

Lymph node Examination

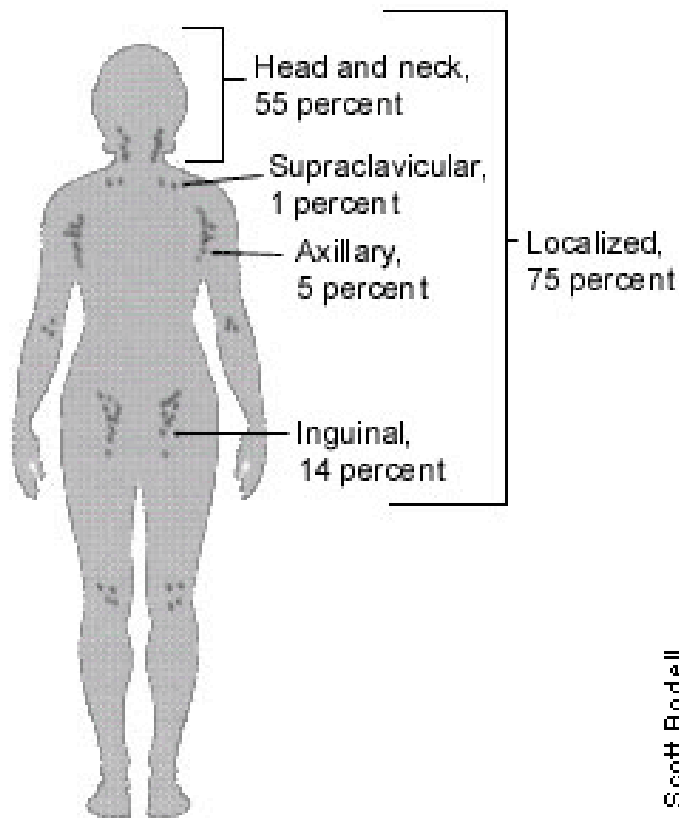
Case

- 60 year-old male school teacher presents to your office with **right sided cervical lymphadenopathy**.
- His past medical history is significant for **hypertension and dyslipidemia**. His medications include Hydrochlorothiazide and simvastatin. NKDA.
- He noticed the one firm lymph node about 2 cm in size over level II, right. He has **not experienced any fevers, chills or weight loss**. He denies any sore throat, ear pain or dental problems.
- On physical exam he has a **3cm anterior cervical lymph node** which is **firm, non-tender and mobile**.
- His HEENT exam is unremarkable. No skin lesions are evident. No other lymphadenopathy is found. How should you proceed with this patient?

Lymphadenopathy

- Raises fears about serious illness
- Usually a result of benign infectious causes
- Most patients can be diagnosed on the basis of a careful history and physical examination.
- Abnormal: greater than 1 cm
- **Excisional biopsy** of the most abnormal node will best enable the pathologist to determine a diagnosis
- **Need biopsy**: high risk for malignancy or lymphadenopathy for three to four weeks or highly suspected head and neck malignancy

Presentation of lymphadenopathy



Generalized, 25 percent

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- Unexplained lymphadenopathy
- 3/4 presents with localized
- 1/4 present with generalized

Infectious diseases associated with lymphadenopathy (1)

- **Viral**—infectious mononucleosis syndromes (EBV, CMV), infectious hepatitis, herpes simplex, herpesvirus-6, varicella-zoster virus, rubella, measles, adenovirus, HIV, epidemic keratoconjunctivitis, vaccinia, herpesvirus-8
- **Bacterial**—streptococci, staphylococci, cat-scratch disease, rucellosis, tularemia, plague, chancroid, melioidosis, glanders, tuberculosis, atypical mycobacterial infection, primary and secondary syphilis, diphtheria, leprosy
- **Fungal**—histoplasmosis, coccidioidomycosis, aracoccidioidomycosis
- **Chlamydial**—lymphogranuloma venereum, trachoma
- **Parasitic**—toxoplasmosis, leishmaniasis, trypanosomiasis, filariasis
- **Rickettsial**—scrub typhus, rickettsialpox

Immunologic diseases associated with lymphadenopathy (2)

- Rheumatoid arthritis
- Juvenile rheumatoid arthritis
- Mixed connective tissue disease
- Systemic lupus erythematosus
- Dermatomyositis
- Sjögren's syndrome
- Serum sickness
- Drug hypersensitivity- diphenylhydantoin, hydralazine, allopurinol, primidone, gold, carbamazepine, etc.
- Angioimmunoblastic lymphadenopathy
- Primary biliary cirrhosis
- Graft-vs.-host disease
- Silicone-associated

