection with the frequent ones, viral infections of the upper respiratory tract, infectious mononucleosis, group A beta hemolytic streptococcal pharyngitis, acute bacterial lymphadenitis. Lymphoma is the most frequent cause of malignant lymphadenopathy.⁶

Mishra et al similar to this study in our present study majority of the patients were in the age group of 4-8 years (47%). Normal peak lymphatic growth occurs in the age group of 4-8 years, this could be the reason for maximum number of cases in this age group.⁷ In most of the cases the presenting symptom was fever (84%) followed by neck swelling (70%) sore throat and cough (30%). This was similar to the study done by Ellison et al who studied 100 children with generalized lymphadenopathy.⁸

In current study most of the cases had reactive hyperplasia (N=39, 58%) and this percentage was similar to other studies, specific diagnosis could not be evaluated in 8% of the cases with reactive hyperplasia.⁹ Children presented with mycobacterial infection had chronic cervical lymphadenopathy for more than 6 weeks. Out of 9 cases of TB lymphadenitis FNAC had sensitivity of 66% in diagnosing cases of TB. In these cases diagnosis was confirmed by CBNAAT, chest X-ray and skin tuberculin test. The results were similar to study of Somaiah et al in which study was done on 130 cases of cervical lymphadenopathy.¹⁰

Excisional biopsy which is the gold standard investigation.¹¹ In current study 18% of patients underwent excision biopsy, the decision was made in suspicion of malignancy, lymphadenopathy >2 cm and no resolution after 4-6 weeks with antibiotics and multiple lymphnodes that had features of malignancy on ultrasonography or CT. In our study, 11% of the cases with malignancy which was diagnosed by excision biopsy, Hodgkin's lymphoma (5%) non Hodgkin's lymphoma (3%), secondaries (3%). Current study results were similar to Celenk et al who established malignant lymphoma as the leading cause of cervical lymphadenopathy.¹²

Out of 4 cases of generalised lymphadenopathy etiological diagnosis were of acute lymphoblastic leukemia, HIV, secondary to nasopharyngeal carcinoma and non-specific etiology. In our study the incidence of primary HIV infection is 2% which is similar to Gill et al study on lymphadenopathy, an important guiding tool for detecting hidden HIV positive cases were the incidence of HIV positivity was 2.3%.¹³

CONCLUSION

Palpable lymph nodes are common in children and may be a normal finding but a sign of serious disease. Because parents frequently are concerned about lymphadenopathy, the role of pediatrician is to provide reassurance when appropriate and carry out a systematic evaluation when warranted. A multidisciplinary diagnostic workup is required in unusual presentations of lymphadenopathy or when it is suggestive of malignancy. Laboratory and imaging methods should be used in the differential diagnosis when necessary. Excisional biopsy can be applied with minimal morbidity and mortality in a safe manner and is a diagnostic method that is used as the gold standard in the diagnosis of lymphadenopathy. In current study the most widely encountered cause of lymphadenopathy in children was infection. Most of them are secondary to non specific viral or bacterial infections. The most important concern in children presenting with complaints of lymphadenopathy is the detection of underlying malignant disease. There was significant malignancy rate in our study in children with lymphadenopathy with few atypical presentations. Excisional biopsy is the gold standard method to confirm the diagnosis. So it is of utmost importance for a pediatrician to differentiate benign and malignant lymphnode enlargement.

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