The head and neck

Chapter 6

The Head

Coronal suture

Frontal bone

Lacrimal bone

Nasal bone

Nasal septum

Maxilla

Zygomatic bone

Mandible

Sagittal suture

Parietal bone

Lambdoid suture

Temporal bone

Sphenoid bone

Occipital bone

Temporomandibular joint

External acoustic meatus

Mastoid process

C1, Atlas

C2, Axis

3rd cervical vertebra.
Common or concern symptom

History of:
- Headache
- Vertigo
- Headaches/Migraines
- Head injury
- Syncope- dizziness vs vertigo
- Neck pain- Lumps or swelling
- Epistaxis
- Head or Neck surgery
Head

- Look for scars, lumps, rashes, hair loss, or other lesions.
- Look for facial asymmetry, involuntary movements, or edema.
- Palpate to identify any areas of tenderness or deformity.

- Hydrocephalus: enlarged skull
- Cushing’s syndrome: moon like face with red cheeks duo to increased adrenal gland production.
- Nephrotic syndrome: the face is edematous and often pale.
- Acromegaly: enlargement of both bone and soft tissue.
- Parkinson’s disease: masklik face
Assessment of the Eye

**History:**
- Pain
- Redness or swelling
- Eye tearing or other discharge
- Injury to eye
- Surgery procedure to the eye
- Medication that may effect the eye
Assessment of the eye

Eyebrows: Symmetrical, Curving outward, No crusting or infection, No lesion.

Eye Lids: Inspect for:
Position, Color, Condition of surface, Condition and direction of eyelashes, Ability to close or blink.

Eye Lids
- Ptosis - abnormal drooping of the lid over the pupil
- Ectropin - lid margin that turns out
- Entropin - lid margin that turn in
- Redness
- Edema

Lacrimal Glands
- Assess for edema at the inner canthus of the eye, Observe for signs of infection
Conjunctiva and Sclera

- Covers the exposed surface of the eyeball; lines the eyelids. Normally transparent, assess for Conjunctivitis.

Assessment of Pupils:

- Shape and size of pupil
- Contracts - when exposed to light or focus in on a near object
- Dilates - in the dark or when focus on a distant object
- Average size 3-7mm
  - Miosis: constriction of the pupils
  - Mydriasis: dilatation of the pupils

Pupillary Reactions to Light

- Look for both the direct (same eye) and consensual (other eye) reactions.

Accommodation

- If the pupillary reactions to light are diminished or absent, check the reaction to accommodation (near reaction):
  - Hold your finger about 10cm from the patient's nose. Ask them to alternate looking into the distance and at your finger. Observe the pupillary response in each eye.
- **Visual Acuity**
- Does the client wear glasses or contacts?
- Assess ability to read
- Snellen Chart. E Chart
- Normal vision 20/20
- 20N standard distance you stand from chart
- Myopia: impaired far vision.
- Presbyopia: impaired near vision.

For example, 20/40 means that at 20 feet the patient can only read letters a "normal" person can read from twice that distance (at 40 feet).
Visual Fields

- When a person using both eyes, the two visual field overlap in an area of binocular vision.
- Laterally vision is monocular.

Visual Fields (Confrontation test)

- Assess for peripheral vision
- Have patient sit or stand 2ft away, facing you at eye level
- Move a finger equal distance from the patient and yourself outside the field of vision and then bring back in slowly; patient states when he/she spots the finger.
**Cover and Uncover test**
- Used to detect weakness in the eye muscles - Nystagmus
- Stand in front of client - cover one eye with a piece of paper, observe uncovered eye for movement indicating re-fixation of the gaze
- Remove cover and observe the previously covered eye for movement
- Repeat for the other eye

**Extraocular movements-EOM**
- Six muscles guide the movement of each eye
- Movement of the eyes should be parallel

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Extraocular Movement

- Client stands about 2ft away; nurse hold up a finger about 6-12 inches from clients’ eyes; the client is to keep head in a fixed position facing the nurse; the client follows the movement of the finger with eyes only; the nurse assess for abnormalities.

- nystagmus (involuntary movement of the eye)( fine rhythmic oscillation of the eye).

Ophthalmoscope Exam
- Darken the room as much as possible.
- Adjust the ophthalmoscope so that the light is **no brighter than necessary**. Adjust the aperture to a plain white circle. Set the diopter dial to zero unless you have determined a better setting for your eyes.
- Use your **left** hand and **left** eye to examine the patient's **left** eye. Use your **right** hand and **right** eye to examine the patient's **right** eye. Place your free hand on the patient's shoulder for better control.
- Ask the patient to stare at a point on the wall or corner of the room.