Malignant diseases associated with lymphadenopathy (3)

- **Hematologic**—Hodgkin's disease, non-Hodgkin's lymphomas, acute or chronic lymphocytic leukemia, hairy cell leukemia, malignant histiocytosis, amyloidosis
- **Metastatic**—from numerous primary sites

Metabolism and endocrine diseases associated with lymphadenopathy (4)

- Lipid storage diseases
 - Gaucher's, Niemann-Pick, Fabry, Tangier
- Endocrine diseases
 - hyperthyroidism

Other disorders associated with lymphadenopathy (5)

- Castleman's disease (giant lymph node hyperplasia)
- Sarcoidosis
- Dermatopathic lymphadenitis
- Lymphomatoid granulomatosis
- Histiocytic necrotizing lymphadenitis (Kikuchi's disease)
- Sinus histiocytosis with massive lymphadenopathy (Rosai-Dorfman disease)
- Mucocutaneous lymph node syndrome (Kawasaki's disease)
- Histiocytosis X
- Familial mediterranean fever
- Severe hypertriglyceridemia
- Vascular transformation of sinuses
- Inflammatory pseudotumor of lymph node

Clinical evaluation

■ 病史詢問：

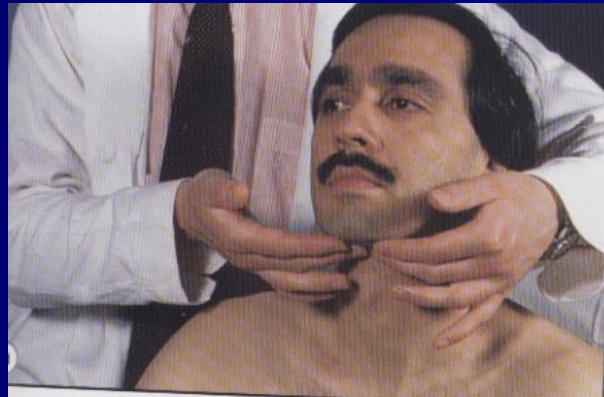
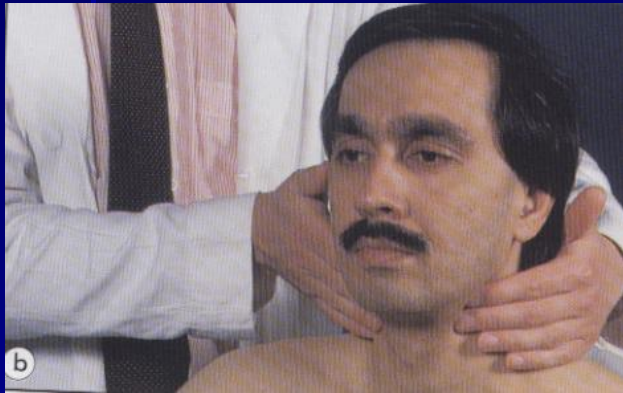
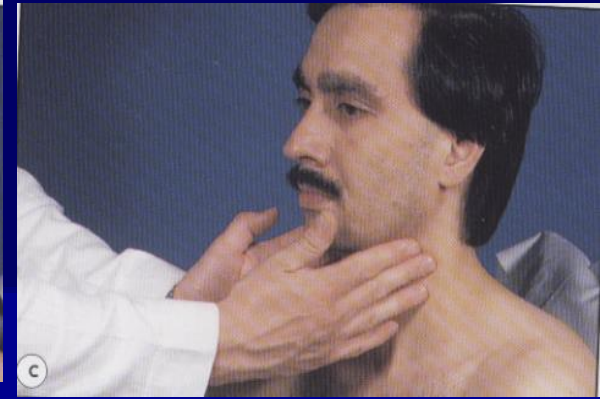
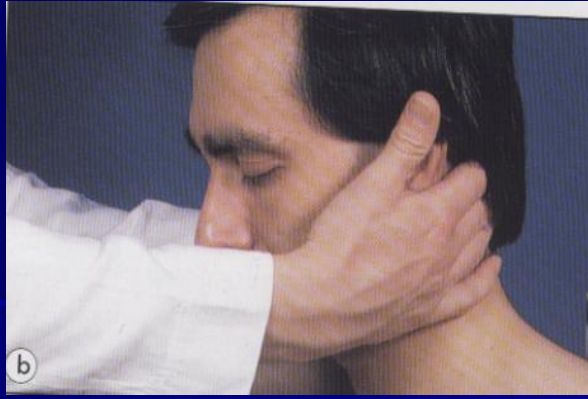
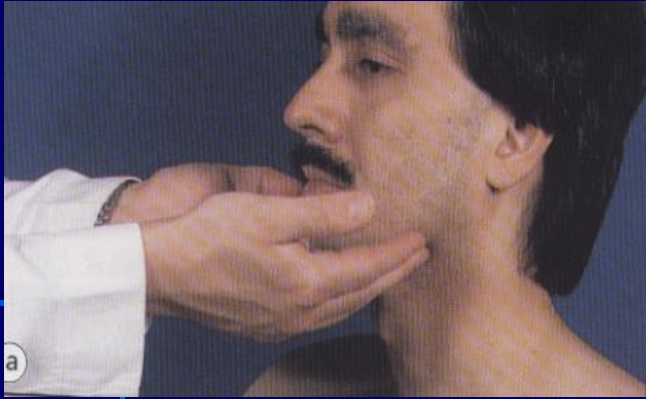
- 何時發生？時間多久？合併症狀（發燒，全身倦怠，體重減輕，有無上呼吸道或是腸胃道症狀等）
- 有無抽煙、飲酒、檳榔習慣？
- 有無輸血？
- 性行為或藥物史？

