



The 16th Annual Meeting of the Lebanese Pediatric Societies
13 - 14 September, 2019 | Hilton Habtoor Hotel, Beirut - Lebanon

Cervical Lymphadenitis, Pediatrician Clinical Approach!

Hadi Fakh MD

Assistant Professor of Pediatrics

Department of Pediatric & Neonatology

Faculty of Medical Sciences, Lebanese University

NICU Chairman, Ragheb Harb Hospital, Nabatieh




Disclosure

- ▶ I have nothing to disclose




Agenda

- Objectives
 - Epidemiology
 - History and physical exam
 - Differential
 - Workup
- 



Objectives

- Understand basic anatomical pediatric considerations
 - Clinical evaluation for cervical lymphadenopathy.
 - Develop a broad differential diagnosis, including the most common causes of cervical lymphadenopathy.
 - Determine a reasonable diagnostic pathway.
 - Initiate treatment when appropriate
- 



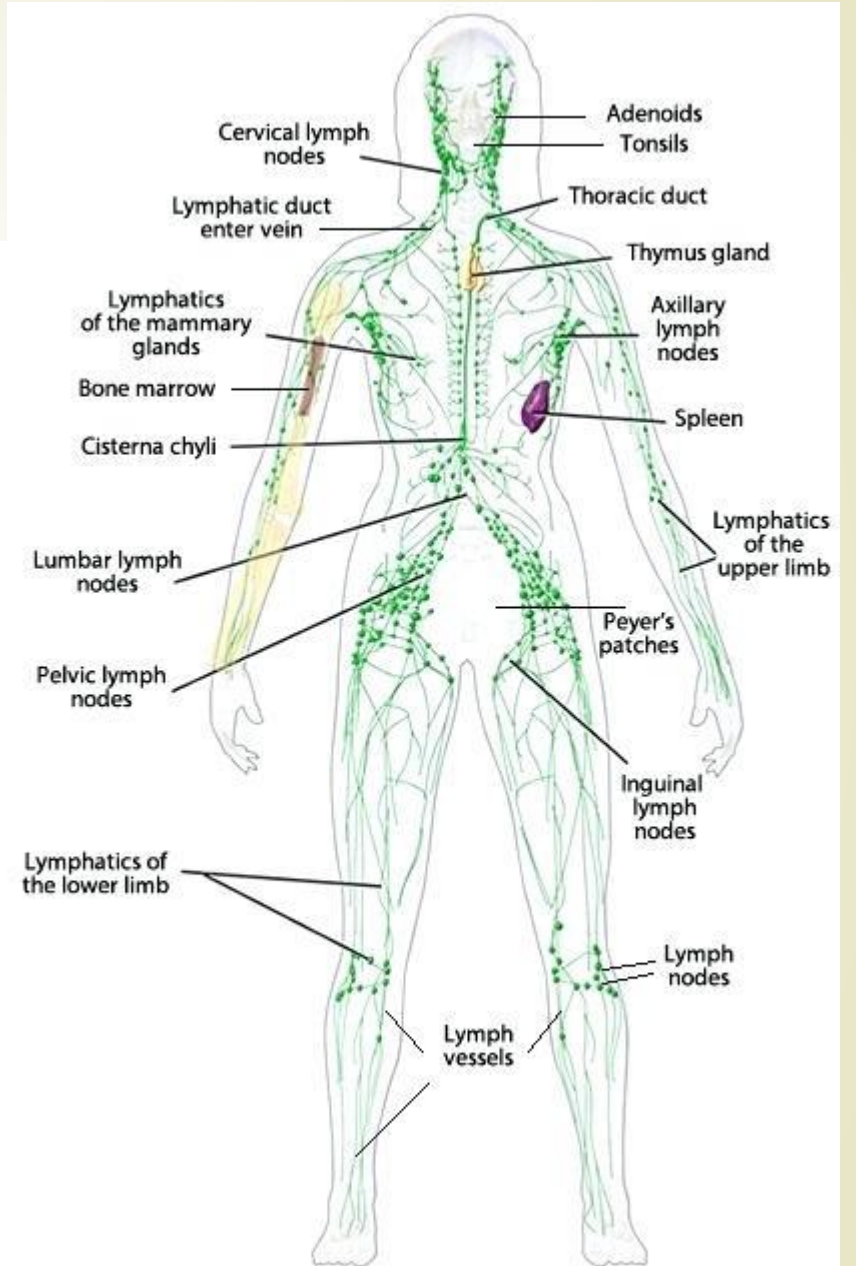
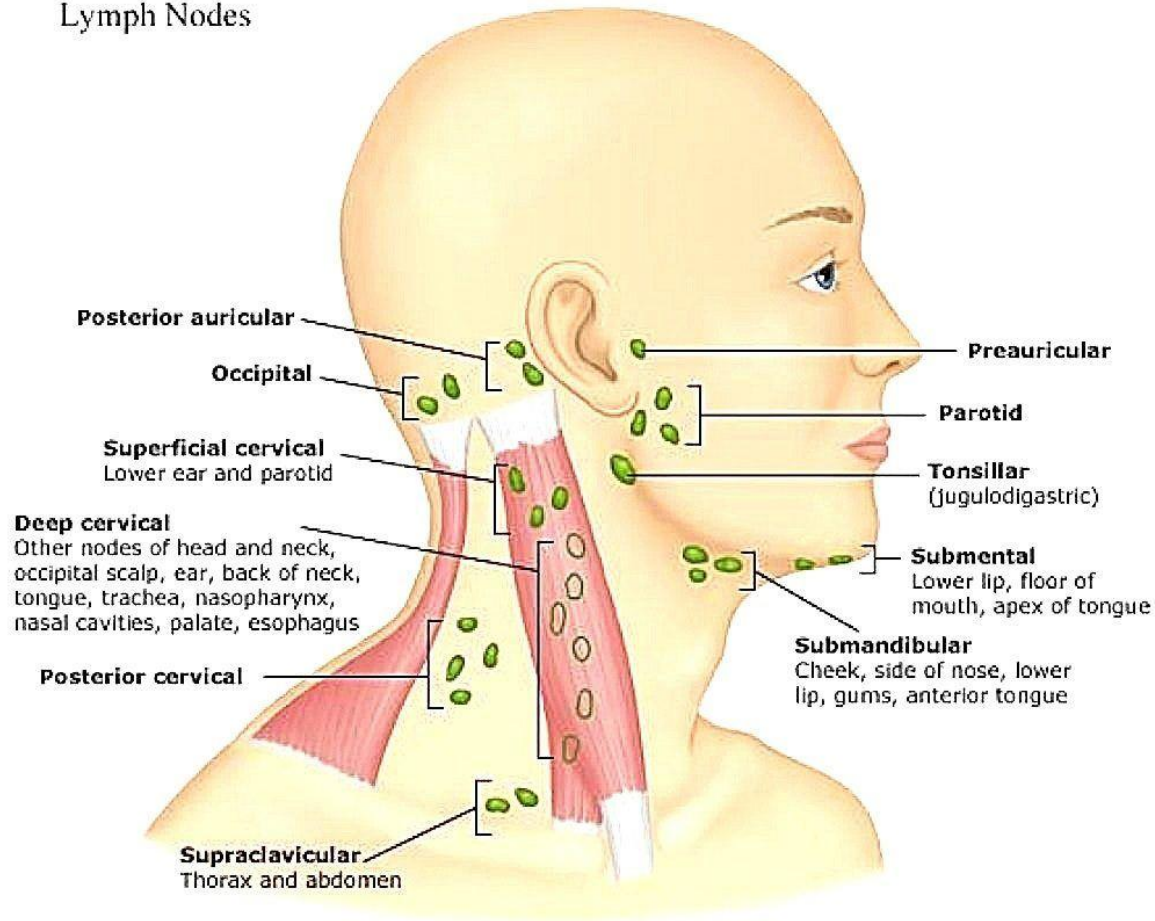
Definitions

