Editorial

Approach to Pediatric Lymphadenopathy

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Abstract

Lymph node enlargement is common reason for outpatient department visit. A systematic approach is important to reach final diagnosis. It becomes further important because large numbers of patients are suffering from benign conditions.

Keywords: Pediatric Lymphadenopathy, Malignancy, Reactive lymphadenitis.

Introduction

Lymphadenopathy is generally described as enlarged node >1cm, however in children >2cm is abnormal. It varies according to specific site. Palpable supra-clavicular, iliac or popliteal nodes of any size; epitrochlear nodes > 0.5 cm; inguinal nodes > 1.5 cm isabnormal [1]. Lymphadenopathy is classified as generalized (≥ 2 areas) or localized (1 area) with prevalence of 25% & 75%, respectively [2]. Incidence of lymphadenopathy varies from 38-45% [3] & around 90% children aged 4-8 years old have lymphadenopathy [4]. Cervical region is commonest site involved in both localized & generalized lymphadenopathy [5].

Pediatric lymphadenopathy may be infective (acute suppurative); reactive (follicular hyperplasia, paracortical hyperplasia, sinus histiocytosis, granulomatous); neoplastic; drug induced (e.g. allopurinol, atenolol, captopril, carbamazepine, cyclosporine, gold, hydralazine, isoniazid, methotrexate, phenytoin, primidone, pyrimethamine quinidine, trimethoprim-sulfamethozole, penicillins) [6]; secondary to lipid storage disease; immunizations (DPT, poliomyelitis, typhoid) or exposure to animals (cat feces for toxoplasmosis, farm animals for brucellosis, wild animals for tularemia), due to travel to endemic areas (brucellosis, plague). Generalized adenopathy usually is associated with systemic disorder whereas localized adenopathy may have a local/ systemic disorder. Reactive lymphadenopathy is characterised by size <1 cm, oval shape with short : long ratio < 0.5, normal hilar vascularity & low resistive index with high blood flow when using Doppler technology. Viral lymphadenopathy caused by Adenovirus, Rhinovirus, Enterovirus' such as Coxsackie A and B, & Epstein Barr Virus is the commonest form of reactive lymphadenopathy. Suppurative bacterial lymphadenopathy is caused by Group A Streptococci & S. aureus. Malignant lymphadenopathy is > 1cm, round with a short : long ratio >0.5, necrotic center, no echogenic hilus and a high resistive index with low blood flow.

Systemic approach to pediatric lymphadenopathy should include assessment for congested nose (Upper Respiratory tract Infection); sore throat (pharyngitis, mononucleosis); mouth, gum or tooth pain (oral-dental infection); cough &dyspnea (sarcoidosis, TB, fungal infections); fever, fatigue, malaise (mononucleosis, cancer, connective tissue disorder); joint pain & swelling (SLE, connective tissue disorder); easy bleeding & bruising (leukemia); dry, irritated eyes (Sjogren syndrome). Skin over areas drained by affected nodes is inspected for rashes. Thyroid gland is palpated for enlargement and nodularity. Abdomen is palpated for hepatosplenomegaly (mononucleosis, toxoplasmosis, leukemia, lymphoma). Local examination of lymph node is done to assess size, mobility, consistency, tenderness, bone pain, bruising, pallor. Stony hard nodes are typically malignant usually metastastic. Firm, rubbery nodes suggest lymphoma, Softer nodes are due to infection or inflammation. Matted nodes may be either benign (TB, sarcoidosis) or malignant (metastatic carcinoma, lymphoma) [7]. Nonspecific investigations for pediatric

