

## Persistent cervical lymphadenopathy in children

Dr. Saad Kareem Alwan  
pediatric senior specialist (C.A.B.P,F.I.C.M.S)  
AL-Sadder Teaching Hospital-Amara

### ABSTRACT

**Background:** Cervical lymphadenopathy is a common problem in children. The condition most commonly represents reaction to an infection in the drainage area but occasionally it might herald the presence of a more serious disorder like malignancy and biopsy is appropriate if there is continued progression or lack of any regression within 4-6 weeks. Immediate biopsy should be sought in the case of an enlarged supraclavicular lymph node or for findings suggesting malignancy such as hard, fixed, or nontender nodes.

### تضخم الغدد اللمفاوية العنقية المستمر عند الاطفال

#### الخلاصة:

تم اجراء دراسة على الاطفال المصابين بتضخم الغدد اللمفاويه العنقيه المستمر لأكثر من اسبوعين على (120) طفل من عمر (6)شهر الى (12) سنة في مستشفى الصدر العام في العمارة حيث تم اجراء الفحوصات المختبرية بما في ذلك عينة (خزعه) نسيجية من الغدة اللمفاويه. اظهرت الدراسة بان غالبية الاطفال (100 طفل) كانوا مصابين بتضخم الغدد اللمفاوي التفاعلي الناتج عن التهابات في منطقة الرأس والعنق والذي غالبا ما يزول بعد فترة (2-8) أسابيع

**The aim of this study** is to determine the most common causes of persistent cervical lymphadenopathy and the management strategy based on clinical, laboratory, ultrasonic and histological findings.

**Patients and methods:** This study was conducted over three years period from January 2010 to December 2012 at AL-Sadder general hospital in Amara-Iraq to evaluate 120 children with persistent lymphadenopathy between ages of 6 months and 12 years. Initial work up of all patients included :history, detailed physical exam, complete blood count, blood film, erythrocyte sedimentation rate (ESR), tuberculin test, chest X ray (CXR) and ultrasonic examination; viral study for Epstein Barr virus (EBV); those with no regression after 4-6 weeks were subjected to fine needle aspirate or excisional biopsy.

**Results:** We found that in 65 children ( 54.1. %) the lymph nodes regressed in size over 2 weeks time and in 20 children (16.6%) they regressed in 6 weeks



time, 15 children(12.5%) regressed in 8 weeks as proved by ultrasonic examination. The FNA showed reactive lymphoid hyperplasia in these children. Of the remaining 20 children, 7 children (5.8%) had lymph node abscess, tuberculous lymphadenitis was diagnosed in 6 children (5%) . 4 children(3.4%) had Epstein Barr virus (EBV) proved by monospot test; 2 children (1.7%) who had bilateral firm, nontender lymph node enlargement had Hodgkin's lymphoma and one child(0.8%) had non-Hodgkin's lymphoma on excisional biopsy.

**Conclusion:** Enlargement of cervical lymph nodes is a common problem in children. Reactive hyperplasia secondary to benign infectious causes is usually the commonest pathology. Most of these cases regress in 4-6 weeks time. Persistent lymph nodes more than 4-6 weeks warrant histological examination.

## INTRODUCTION

Lymph nodes are normal structures, and certain nodes may be palpable in a healthy patient, particularly in a young child. Conversely, the presence of abnormally enlarged lymph nodes (“lymphadenopathy”) can be a clue to a serious underlying systemic disease, and the differential diagnosis of lymphadenopathy can be broad .Thus, the challenge for the general pediatrician is to learn how to distinguish pathologic from nonpathologic lymph nodes and to develop a rational approach to the evaluation of lymphadenopathy. Because of its association with malignancy, lymphadenopathy can be a major source of parental anxiety. The term “lymphadenopathy” refers to lymph nodes that are abnormal in size, number, or consistency. Lymphadenopathy may be part of a constellation of signs and symptoms or the sole finding and chief complaint[1]. It has several aetiologies ranging from an inflammatory process to a malignant condition, thus posing diagnostic dilemma to a paediatrician. Therefore, it is necessary to arrive at a definitive diagnosis in order to administer proper treatment. [2]

Localized lymphadenopathy is a more common presenting finding in a primary care practice than generalized lymphadenopathy, with the cervical lymph nodes being involved most commonly. [1]

Persistent cervical lymphadenopathy was defined as enlarged lymph nodes (> 10 mm in diameter) and persisting for more than 2 weeks.[1]

Histological examination and surgical consultation ar often required to assist in the diagnosis and treatment of patients who do not respond to initial therapy or in whom there is an index of suspicion for a neoplastic process. [3]



**The aim of this study:** is to determine the most common causes of persistent cervical lymphadenopathy and the management strategy based on clinical, laboratory, ultrasonic and histological findings.

## PATIENTS AND METHODS

This study was conducted over three years period from January 2010 to December 2012 at AL-Sadder teaching hospital in Amara-Iraq to evaluate children with persistent cervical lymphadenopathy between ages of 6 months and 12years who were referred to our hospital with the diagnosis of persistent cervical lymphadenopathy. Age, gender, and accompanying diseases of the patients were assessed.