■ 病人年紀：孩童？年輕成人？超過40歲之成人？

■ 詳細的理學檢查

Physical Examination

- **Generalized lymphadenopathy : almost significant systemic disease**
- Examine the region drained by the nodes for evidence of infection, skin lesions or tumors
- Careful palpation of the submandibular, anterior and posterior cervical, supraclavicular, axillary and inguinal nodes
- **Splenomegaly and lymphadenopathy** occur concurrently in many conditions, including **mononucleosis-type syndromes, acute/chronic leukemia , lymphoma and sarcoidosis**



Five characteristics

- *Size*
- *Pain/Tenderness*
- *Consistency*
- *Matting(纏結的)*
- *Location*

Size

- Abnormal: usually greater than 1 cm
 - Epitrochlear nodes larger than 0.5 cm
 - inguinal nodes larger than 1.5 cm

Pain/Tenderness

- rapidly increases in size
- an inflammatory process or suppuration
- non-tender enlarged persisted node—usual malignancy

Consistency

- **Stony-hard nodes: a sign of cancer, usually metastatic**
- **Very firm, rubbery nodes: lymphoma**
- **Softer nodes: infections or inflammatory conditions**
- **Suppurant nodes: fluctuant**
- **Shotty: nodes that feel small, hard and round under the skin, as found in the cervical nodes of children with viral illnesses**

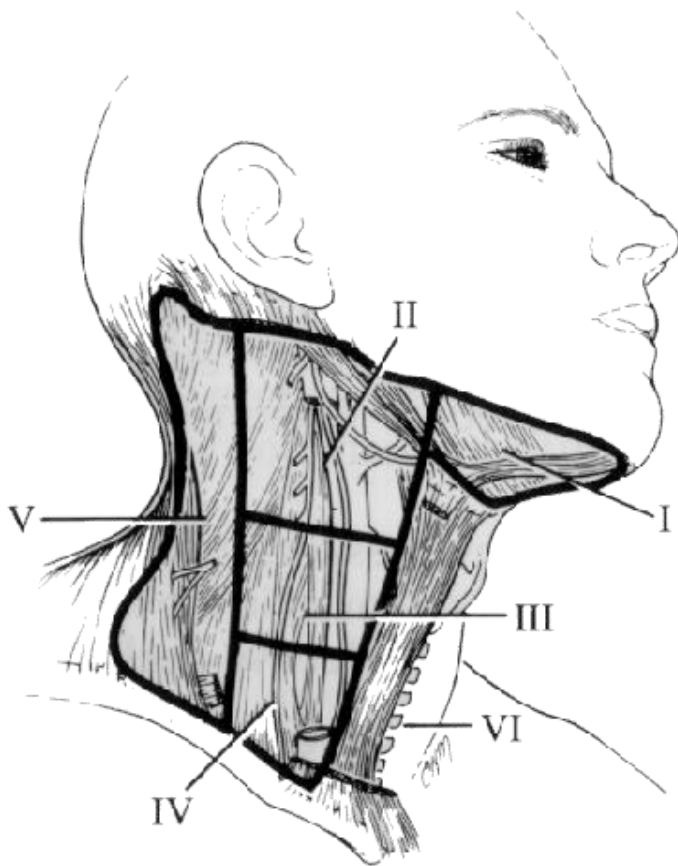
Matting

- A group of nodes that feels connected and seems to move as a unit is said to be "matted." Nodes that are matted can be either benign (e.g., tuberculosis, sarcoidosis or lymphogranuloma venereum) or malignant (e.g., metastatic carcinoma or lymphomas).