Lymphadenopathy: disease process which involves lymph nodes that are abnormal in consistency and size.

Lymphadenitis: refers specifically to lymphadenopathies which are due to an inflammatory process.

Anatomy:

Lymph Nodes





Epidemiology

Nearly every pediatric physician will encounter patients with LAD.

- 62% of patients aged 3 weeks to 6 months
- 41% of those 2-5 years old
- 90% of all children aged 4-8 years old
- 40% of healthy children have palpable lymphadenopathy



History and Physical Exam:

- History

- Duration
- Fluctuation of size
- Concerning associated symptoms
(fever, weight loss, night sweats, easy bruisability, fatigue)

- Fever, night sweats, weight loss, easy bruisability

- Treatment attempts? Antibiotics?
- Exposure to animals, travel




Physical Exam

- H&N – make sure to examine teeth / inside the mouth; scalp
- RESP / CV – Wheeze, shortness of breath when lying flat, new murmurs
- ABD – Hepatosplenomegaly, Masses
- MSK – Swelling, Erythema, Pain
- Skin – Rashes, Bite marks, Scratches – make sure to check the hands/feet
- Lymph Nodes
 - Location: Head & Neck, Supraclavicular, Axillary, Epitrochlear, Inguinal, Popliteal
 - Size, Number, consistency, mobility, tenderness.