Initial work up of all patients included: detailed physical exam, complete blood count, blood film, erythrocyte sedimentation rate (ESR), ,tuberculin test, chest X ray (CXR) and ultrasonic examination; viral study for Epstein Barr virus (EBV); and histological testing by fine needle aspirate (FNA) or excisional biopsy.

## RESULTS

One hundred twenty children between the ages of 6 months and 12 yrs were referred to our hospital during the specified period of time. All had persistent lymph node enlargement based on our previous definition. 85 children (71%) had bilateral cervical lymph node enlargement, while in 35 children (29%) the pathology was unilateral(table1). There was no sex difference. The tonsillar and the submandibular lymph nodes were the two most common enlarged nodes in children(87%), Submental and anterior cervical accounted for the rest of the pathology (13%) as shown in table(2).

We found that in 65 children (54.1%) the lymph nodes regressed in size over 2 weeks time and in 20 children (16.6%) they regressed in 6 weeks time and in



15 children(12.5%) regressed over 8 weeks time as proved by ultrasonic examination and as shown in (table 4). The fine needle aspirate ( FNA) showed reactive lymphoid hyperplasia in these children, all of these children had tender, mobile, and soft nodes on clinical examination. In all of them the investigations were normal. Ultrasound showed enlarged lymph nodes with homogenous echo texture in all of them . An enlarged lymph nodes was the commonest manifestation in these children (77%). Of the remaining 20 children, 7 children(5.8%) had lymph node abscess on initial presentation based on clinical and ultrasonic findings and confirmed by histological examination on surgical lymph node biopsy . tuberculous lymphadenitis was diagnosed in 6 children (5%) based on clinical, PPD testing ( $> 10$  mm in diameter) and caseating granuloma on lymph node histology. 4 children (3.4%) with bilateral lymph node enlargement,exudative tonsillitis and splenomegaly had Epstein Barr virus (EBV) infection proved by monospot test; and 2 children (1.7%) who had bilateral nontender, firm lymph node enlargement had Hodgkin's lymphoma and **one** child(0.8%) had non-Hodgkin's lymphoma on excisional biopsy as shown in table(2).

**Table(1): Clinical Characteristics of 120 Patients With cervical Lymphadenopathy**

Sex	Bilateral	Unilateral
Male	43	18
Female	42	17
Total	85	35



**Table(2): Anatomical sites of enlarged lymph nodes**

Jugulodigastric and Submandibular	Submental and anterior Cervical
83%	17%

Table(3): Results of persistent cervical lymphadenopathy in 120 children(Clinical, Fine needle aspirate, ultrasound and histopathology).

	No.	%
Reactive hyperplasia	100	83.3
Lymph node abscess	7	5.8
T.B lymphadenitis	6	5
Infectious mononucleosis	4	3.4
Lymphoma	3	2.5
Total	120	100

**Table(4): Time of regression of reactive cervical lymphadenopathy**

	No.	%
Regression in 2 weeks	65	54.1
Regression in 6 weeks	20	16.6
Regression in 8 weeks	15	12.5



## Discussion

Cervical lymphadenopathy is a common presentation in children in both the primary care and hospital setting. Park states that 90% of children aged 4-8 yrs have palpable cervical lymph nodes.[4] According to Larsson et al 38- 45% of otherwise healthy children have palpable cervical lymph nodes.[5] The differential diagnosis of a persistent neck lump in children is different from adults because of increased incidence of congenital anomalies and infectious diseases and rarity of malignant disorder. In our study we excluded congenital anomalies and limited our research to persistently enlarged lymph nodes. It is widely accepted that the absence of clinical signs of inflammatory disease, negative laboratory testing and progressive reduction of size of lymph node indicate reactive hyperplasia.[6] The study indicates that reactive inflammatory changes are the commonest pathology in children as confirmed by other studies. Our observation indicates also that most cases of lymphadenopathy are self-limited and require no treatment. Failure of resolution after 4-6 weeks might be an indication for diagnostic histology. Most researches indicate that bilateral lymphadenopathy is more likely to be reactive in nature as in our study.[7] Mobility, softness and tenderness are almost always associated with reactive changes, which is similar to observation by other researchers .[8] We found that ultrasound is a valuable diagnostic tool for showing the size, shape and echotexture of lymph nodes. A homogenous echotexture, and blurred margins were associated with reactive hyperplasia in most cases, while a non-homogenous echotexture suggests other diagnosis. Nevertheless U/S should not be considered as a definitive mean to rule out neoplasia in patients with persistent lymphadenopathy.[9] two patients had Hodgkin's lymphoma diagnosed by excisional biopsy as fine-needle aspiration has a high false-negative rate and often is inadequate to diagnose lymphoma because tissue is



minimal, there is no architectural detail, and lymphomas such as Hodgkin disease may have only occasional malignant cells in a background of normal lymphocytes.[1]

## CONCLUSION

Enlargement of cervical lymph nodes is a common problem in children. Reactive hyperplasia secondary to benign infectious causes is usually the commonest pathology. Most of these cases regress in 2 weeks time. Persistent lymph nodes more than 4- 6 weeks warrant histological examination. Worrisome features of lymphadenopathy that should lead to additional evaluation and possible early biopsy include : lack of improvement over a 4 weeks period and accompanying constitutional symptoms. CBC, ESR, chest radiographs are inexpensive, useful screening tests and that can aid the clinician in determining whether a biopsy should be performed.

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