Location

- Cat-scratch disease: cervical or axillary lymphadenopathy
- Infectious mononucleosis: cervical lymphadenopathy
- STD: inguinal lymphadenopathy
- **Supraclavicular lymphadenopathy: highest risk of malignancy:** estimated as 90% in patients older than 40 years and 25% in those younger than age 40

Neck Lymphatic drainage



- **I -- Submental** (They drain the teeth and intra-oral cavity.) **and submandibular nodes** (They drain the structures in the floor of the mouth.)
- **II -- Upper jugulodigastric group**
- **III -- Middle jugular nodes** draining the naso- and oropharynx, oral cavity, hypopharynx, larynx.
- **IV -- Inferior jugular nodes** draining the hypopharynx, subglottic larynx, thyroid, and esophagus.
- **V -- Posterior triangle group**
- **VI -- Anterior compartment group**

Preauricular nodes:

Drain scalp, skin

Differential diagnosis:

Scalp infections, mycobacterial infection

Malignancies:

Skin neoplasm, lymphomas, head and neck squamous cell carcinomas

Posterior cervical nodes:

Drain scalp, neck, upper thoracic skin

Differential diagnosis:

Same as preauricular nodes

Supraclavicular nodes:

Drain gastrointestinal tract, genitourinary tract, pulmonary

Differential diagnosis:

Abdominal/thoracic neoplasms, thyroid/laryngeal disease, mycobacterial/fungal infections

Submandibular nodes:

Drain oral cavity

Differential diagnosis:

Mononucleosis, upper respiratory viral/bacterial infection, mycobacterial infection, toxoplasma, cytomegalovirus, dental disease, rubella

Malignancies:

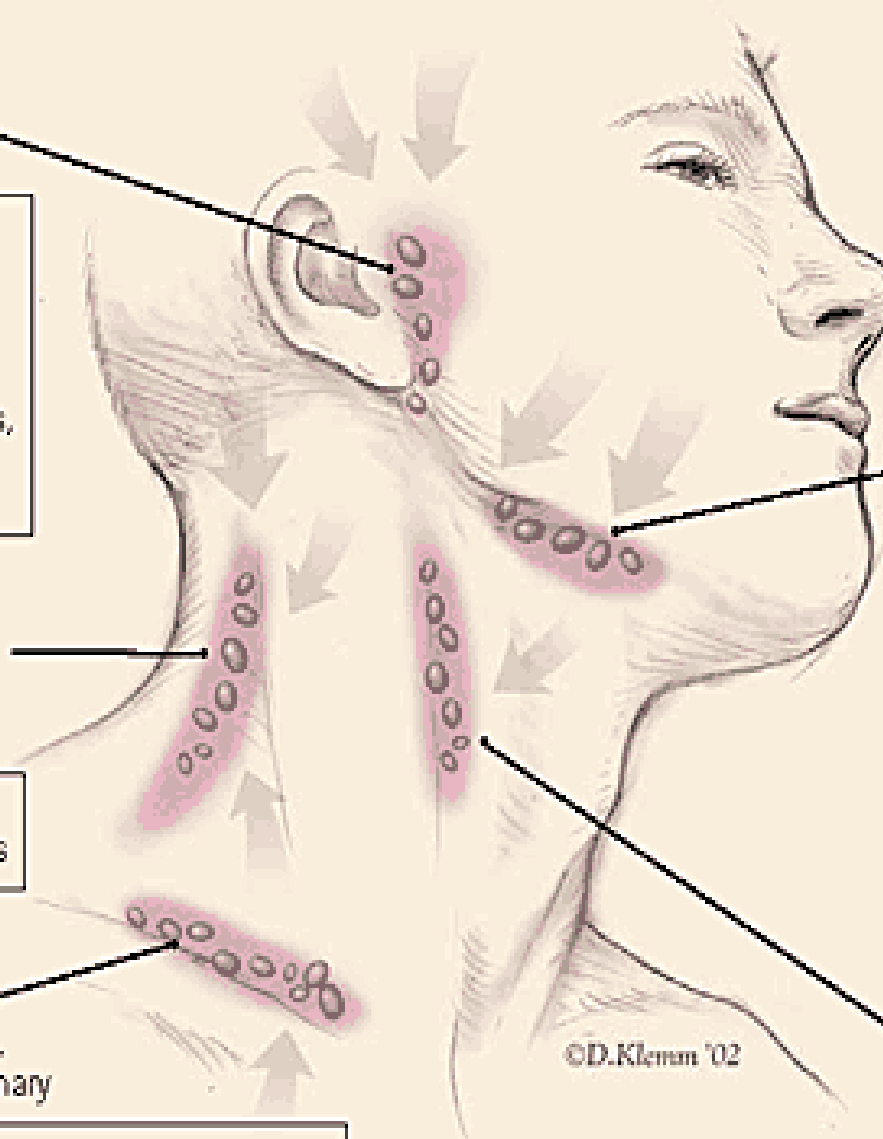
Squamous cell carcinoma of the head and neck, lymphomas, leukemias