Clinical hints:

- ▶ In terms of location, palpable:
 - ▶ Supraclavicular nodes are the most likely to be malignant and should always be investigated.
 - ▶ Posterior cervical lymph nodes drain the scalp and raise the differential diagnosis for mononucleosis.
 - ▶ Submandibular lymphadenopathy is more likely to suggest mononucleosis or atypical mycobacterium.
- 



Differential Diagnosis:

Several key components may be helpful in DD:

- 1) what is most likely/most common?
- 2) what is most dangerous?
- 3) what further diagnostic steps, if any, to make a diagnosis?



Differential Diagnosis?

- **Infectious**
 - Reactive to Viral Infection (most common)
 - Acute/Suppurative Bacterial
 - Subacute/Chronic
- **Noninfectious**
- **Malignancy**
- **Congenital neck masses**
- **Parotid/submandibular/sublingual pathology**

DD: infectious?

o Infectious

▪ Reactive to viral antigens

- Acute: Rhinovirus, adenovirus, influenza, parainfluenza, respiratory syncytial virus, others

- Subacute or chronic: Epstein-Barr virus, cytomegalovirus, human immunodeficiency virus bacterial

- Acute: *Staphylococcus aureus*, group A streptococcus

- Neonates: Group B streptococcus

- Rarely: Anaerobes

- Subacute or chronic: *Bartonella*

- Atypical mycobacterial and *Mycobacterium tuberculosis*

- Fungal

- Parasites

Chronic suppurative mass??



- Scrofula, or *Mycobacterium tuberculosis*, may also be a cause of chronic cervical lymphadenopathy.
- Incision and drainage procedure may result in a chronically draining fistula!!!

Congenital Neck Mass

- Can often be confused with cervical lymphadenopathy
- Midline
 - Thyroglossal Duct Cyst
 - Dermoid
- Lateral
 - Branchial Cleft Cyst
- Obtain CT/MRI for diagnosis

- Thyroglossal duct cyst,
- dermoid,
- branchial cleft,
- lymphovascular malformation,
- hemangioma,
- ectopic thymus



DD

Malignancies

- o Malignancies

- Lymphoma

- Rhabdosarcoma

- Neuroblastoma

- o Metastasis (especially from nasopharyngeal and thyroid cancer)



Malignancy

- History
 - Night sweats, fatigue, easy bleeding, fever, weight loss
- Physical
 - Unilateral, firm, indurated, fixed masses, tender to palpation
- <6 years old
 - Most common are rhabdomyosarcoma and non-Hodgkin lymphoma
- >6 years old
 - Most common is Hodgkin lymphoma



Predictors of Malignancy

- ❖ Risk of malignancy increased with: increasing age, size of node (>2 cm), number of sites of adenopathy, supraclavicular nodes, fixed nodes, and abnormal radiographs; anemia; lack of ear, nose, and throat symptoms.
- ❖ Factors NOT helpful for discriminating between benign and malignant causes: fever; cough; splenomegaly; skin erythema/discoloration/induration; tender nodes; or leukocytosis.



DD, Miscellaneous?

- o Miscellaneous

- Kikuchi-Fujimoto disease
- Rosai-Dorfman disease
- Langerhans cell histiocytosis
- Kawasaki disease
- Castleman disease

Non-infectious causes:

- **Kikuchi-Fujimoto disease**

- Young, Japanese women; self-resolves in <3 months

- **Rosai-Dorfman disease**

- Bilateral, painless lymphadenopathy with fever

- Confirm with biopsy

- **Langerhans cell histiocytosis**

- Same clinical presentation as Rosai-Dorfman, however different on pathological evaluation

- **Kawasaki disease**

- Tender lymphadenopathy with associated symptoms: high fevers, conjunctivitis, rash, strawberry tongue, red/dry/cracked lips, peeling skin of palms of hands/soles of feet. Risk of coronary vasculitis.

- **Castleman's disease**

- Tender lymphadenopathy, fatigue, night sweats. Increase in B lymphocytes on path. Self-limited.



Parotid/Submandibular/Sublingual pathologies?