- Look through the ophthalmoscope and shine the light into the patient's eye from about two feet away. You should see the retina as a "red reflex." Follow the red color to move within a few inches of the patient's eye.
- Adjust the diopter dial to bring the retina into focus. Find a blood vessel and follow it to the optic disk. Use this as a point of reference.
- Inspect outward from the optic disk in at least four quadrants and note any abnormalities.
- Move nasally from the disk to observe the macula.
- Repeat for the other eye.
- Special Tests
  - Upper Eyelid Eversion
    - Ask the patient to look down.
    - Gently grasp the patient's upper eyelashes and pull them out and down. Place the shaft of an applicator or tongue blade about 1 cm from the lid margin.
    - Pull the lid upward using the applicator as a fulcrum to turn the lid "inside out." Do not press down on the eye itself. Pin the eyelid in this position by pressing the lashes against the eyebrow while you examine the palpebral conjuntiva. Ask the patient to blink several times to return the lid to normal.
The ear consists of external, middle, and inner structures.
External ear consist of auricle and ear canal.
Middle ear consist of tympanic membrane and 3 ossicles
Inner ear consist of cochlea and cochlear nerve
Pathway of Hearing

- **Conductive Phase:**
  transmission of sound vibration from the external ear to the ear canal then through the ear drum and ossicles to the cochlea

- **Sensorineural Phase:**
  Transmission of vibration from the cochlea, cochlear nerve then to the brain.
Changes with Aging

- Diminished hearing acuity (presbycusis)
  - start with high-pitch sound
  - extend to the sound in middle and lower range
  - evident after the age of 50.

Health History

- Hearing problems: (How is your hearing?, Have you had any trouble with your ears?)
- Hearing loss: (one or both ears, Sudden or gradual loss, Any associated symptoms?)
- Does the patient have special difficulty understanding people as they talk?
- What difference does a noisy environment make worse -- Sensorineural
  Better-- conductive
- Ask about medication (lasix, Aspirin, NSAID’s)
- Earache (pain, fever, discharge, sore throat, URT infection)
- Tinnitus
- Vertigo: point problem in the labyrinths of the inner ear, or lesions in CN VIII (dizzy, room spinning, being pulled)

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**Ear Exam**

- Inspect auricle and surrounding tissues
  - Deformities
  - Lumps
  - Skin lesions
- If pain, discharge, inflammation
  - palpate pinna and tragus for tenderness
    - Tug test: movement of the auricle and tragus
  - Painful in acute Otitis externa (swimmer’s ear)
  - Palpate mastoid process for tenderness
    Otitis media
Fundamentals of Otoscopy

- To see the ear canal and ear drum.
- Use the largest ear speculum that the canal will accommodate.
- Position the patient’s head so that you can see comfortably.
- Straighten the ear canal by grasping the auricle firmly and pulling it upward, backward, and slightly away from the head.

- Holding the scope between your thumb and forefingers, brace your hand against the patient’s face.

- This allows your hand and instrument to follow unexpected movements by the patient.

- You may use the right hand to examine both the right and the left ears.
Viewing

- Insert the speculum gently into the ear canal
- Direct it down and forward and through the hair in the canal if present
- Cerumen (ear wax) may be present and may totally obscure your view; it varies from yellow and flaky to brown and sticky

Viewing

- Inspect ear canal for discharge, foreign body, redness, swelling
- Inspect the eardrum, noting color and contour
- Should have a bright reflection of light (cone of light)
- Identify the insertion of the handle of the malleus, and short process of the malleus
- Gently move the speculum so you can see as much of the drum as possible
Examination of the EARS

- Otoscopic exam
- Pull the ear upwards and backwards to straighten the canal.
- Insert the otoscope
- Inspect the ear canal and middle ear structures noting any redness, drainage, or deformity.
Viewing

- Abnormalities to be on the look out for:
  - Swollen, red, canal: swimmer’s ear (Otitis externa)
  - Bulging, red eardrum: ear infection (Otitis media)
  - Amber eardrum: fluid (allergies)

Ear Exam

- Auditory Acuity: Assess hearing one ear at a time with whisper test
  - tuning fork (512 Hz), ticking watch, or others.
- If hearing is abnormal, perform the Weber and Rinne tests to assess for Sensorineural and/or conductive hearing loss
Examination of the Ears

- **Weber Test**: lateralization
  - Base of tuning fork (512 Hz) on top of head
  - Ask where patient hears it; in conductive loss, sound heard in the impaired ear vs. Sensorineural loss where it is heard in the good ear

- **Compare air and bone conduction**: Rinne
  - Tuning fork on mastoid and in front of ear
  - Conductive loss: BC>AC, heard longer through bone
  - Sensorineural loss: AC>BC, air is longer than bone

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Figure 12-13 Weber test.
Rinne Test (To compare AC & BC)