Anterior cervical nodes:

Drain larynx, tongue, oropharynx, anterior neck

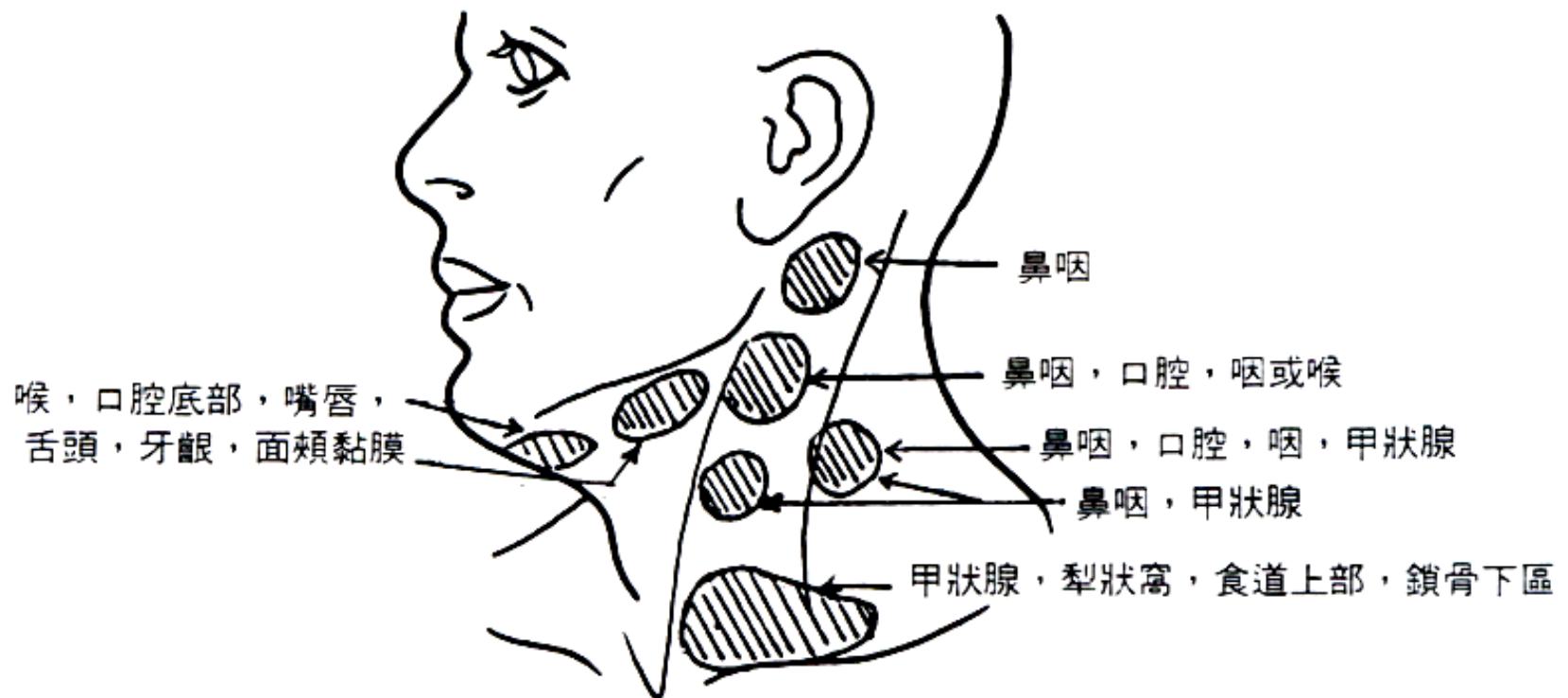
Differential diagnosis:

