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Evaluation of Peripheral lymphadenopathy in Children in Greater Gwalior Region

KEYWORDS: lymphadenopathy (LAP),Non Hodgkin's Lymphoma (NHL), Hodgkin's Lymphoma (HL)

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ABSTRACT *Peripheral lymph nodes, located in the subcutaneous tissue ,clean antigen from extracellular fluid. Peripheral lymphadenopathy (LAP) is frequently due to local or systemic, benign, self-limited, infectious disease.*

However, it could be a manifestation of underlying malignancy . Seventy five percent of all lymphadenopathies (LAPs) are localized, with more than 50% seen in head and neck area. Based on different geographical areas, the etiology is varied. For example in tropical areas, tuberculosis is main benign cause of lymphadenopathy (LAP) in adults and children. Complete history taking physical examination are mandatory for diagnosis; however laboratory tests, imaging diagnostic methods and tissue samplings are the next steps. Tissue diagnosis by fine needle aspiration biopsy Or excisional biopsy is the gold standard evaluation for lymphadenopathy (LAP)

Human body has about 600 lymph nodes 1. A normal size of lymph node is usually less than 1 cm in diameter. Of course, there are exceptional in lymph nodes in different regions and different ages have different sizes. For example, some authors have proposed that an inguinal lymph node size up to 1.5 cm should be considered normal, while the normal range for the epitrochlear nodes is 0.5 cm2. In general, normal lymph node are larger in children (age 2- 10 year), in whom a size of more than 2cm is suggestive of malignancy or a granulomatous disease3.

Introduction :

The human body has 600 lymph nodes**1.** Spleen tonsils, adenoids, and peyer's patches are part of the lymphoid tissue, and there role is to clean antigen from extracellular fluid**4.** It is important to take careful history to consider a variety of disorder, which may be clue to underlying disorder. Tuberculosis is most common cause of cervical lymphadenop[athy in endemic area such as africa**5.** In patient with TB, the assessment of the human immunodeficiency virus (HIV) is advised because it increase it incidence of extrapulmonary TB to more than 50% **6.** Despite the low prevalence of malignancy among patient with lymphadenopathy (LAP), it remains to be the main concern of both patient and physician**4**. Studies have shown that its prevalence is less than one percent among patients with unexplained LAP in general practice**7**.

Hodgkin's disease is rare before 10 years old and a small male predominance is present, especially in childhood. The Epstein –barr virus infection in combination with immune deficiency is a risk factor for increase, hodgkin's disease, particularly in less developed countries and low socioeconomic conditions. Non Hodgkin's lymphoma (NHL), the fourth common wordwide malignancy in males with frequency of 6.1% **8.**

A family history of malignant disorders may raise the physician's suspicion to distinct etiologies of LAP such as breast carcinomas, melanoma,and dysplastic nevus syndrome**9.**

A recent upper respiratory infection can cause cervical LAP, which is usually self-limited. A triad of moderate to high fever, pharyngitis, and moderate tender lymph node with splenomegaly charactrise classic infectious mononucleosis**10**. Cytomegalo-virus, toxoplasmosis,HIV, human herpes virus type 1 can cause mononucleosis like syndrome**10.**

A recent travel to an endemic area or exposure to infected patient with TB along with pain less, gradually progressive, single or matted lymph nodes can suggest mycobacterium TB involvement**11**. Organomegaly is some time associated with LAP, as in infectious mononucleosis, acute lymphoma, hodgkin'sdisease ,non hodgkin's lymphoma and sarcoidosis**12.** There are varieties of etiology which can lead either to localized or generalized LAP (Table-1)**12,13,14.**

Table 1
Table shows differential Diagnosis of Peripheral Lymphadenopathy

Localized Peripheral Lymphadenopathy	Infections / neoplastic pathology
Cervical	
	Viral: Upper respiratory tract infections, mononucleosis, herpes virus, coxsackie virus, cytomegalovirus, HIV
	Bacterial: Staphylococcus aureus, Streptococcus pyogenes (group A), mycobacterium, dental abscess, cat scratch disease
	Malignancy: Hodgkin's disease, non-Hodgkin's lymphoma , thyroid cancer, squamous cell carcinoma of the head and neck

