

Lymphatic System Evaluation

Tracey A. Littrell, BA, DC, DACBR, DACO, CCSP

+ Lymphatic System Evaluation Procedures

- Inspect the regions of nodes and their surrounding areas for the following characteristics:
 - Edema
 - Erythema
 - Red streaks—what are these red streaks called?
 - Enlargement—what are enlarged lymph nodes called?
- Palpate the superficial lymph nodes and compare side to side for the following:
 - Size
 - Consistency
 - Mobility
 - Discrete borders or matting
 - Tenderness
 - Warmth
- The above list is essentially the same for all lump/bump evaluations, e.g. thyroid nodule, breast lump, salivary glands, skin lesions, etc.

+ Palpation Procedures

- Place the head in slight flexion in order to soften the overlying tissues
- Palpate with the pads (not tips) of your second and third digits
- Start lightly, but don't fear reasonably deep palpation
- Vary the depth of palpation according to the "thickness" and mobility of the overlying tissue
- Move the overlying tissue when possible (less mobile at the occipital base vs more mobile around the SCM)

+ Palpation Procedures

- Head sequence
 - Occipital nodes at skull base
 - Postauricular nodes over mastoid
 - Preauricular node in front of ear
 - Parotid nodes anterior to the mandible angle
 - Submandibular nodes between angle and tip of mandible
 - Submental nodes behind mandible tip

+ Palpation Procedures

- Neck sequence
 - Retropharyngeal/tonsillar nodes behind mandibular angle
 - Superficial anterior cervical nodes at the anterior SCM
 - Superficial posterior cervical nodes along behind the SCM and anterior to the trapezius
 - SCM nodes
 - Supraclavicular areas in the supraclavicular fossa

+ Palpation Procedures

- Axillae (will demonstrate with breast exam)
- Epitrochlear lymph nodes
- Inguinal and popliteal lymph nodes
- Spleen—what is enlargement of the spleen named?

+ Expected Findings of Lymph Node Palpation (Adults)

- Easily palpable nodes are uncommon
- Superficial nodes are accessible, but not typically large or firm
- Most commonly small, movable/mobile, "shotty"
 - Most range between nonpalpable to 0.5 cm
- "Normal" nodes are usually not:
 - Larger than 1 cm
 - Hard
 - Fixed
 - Tender (but what would you expect if an infection was present?)
 - Fluctuant

+ Special Consideration for Infants and Children

- Enlarged lymph nodes common
 - Enlarged postauricular/occipital not unusual in children younger than age 2
 - Enlarged cervical/submandibular less frequent in children younger than age 1, much more frequent in children older than age 1
 - Enlarged tonsils common, not necessarily abnormal, but parents aren't often prompted to look until the child is symptomatic

+ Palpation Procedures

- Node Evaluation
 - Size
 - Consistency
 - Mobility
 - Discrete borders or matting
 - Tenderness
 - Warmth
- Node Characteristics
 - The harder the node, the more likely the malignancy
 - The more tender the node, the more likely inflammation
 - Nodes do not pulsate; arteries do
 - A palpable supraclavicular node on the left is a clue to abdominal or thoracic malignancy
 - Virchow node

+ Anatomy and Physiology

- Lymphatic system consists of:
 - Lymph fluid/collecting ducts
 - Lymph nodes
 - Spleen
 - Thymus
 - Tonsils and adenoids
 - Peyer patches
- Lymph tissue is located in multiple body systems including the mucosa of the stomach, appendix, bone marrow, and lungs
 - Exceptions: placenta and central nervous system

+ Role in Immunologic and Metabolic Processes

- Maintains fluid balance—conserves fluid and plasma leakage from capillaries
- Filtration of fluid before it is returned to blood stream—removes damaged cells from circulation
- Phagocytosis—production of lymphocytes
- Production of antibodies—defends the body against invading organisms
- Absorption of fat and fat-soluble substances from the intestinal tract
- Pathway for spread of malignancy, but maintains a partial barrier to malignant cell maturation

+ Composition of Lymph and Drainage

- Composition
 - Clear fluid
 - Mostly white blood cells (WBCs)
 - Occasional red blood cells (RBCs)
 - Proteins
- Drainage
 - Moves from bloodstream to interstitial spaces
 - No built-in pumping mechanism—so how does it move?
 - Collected by tubules/ducts
 - Carried to lymph nodes
 - Moved to venous system
 - Subclavian veins—via the Right lymphatic duct and Thoracic duct
 - Closed but porous circulation

+ What would prompt you to perform a lymphatic system evaluation?

- History of Present Illness: patient is ill or patient reports a palpable mass
 - What should your first question be when the patient reports a mass/lump/bump?
- Enlarged node(s)
 - Characteristics
 - Associated local symptoms (redness, streaking, edema)
 - Associated systemic symptoms (malaise, fever, weight loss, pain, diaphoresis)
 - Predisposing factors (risks for infection)
 - Medications (some meds cause nodal enlargement)

+ Abnormalities

- Acute lymphangitis
 - Inflammation of one or more lymphatic vessels
- Acute suppurative lymphadenitis
 - Infection and inflammation of a lymph node
 - May affect a single or localized group of nodes
- Lymphedema
 - Edematous swelling due to excess accumulation of lymph fluid in tissues caused by inadequate lymph drainage

+ Abnormalities

- Non-Hodgkin lymphoma
 - Malignant neoplasm of the lymphatic system and the reticuloendothelial tissues
- Hodgkin lymphoma—Who? And which lymph nodes?
 - Malignant lymphoma
- Epstein-Barr virus mononucleosis—what else would you examine?
 - Infectious mononucleosis
- Lymphangioma/cystic hygroma
 - Congenital malformation of dilated lymphatics
- Lymphatic filariasis (elephantiasis)
 - Massive accumulation of lymphedema throughout the body
 - Most common cause of secondary lymphedema worldwide

+ Abnormalities

- Cat scratch disease—which lymph nodes?
 - Among the most common causes of subacute or chronic lymphadenitis in children
- Acquired immune deficiency syndrome (AIDS)
 - Dysfunction of cell-mediated immunity
- Serum sickness (type III hypersensitivity reaction)
- Immune complex disease/Latex allergy type IV dermatitis (delayed hypersensitivity)
 - Allergic contact dermatitis that involves the immune system and is caused by the chemicals used in latex products
- Latex allergy type I reaction
 - True allergic reaction caused by protein antibodies

+ Differentials

- Not all lumps in the head and neck are due to lymphadenopathy
- Branchial cleft cysts
- Thyroglossal duct cysts
- Dermoids/teratomas
- Laryngoceles
- Parotid salivary gland tumors or parotitis (mumps)
- Thyroid nodules and goiters