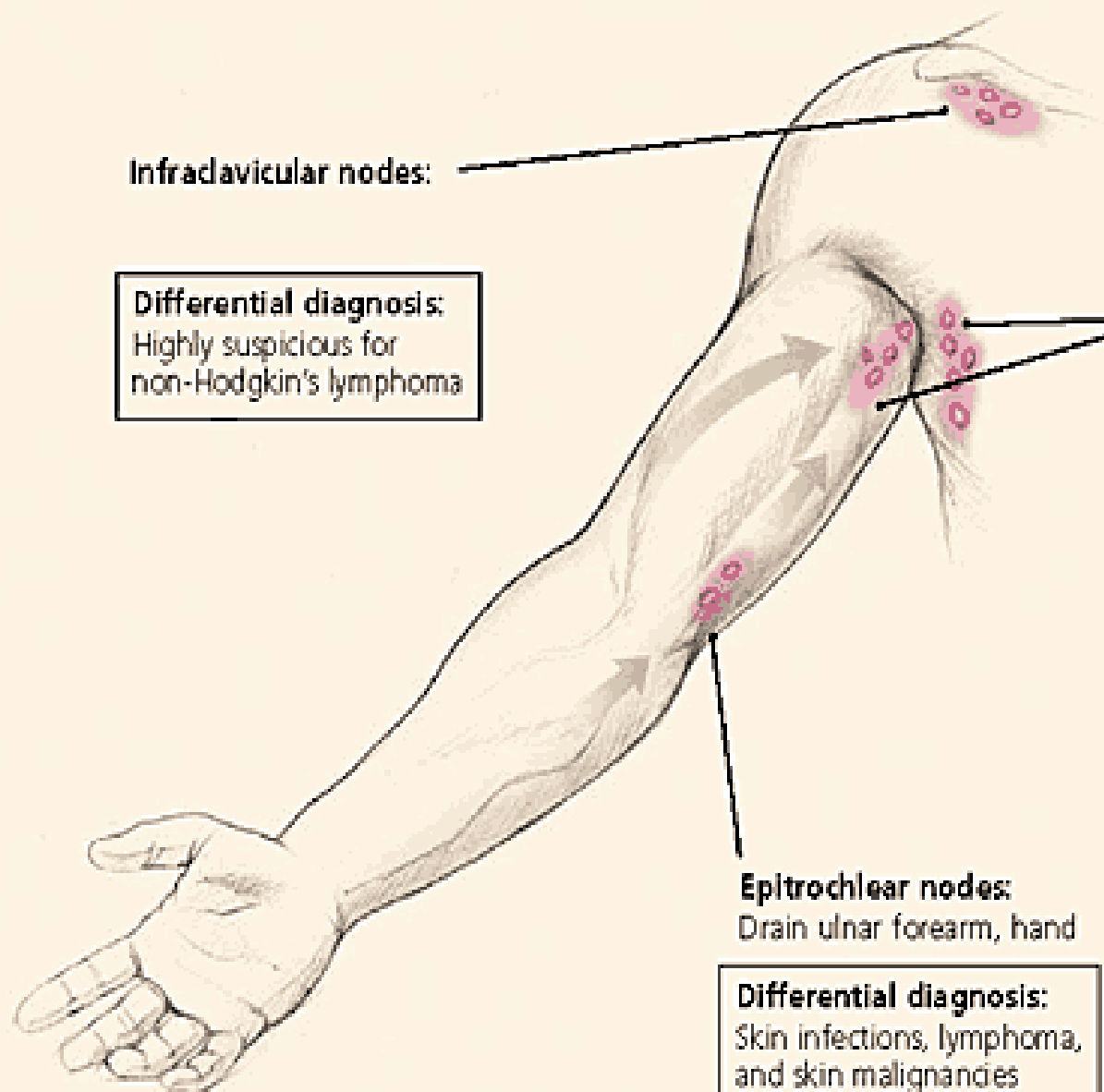
Same as submandibular nodes



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Neck mass and cancer





Infradavicular nodes:

Differential diagnosis:
Highly suspicious for non-Hodgkin's lymphoma

Axillary nodes:
Drain breast, upper extremity, thoracic wall

Differential diagnosis:
Skin infections/trauma, cat-scratch disease, tularemia, sporotrichosis, sarcoidosis, syphilis, leprosy, brucellosis, leishmaniasis

Malignancies:
Breast adenocarcinomas, skin neoplasms, lymphomas, leukemias, soft tissue/Kaposi's sarcomas