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Localized Peripheral Lymphadenopathy	Infections / neoplastic pathology
Supraclavicular	*Malignancy*: Abdominal/thoracic neoplasm, thyroid cancer, Hodgkin's disease, non-Hodgkin's lymphoma, breast carcinoma
	Infections: Mycobacterial, fungal
Axillary	*Infections*: Staphylococcal and Streptococcal skin infections, cat scratch disease, sarcoidosis
	Malignancy: Breast cancer, lymphomas, luekemias
Inguinal	Benign Reactive Lymphadenopathy
	Infections: Sexually transmitted disease, cellulitis
	Malignancy: Lymphomas, squamous cell carcinoma of the penis and vulva, metastatic melanoma
Generalized Peripheral Lymphadenopathy	
Infections	Mononucleosis, HIV, miliary tuberculosis, typhoid fever, syphilis, plague
Malignancy	Lymphomas, acute leukemias
Autoimmune Disorders	Systemic lupus erythematosus, rheumatoid arthritis, Sjögren's syndrome, sarcoidosis
Drug Reactions	Phenytoin, Allopurinol, Atenolol
Lipid Storage Diseases	Gusher's disease, Neiman-Peak

The data of the table are derived from references cited in the text.

Aims and objectives:
To study the;

1. Incidence of various disease in lymph nodes in pediatric age group
2. Site of lymph node involve
3. Age incidence and sex ratio

Material and method:
A study was conducted from September 2010 to august 2012 for two years in department of pathology, G.R. medical college and J.A. group of hospitals, Gwalior (M.P.). patient divided into five group: reactive, malignant,granuloma, acute suppurative and others. FNA was conducted using standard procedure taking aseptic precautions using 23G needle and no used of anesthesia. Prior informed consent was taken. Smear were stained using may gruwaldgeimsa stain we studied the histology of the removed lymph nodes and compare them in term of size, location, ultrasonography and fine needle aspiration cytology (FNAC)

Result:
Total 467 cases of lymphadenopathy were observed in the study duration at department of pathology G.R. medical college Gwalior in which 164 cases were pediatric age group. The distribution of diagnosis is shown in table-2.

Table 2
Table shows different type of diagnosis in lymph node.

s.no.	Disease	No. of cases
1	Tubercular (TB) lymphadenitis	80 (48.78%)
2	Reactive lymphadenitis	63(38.14%)
3	NHL	03(1.82%)
4	HD	01(0.6%)
5	Acute suppurative lymphadenitis	11(6.70%0
6	Others	06(3.65%)

HD- Hodgkin's Lymphoma, NHL- Non Hodgkin's lymphoma

Maximum 57 cases(34.7%) were reported 11-14 year of age group followed by 54 cases (32.9%) were in 6-14 year of age group patients.youngest patient was one month old male presenting with tubercular lymphadenitis.

Maximum 80 cases(48.78%) were of tubercular lymphadenitis followed by 63 cases (38.14%) reported of reactive lymphadenitis. 11 cases (6.70%) were acute suppurative lymphadenitis,3 casee (1.82%) were non hodgkin's lymphoma and one case was of Hodgkin's lymphoma.

One patient diagnosed with castleman disease and another with autoimmune lymphoprolifrativedisease.theywere classified as other.

Lymphadenopathy (LAP) presented unilaterally in 123 cases and bilateral in 41 cases. All malignant lymph node were 1.5 cm or above.

We found that the malignant lymph node size were 1.5 – 2 cm in the supraclavicular region.three out of three malignant lymphnodes were located in supraclavicular region.

Discussion :
FNA was the best predictive diagnostic tool to predict malignancy when lymphoma is suspected an excisional biopsy remain necessary. FNA is particularly suitable in suspected pediatric mycobacterial disease**15.** In line with other studies we found no complication after FNA **15,16.** In our study, over all inflammatory lymphadenitis comprised 90.57% cases, including tubercular lymphadenitis, reactive lymphadenitis and acute suppurative lymphadenitis; this is accordance with Handa U. et al.**17**and Dhingra V.et al.**18.** They reported 88.5% cases of inflammatory lymphadenitis.

Reactive hyperplasia and tubercular lymphadenitis is main disease in children **19,20**as we observed in our study.

In our study malignancy was 2.4%, while S.khurshid et al. observed 3% of malignancy in children .we observed that the risk of malignancy was significantly higher when the lymphadenopathy was located in supraclavicular region than in other cervical region.

Conclusion :
FNA emerged as rapid, simple, safe, accurate, cost effective and reliable diagnostic procedure. Peripheral lymph node is common finding in routine clinical practice. When physicians are faced with it, the most serious task is to differentiate beningn from malignant disorders. Special clues in the patient's history and physical finding can help to select suitable work-up for the patient.

In general lymphnodes are considered abnormal if, their diameter exceeds one cm. however, there is no uniform

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nodal size at which the greater diameter can raise suspicion for a neoplastic etiology. Cervical region is most frequent site involved in peripheral lymphadenopathy at any age.