- Often sialadenitis
- Most common organism is *S aureus*
- Treatment
 - **Antibiotics (clindamycin or other *S aureus* and anaerobic coverage)**
 - **Massage**
 - **Sialogogues (sour candies, sugar free gum)**
 - **Hydration**

Causes of Lymphadenopathy in a child

Acute Unilateral:

- Local skin/ scalp infection
- ENT, dental infection
- Bacterial Lymphadenitis
- Kawasaki disease
- Non-tuberculous Mycobacteria

Acute Generalised:

- EBV infection
- CMV infection

Subacute:

- Tuberculosis
- Toxoplasmosis
- Cat scratch disease

Chronic Generalised (>6weeks):

- Lymphoma
- Leukaemia
- Systemic Lupus Erythematosus
- Juvenile Idiopathic Arthritis
- CMV, EBV, Toxoplasmosis, HIV



What Labs tests to order?

- ▶ CBCD
- ▶ LDH, URIC AC, CHEM panel
- ▶ ESR, CRP
- ▶ SEROLOGY: EBV, CMV, TOXO, BARTO, BRUCELLA, MYCOP, HIV...
- ▶ PPD/ Quantiferon
- ▶ ANA
- ▶ IGQ



Diagnostic Studies?

- ▶ U/S :for diagnosis of abscess
- ▶ If US inconclusive, or if patient requires OR for drainage and anatomy is difficult, can consider CT scan with IV contrast
 - Can also consider MRI with contrast, however cost and availability (as well as need to sedate child) are a concern

Indications of biopsy?

Patients who continue to have **symptoms over 6 weeks** should consider imaging and possible tissue diagnosis

- **When to obtain tissue biopsy???**

- Suspicion for **malignancy**

- If the patient does not have resolution of **LAD > 4-6 weeks**

- LAD that steadily increases in **size > 2-3 weeks**

- **LAD > 2.0 cm**

- Multiple LN that have **concerning features** on US/CT.



Biopsy vs. Fine Needle Aspiration (FNA)?

- Can consider FNA as initial diagnostic modality
 - Sensitivity of 86% and specificity of 96%
- If non-diagnostic or patient cannot tolerate, then must obtain open biopsy
 - Either excisional or incisional




Excisional Bx, What to order?

- ▶ Pathology
- ▶ PCR: Bacterial, TB, Fungi .
- ▶ Specific PCR: Bartonella, Toxo...
- ▶ Culture: bacterial, AFB Cx, Fungal Cx...
- ▶ Immunohistochemistry
- ▶ Flowcytometry
- ▶ Cytogenetics,...



Complications after surgery?

- Facial palsy
 - Sensory deficit over skin
 - Scarring
 - Discoloration of the skin
- 



Red Flags:

- ▶ **LN > 2 cm**
- ▶ **Enlarging LN**
- ▶ **Supraclavicular/ axillary LN**
- ▶ **Hard/fixed/matted In**
- ▶ **Lack of URTI**
- ▶ **Fever > 1 week**
- ▶ **Wt loss**
- ▶ **Night sweats**
- ▶ **Abormal CXR**
- ▶ **HSM**
- ▶ **Labs: abnl**

References:

1. Herzog, L. Prevalence of lymphadenopathy of the head and neck in infants and children, Clin Pediatr, 1983; 22(7) pp 77-82
2. Park YW, Evaluation of Neck Masses in Children, Am Family Physician, 51 (8) (1995) pp 1904-1912.
3. Larsson LO, Bentzon MW, Berg K, Mellander L, Skoogh BE, Stranegird IL et al. Palpable lymph nodes of the neck in Swedish schoolchildren, Acta Paediatrica 83 (1994) pp 1092-1094
4. Chen AE, Goldstein M, Carroll K, et al: Evolving epidemiology of pediatric . Pediatr Emerg Care 2006; 22: pp. 717-723
5. Soldes OS, Younger JG, Hirschl RB. Predictors of malignancy in childhood peripheral lymphadenopathy. J Pediatr Surg 1999; 34:1447-1452
6. Wang J, Pei G, Yan J, et al. Unexplained cervical lymphadenopathy in children: predictive factors for malignancy. J Pediatr Surg 2010; 45:784-788
7. Van de Schoot L, Aronson DC, Behrendt H, et al. The Role of fine-needle aspiration cytology in children with persistent or suspicious lymphadenopathy. J Pediatr Surg 2001; 36. P. 7-11



The 16th Annual Meeting of the Lebanese Pediatric Societies
13 - 14 September, 2019 | Hilton Habtoor Hotel, Beirut - Lebanon

THANK YOU

hadifakih75@gmail.com

Mobile nb: +9613912686