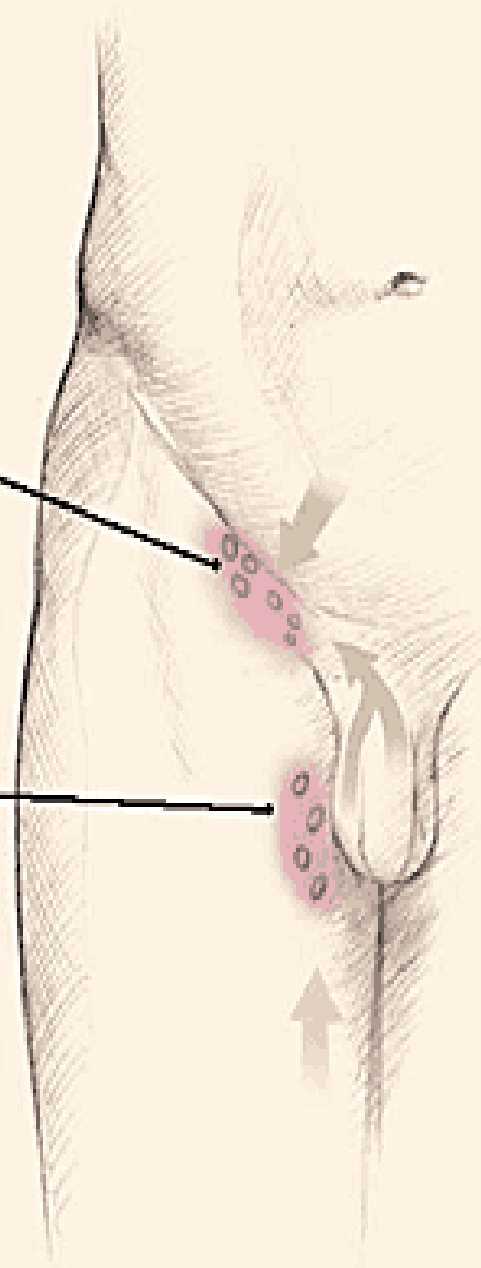
Epitrochlear nodes:
Drain ulnar forearm, hand

Differential diagnosis:
Skin infections, lymphoma, and skin malignancies

Horizontal node group

Vertical node group

These groups drain lower abdomen, external genitalia (skin), anal canal, lower 1/3 of vagina, lower extremity



Differential diagnosis:

Benign reactive lymphadenopathy, sexually transmitted diseases, skin infections

Malignancies:

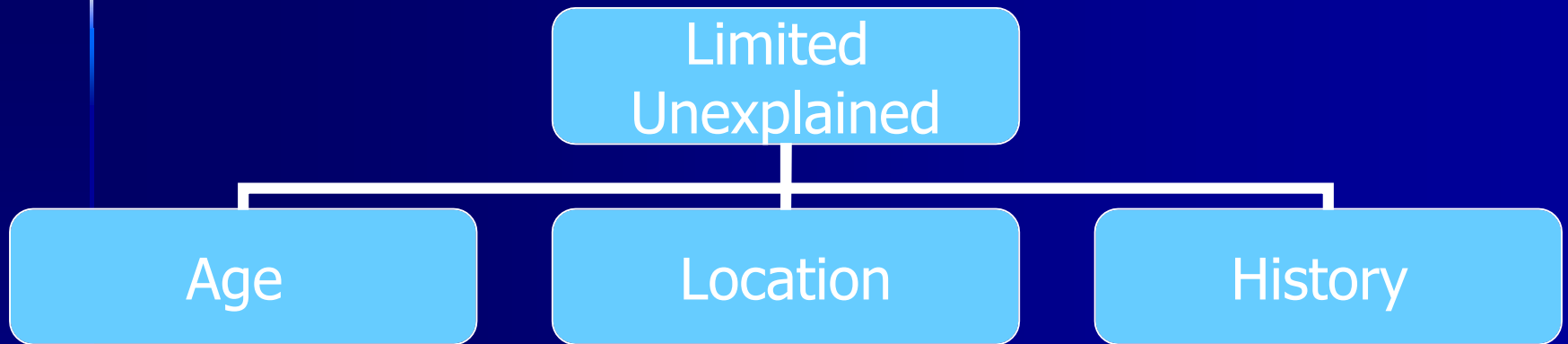
Lymphomas; squamous cell carcinoma of penis, vulva, and anus; skin neoplasms; soft tissue/Kaposi's sarcoma

