Lymphatic System Evaluation

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 matted
  - 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 mm
- “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 supraventricular 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