- A positive Rinne test is a normal test: air conduction should be longer than bone conduction.
- Sensorineural hearing loss produces a positive Rinne test: AC>BC
- Conductive hearing loss produces a negative Rinne test: AC<BC or AC=BC
Diseases Causing Hearing Loss

- Conductive Hearing loss: Lesion between the receptors and environment (Ossicles lesion, Otitis media, otosclerosis, impacted cerumen)
- Sensorineural hearing loss: Lesion of the receptors or its pathway (Aging, drug toxicity, noise damage, acoustic neuroma)

The nose and paranasal sinuses
Anatomy of the Nose

- External
  1. Nasal bridge
  2. Tip
  3. Anterior naris
  4. Vestibule
  5. Ala nasi

- Internal
  1. Nasal Septum
  2. Turbinate
    - Superior
    - middle
    - inferior
  3. Frontal and Maxillary Sinus

The nose

![Diagram of nasal passages and turbinates]
The Nose & Sinus

- Health history:
  - Rhinorrhea: drainage from the nose
    - Nasal discharge or runny nose---Continuous, watery, purulent, mucoid, bloody
    - Nasal congestion---stuffy nose, sneezing, watery eyes, throat discomfort, itching in the eyes, nose, throat.
  - Frequent or severe colds
    - How often?
    - Remedies?
  - Sinus pain
    - Headache, tenderness, fever

The Nose

- Health history:
  - Trauma
    - Breath through nose? Any obstruction?
  - Epistaxis—bleeding from nose
    - How much? Teaspoon, does it pour out?
    - From one or both nostrils?
    - How do you treat them? Difficult to stop?
  - Allergies
    - Pollen, dust, hair?
    - Aggravating environment
    - Inhalers? Spray, drops
  - Any change in sense of smell
Examination of the Nose and paranasal sinuses

- Inspect the anterior and inferior surface of the nose (note symmetry, deformity)
- Test for nasal obstruction
- Inspect the inside of the nose with the otoscope using the largest ear speculum

- Observe the
  1. nasal septum for deviation, inflammation, perforation.
  2. Nasal Mucosa: color, swelling, bleeding, exudates
  3. Any abnormalities such as ulcers or polyps.

- Palpate for sinus tenderness
The Nose

- Palpate sinus areas with thumbs
  - Frontal sinus, below eyebrows
  - Maxillary sinus, below cheekbones
  - Firm pressure, no pain
  - Note tenderness (chronic allergy, acute infection sinusitis)

- Transillumination of sinuses
  - An inflamed sinus does not illuminate

Normal Findings

- The septum is in the middle and the turbinate project into the nasal passages.
- There is sufficient room for the nasal passages.
- The mucous membrane is red and compact over the turbinate.
- There may be a small amount of thin secretions.
- **Special Tests**
- **Sinus Transillumination**
  - Darken the room as much as possible.
  - Place a bright otoscope or other point light source on the maxilla.
  - Ask the patient to open their mouth and look for an orange glow on the hard palate.
  - A decreased or absent glow suggests that the sinus is filled with something other than air.

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**Mouth & Oropharynx**
Mouth & Pharynx

- **Anatomy of the Mouth:**
  Lips, gingiva, intredental papillae, labial frenulum, labial mucosa, alveolar mucosa

- **Anatomy of the tongue:**
  papillae (red dots on the tongue surface), lingual frenulum, submandibular gland duct (Wharton’s duct), parotid duct (Stensen’s duct), buccal mucosa
Changes with aging

- Diminished salivary secretion
- Decreased sense of taste
- Teeth become abraded with time

Health history

- Sore throat
  - How frequent? Since when?
  - Cough, fever, fatigue, headache, hoarseness, postnasal drip
- Sores or lesions in mouth or tongue
  - For how long? Single or multiple?
  - Stress, food, season change?
- Altered taste
- Bleeding gums--gingivitis
- Toothache
- **Hoarseness**—Acute or chronic
  - Overuse of voice
  - Allergy, smoking, other inhaled irritants
  - Hypothyroidism
  - Tumors

- **Dysphagia**—difficulty swallowing
  - Gastroesophageal reflux disease, neurological, esophageal cancer

- **Pharyngitis**—Swollen glands or lumps in neck

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**Mouth and Throat Exam**

- Inspect using penlight
  - **The Lips**
    - Color, moisture, cracking, Scaliness, lesions, ulcers
    - Pallor—shock and anemia
    - Cyanosis—hypoxemia and chilling
    - Cherry red lips—carbon monoxide poisoning, acidosis, ketoacidosis
    - Blisters (herpes simplex)
    - Ulcer (chancre sore)
    - Edema
    - Cleft lip
- **Oral mucosa**: look in pt mouth with the help of light and tongue blade
  look for:
  Color, ulcers, white patches, and nodule