Location

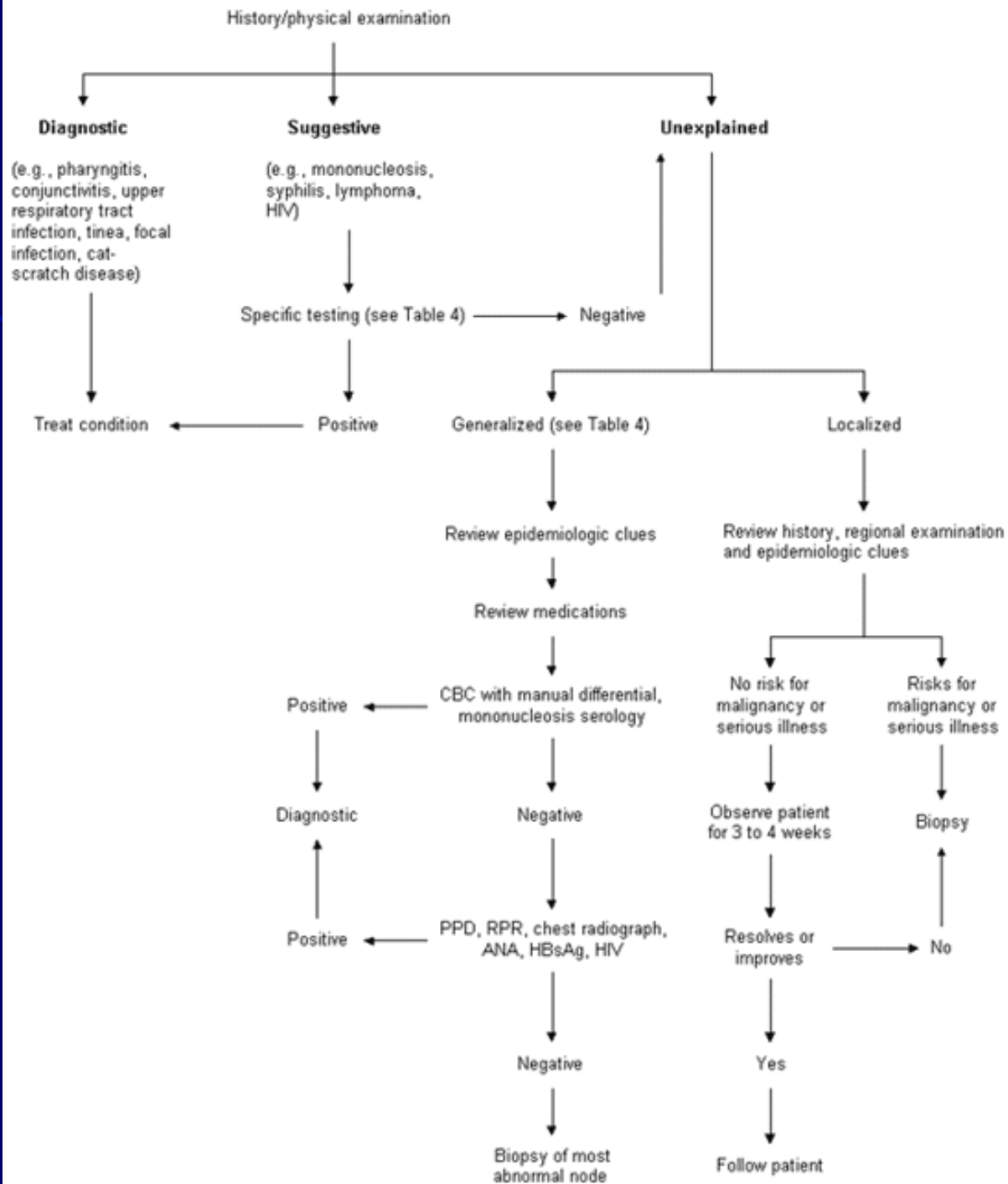
- Lymphadenopathy of the right supraclavicular node is associated with cancer in the **mediastinum, lungs or esophagus**
- The left supraclavicular node (**Virchow's node**) receives lymphatic flow from the thorax, abdomen and pelvic cavity.
 - maybe related to cancer of **testes, ovaries, kidneys, pancreas, prostate, stomach or gallbladder**
 - **55% metastasis and 20% acute and chronic inflammation and infection**
 - **10% lymphoma or leukemia**

Location

- a para-umbilical node (**Sister Joseph's node**) may be a sign of an abdominal or pelvic neoplasm



- Wait 3-4 weeks and reexamine
- No indication for empiric antibiotics or steroids
- Glucorticoids can be harmful and delay diagnosis can obscure diagnosis due to lympholytic affect



細針抽吸細胞學檢查



Thyroid gland

Physical examination

- Palpation is difficult, and not entirely accurate, because the mass is obscured by the cervical fascia and strap muscles.
- It is often aided by requesting the patient to swallow. **The movement of the nodule with swallowing will establish its location within the thyroid gland**
- Most nodules that are prominent enough to be palpable are > 1.5 cm, but careful examination may reveal multiple rather than solitary nodules.