REFERENCE

1. Ferrer R. Lymphadenopathy: differential diagnosis and evaluation. Am Fam Physician. 1998;58:1313–20. PubMed PMID: 9803196. [PubMed] | 2. Morland B. Lymphadenopathy. Arch Dis Child. 1995;73:476–9. doi: 10.1136/adc.73.5.476. [PMC free article] [PubMed] | 3. Slap GB, Brooks JS, Schwartz JS. When to perform biopsies of enlarged peripheral lymph nodes in young patients.JAMA. 1984;252:1321–6. doi:10.1001/jama.1984.03350100051031. PubMed PMID: 6471252. [PubMed]. 4.Shahrzad Mohseni, MD,1AbolfazlShojaiefard, MD,2ZhamakKhorgami, MD,2ShahriarAlinejad, MD,1Ali Ghorbani, MD,2 and Ali Ghafouri, MD2 Peripheral Lymphadenopathy: Approach and Diagnostic Tools IJMS.VOL 39 NO 2 supplement march 2014 | 5. Okolo SN, Nwana EJ, Mohammed AZ. Histopathologic diagnoses of lymphadenopathy in children in Jos, Nigeria. Niger Postgrad Med J. 2003;10:165–7. PubMed PMID:14692059. [PubMed] | 6.Mohapatra PR, Janmeja AK. Tuberculous lymphadenitis.JAssoc Physicians India.2009;57:585–90. PubMed PMID: 20209720. [PubMed] | 7. Fijten GH, Blijham GH. Unexplained lymphadenopathy in family practice.An evaluation of the probability of malignant causes and the effectiveness of physicians' workup.JFamPract. 1988;27:373–6. PubMed PMID: 3049914. [PubMed] | 8.Naz E, Mirza T, Aziz S, Danish F, Siddiqui ST, Ali A. Frequency and clinicopathologic correlation of different types of non Hodgkin's lymphoma according to WHO classification. J Pak Med Assoc. 2011;61:260–3. PubMed PMID: 21465941. [PubMed] | 9. Thomas JO, Ladipo JK, Yawe T. Histopathology of lymphadenopathy in a tropical country. East Afr Med J. 1995;72:703–5. PubMed PMID:8904059. [PubMed] | 10.Hurt C, Tammaro D. Diagnostic Evaluation of Mononucleosis-Like Illnesses. Am J Med. 2007;120:911. doi: 10.1016/j.amjmed.2006.12.011. PubMed PMID: 17904463. [PubMed] | 11.Peto HM, Pratt RH, Harrington TA, LoBue PA, Armstrong LR. Epidemiology of Extrapulmonary Tuberculosis in the United States, 1993-2006.Clin Infect Dis. 2009;49:1350–7. PubMed PMID: 19793000. [PubMed] | 12.Habermann TM, Steensma DP. Lymphadenopathy.MayoClin Proc. 2000;75:723–32. doi: 10.1016/S0025-6196(11)64620-X. PubMed PMID: 10907389. (PubMed) | 13. Bazemore AW, Smucker DR. Lymphadenopathy and malignancy. Am Fam Physician. 2002;66:2103–10. PubMed PMID: 12484692. [PubMed] | 14. Twist CJ, Link MP. Assessment of lymphadenopathy in children.PediatrClin North Am. 2002;49:1009–25. doi: 10.1016/S0031-3955(02)00038-X. PubMed PMID: 12430623. [PubMed] | 15. wright CA, warren RM,marais BJ. Fine needle aspiration biopsy: an undervalued diagnostic modality in pediatric mycobacterial disease.int j tubrc lung dis 2009 ;13:1467-75 | 16. ramdan HH, WAX mk, boyd CB. Fine needle aspiration of head and neck masses in children. AM j otolaryngol 1997:18:400-4 | 17.Handa u et al. roll of fine needle aspiration cytology in evaluation of of pediatric lymphadenopathy; cytopathology 203 apr,14.2:66-9 | 18.Dhingra v. fine needle aspiration cytology as a diagnostic tool in pediatric lymphadenopathy. JCDR,2010 june.4:2452-2457. | 19. veenamaheshwarietal. Diagnostic utility of fine needle aspiration cytology in pediatric tumors. J cyto 2008;25:45 | 20.s.khurshidQadrietal. Profile of lymphadenopathy in kashhmirvally: a cytological study Asian pacific journal of cancer prevention, vol 13,2012 | 21. S. shamshadahmad et al study of fine needle aspiration cytology as diagnostic tool in lymphadenopathy with acid fast staining in cases of tuberculosis. JK science vol.7 no. 1, January-march2005. |