lymphadenopathy include Complete blood count (CBC), peripheral blood smear, Erythrocyte sedimentation rate. To rule out infectious causes: Monospot, CMV, EBV & toxoplasma, bartonella titres, TB skin test, Anti-HIV test, CRP, ESR are done. Lactate dehydrogenase, uric acid, calcium, phosphate, magnesium, Bone marrow, liver biopsies, CT or US guided lymph node biopsy are helpful to rule out malignancy. Red flag signs include non-tender, firm or hard nodes >2 cm which are progressively enlarging with associated ill-health, fever, weight loss, generalized lymphadenitis, hepatosplenomegaly, involvement of axillary / supraclavicular nodes for which early referral for biopsy to rule out malignancy is recommended. For children presenting with above signs a Complete Blood Count (CBC) & chest x-ray is done. If abnormal white blood cells are present, a peripheral smear & flow cytometry are done to evaluate for leukemia / lymphoma. For those presenting with generalized adenopathy a tuberculin skin test / interferon-gamma release assay & serologic tests for HIV, mononucleosis & toxoplasmosis is done. Polymerase chain reaction is useful for pathogen identification. Antinuclear antibody testing for SLE is done for those presenting with joint symptoms. Urine VMA is elevated in children with neuroblastoma while LDH is often elevated in lymphoma. Isolated localized adenopathy with no other findings are usually observed for 3-4 weeks.

Plain radiographs are valuable in child with chronic or generalized adenopathyfor assessing involvement of mediastinal lymph nodes/ lungs, bony lesions consistent with osteomyelitis or tumor, hepatic calcifications & cavitary TB. High resolution ultrasonography is used to assess nodal morphology, longitudinal & transverse diameter & internal architecture. Diagnostic biopsy or FNAC is indicated when there is failure of regression even after 4-6 weeks. CT Scan imaging is recommended for retropharyngeal or deep neck abscess & suspected malignancy. Complex immune-histochemistry, cytogenetic analysis & molecular biology studies are vital in excluding malignancy. Primary treatment for pediatric lymphadenopathy is directed at the cause. Corticosteroids are to be avoided initially as they can reduce lymphadenopathy caused by leukemia & lymphoma & thus delay diagnosis. Moreover steroids can exacerbate TB. Antibiotics are indicated when suppurative lymph node infection is suspected. Surgical intervention may be needed in abscesses & non tubercular suppurative lymphadenitis. Finally identifying the cause & treating it rather than addressing to lymph node enlargement alone is the rational approach to pediatric lymphadenopathy. Kochhar et al published an article on cervical lymphadenopathy in adults & children & stated that FNAC is easy, may be performed in OPDs, and serves as a rapid modality for the diagnosis of one of the common curable causes of cervical lymphadenopathy such as tuberculosis [9].

References

1. Morland B. Lymphadenopathy. Arch Dis Child. 1995 Nov;73(5):476-9.

2. Ferrer R. Lymphadenopathy: differential diagnosis and evaluation. Am Fam Physician. 1998 Oct 15; 58 (6):1313-20.

3. Larsson LO, Bentzon MW, Berg K, Mellander L, Skoogh BE, Stranegård IL. Palpable lymph nodes of the neck in Swedish school children. Acta Paediatr. 1994 Oct; 83(10):1091-4.

4. Park YW. Evaluation of neck masses in children. Am. Family Physician. 1995;51:1904-1912.

5. Aynur Oguz ,Ceyda Karadeniz , Ebru Atike Temel, Elvan Cagla rCitak, F,Visal Okur. Evaluation of peripheral lymphadenopathy in children. Pediatric Hematology and oncology; Volume 23, Issue 7, 2006. DOI: 10.1080/08880010600856907

6. Segal GH, Clough JD, Tubbs RR. Autoimmune and iatrogenic causes of lymphadenopathy. Semin Oncol. 1993 Dec;20(6):611–626.

7. Robert F. Lymphadenopathy: Differential Diagnosis and Evaluation. Am Fam Physician. 1998 Oct 15;58 (6):1313-1320.

8. Kochhar A.K, Puri P. L, Kochhar S. Role of fine needle aspiration cytology in assessment of cervical lymphadenopathy. Int J Med Res Rev 2016;4(6):876-880doi: 10.17511/ijmrr.2016.i06.03.

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