- **The Gum&Teeth**
  **Gum**: color
  gum margin, interdental papillae: for swelling or ulceration
  **Teeth**: missing, discolored, misshapen, abnormally positioned

1- The roof of the mouth:
   Inspect color and shape of hard palate (roof of mouth)
   * Cleft palate
   * Midline lobulated bony growth: (Torus palatinus)

2- The tongue and the floor of the mouth:
   - for symmetry( test for hypoglossal nerve, CN XII)
     - Note color and texture of the tongue
     Dry mouth with dehydration, fever, deep vertical fissures, Decreased/ excess saliva
     - Inspect the sides and the undersurface of the tongue and the floor of the mouth for ( white or reddened area, nodules, ulceration
   - loss of movement
- Inspect the U-shape under the tongue
- Note white patches, redness, nodules, ulcerations
- Any lesion or ulcer persisting more than 2 weeks should be followed
- Palpate the tongue for indurations

3. The Pharynx:
- Ask patient to say “Ah” while depressing tongue to check pharynx—note integrity and mobility as person phonates
  - Failure of soft palate to raise with "aah" and deviation of uvula to opposite side: (Paralysis of Vagus CN X)
  - Check gag reflex (Glossopharangeal CN IX, and Vagus CN)

- Pharyngeal wall—note color, any exudates, lesions
  - Redness, swelling, pus: (Pharyngitis: Viral, Strep)
  - Grayish exudates (Diphtheria)
- Inspect soft palate, anterior and posterior pillars, uvula, tonsils, and pharynx — color, symmetry, exudates, swelling, ulceration, tonsillar enlargement
The Neck

- **Anatomy**
  divided into 2 triangles

  **Anterior:** bounded above by the mandible, laterally by sternomastoid muscle, and medially by the midline of the neck

  **Posterior:** extended from the sternomastoid to the trapezius and bounded below by the clavicle

**Midline structure:**
1. Hyoid bone
2. Thyroid cartilage
3. Cricoid cartilage
4. Tracheal ring
5. Thyroid gland

The pharynx and larynx
Health HX of the Neck

- Ask the pt if he notice any swollen gland or lumps in the neck
- Enlarged thyroid gland—goiter
- Thyroid function—
  - Temperature intolerance and sweating
    - Do you prefer hot or cold weather
    - Do you dress more warmly or less warmly than other people?
- Palpitations?
- Change in weight?
Examination of the Neck

- Inspect the neck note any masses or scare, enlarged gland, visible lymph node

- Palpate LN:
  1. By using the pads of the middle and ring finger
  2. The pt should be relaxed, neck flexed forward and towered the side being examined

Feel in sequence:

- Preauricular: in front of the ear
- Posterior auricular: anterior to the mastoid
- Occipital: at the base of the skull posteriorly
- Tonsillar: at angle of mandible
- Submandibular: midway between the angle and the tip of the mandible
- Submental: at the midline few cm behind the tip of the mandible
- Superficial cervical: superficial to the sternomastoid
- Posterior cervical: along the anterior edge of the trapezius
- Deep cervical: deep to the sternomastoid muscle
- Supraclavicular: deep in the angle formed by the clavicle and sternomastoid (suggests thoracic or abdominal malignancy)
- Note shape, size, delimitation, mobility, consistency, and any tenderness

- Small, mobile, discrete, nontender nodes are common and termed shotty

- Nodes are abnormal if greater than 1 cm and/or present greater than one month

- Hard nodes suggest malignancy
- Tender nodes suggest infection
- Rubbery nodes suggest lymphoma

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The Trachea & the Thyroid gland

- **Inspection of the trachea** for deviation then feel for deviation by: place your finger along one side of the trachea and note the space between it and the sternomastoid.

- **Inspect the neck for thyroid gland:**
  - ask the pt to tilt head back by using a light from downward the tip of pt chin inspect the region below the Cricoid cartilage for the gland
  - ask pt to sip water and to extend the neck and swallow, watch for upward movement of the thyroid gland noting it’s contour and symmetry
Palpation of the thyroid gland:
from behind the pt
- ask the pt to flex the neck
- Place the finger of both hands on the pt’s neck
- Ask the pt to sip and swallow water, feel the isthmus
- Displace the trachea to the Rt, with the Rt hand fingers, palpate the thyroid in space between displaced trachea and relaxes sternomastoid, in similar way examine the Lt lobe
- Note size, shape, and consistency of the gland, ID any nodules or tenderness.

If the thyroid gland is enlarged listen over the lateral lobe with stethoscope to detect bruit (similar to the cardiac murmur but of noncardiac origin).

Normal: Right side slightly larger than left
Questions

Thank you