

Lymphatic System Examination

Head and Neck Examination

Eyes, Ears, Nose, and Throat Examination

Procedures

Accessible lymph nodes

- Cervical “Necklace” Nodes:
 - Occipital
 - Postauricular and preauricular
 - Retropharyngeal (a.k.a. tonsillar)
 - Parotid
 - Submandibular
 - Submental
 - Sublingual (a.k.a. facial—under the tongue)
 - Superficial anterior cervical
 - Superficial posterior cervical
 - SCM nodes (part of posterior cervical)
 - Supraclavicular (a.k.a. Virchow’s nodes)

Accessible Lymph Nodes

- Arms:
 - Axillary
 - Epitrochlear (cubital)
- Legs:
 - Superficial superior inguinal
 - Superficial inferior inguinal
 - Popliteal (occasionally)

Examination of lymph nodes

- Firstly, of course, gather the history and perform an appropriate ROS
- Next, ask the patient if he/she is aware of any lumps
- The patient’s head should be in a **slightly flexed position** and the upper extremities should be relaxed
- Using the pads of the 2nd-4th digits, lightly palpate for the superficial lymph nodes in a logical order
- Where the skin is mobile, move the skin over the area being examined

Examination of the lymph nodes

- Try to detect any enlargement first
- Then note:
 - Size
 - Mobility
 - Tenderness
 - Consistency
 - Warmth
- Palpate lightly first, then gradually increase the pressure

Normal

- **It is completely normal to be unable to easily palpate lymph nodes in a healthy adult**
- Also normal are small, movable, discrete nodules less than 1 cm
- Fixation of these nodules is concerning

Abnormal

- When enlarged, tender, warm, etc., lymph nodes are noted, explore the adjacent areas and the regions drained by the nodes for signs of infection or malignancy
- Multiple enlarged nodes may palpate as a large mass and are described as matted
- Auscultate the mass for a bruit (vessel)
- Check for transillumination (fluid content)

Abnormal

- Tenderness is usually indicative of infection
- Malignancies are usually not tender
- Bacterial infections may produce warm, matted, and less discrete nodes
- Fixation of nodes may indicate malignancy or chronic infectious process
- Malignant involvement is usually asymmetrical
- As a SOFT "rule", masses anterior to the SCM are benign; posterior masses **may** be malignant

Palpation of Salivary Glands Prefix = sialo_____

- The parotid, submaxillary/submandibular, and sublingual glands are palpable
- The parotid glands are located below and anterior to the ear, just anterior to the angle of the mandible
- The submaxillary/submandibular glands are located just medially and anteriorly to the angle of the mandible---easiest to palpate when pt swallows
- The sublingual glands are located in the floor of the mouth, just beneath the tongue

Salivary gland swelling

- Unilateral swelling:
 - Ductal calculus due to infection (Staph or Strep)
 - Rarely: painless unilateral swelling = tumor
- Bilateral swelling:
 - Malnutrition (Kwashiorkor, anorexia, bulimics)
 - Sjogren's syndrome (RA + dry eyes & mouth)
 - Alcoholism
 - Diabetes mellitus
 - HIV
 - Thyrotoxicosis
 - Leukemia and lymphoma
 - Drugs—sulfonamides, lead, mercury, iodine
 - Acute parotitis (mumps)---contrast with cervical adenitis (lymph nodes)
 - Mumps obscures the angle of the mandible

Trachea palpation

- The trachea should be midline
- Pt should be seated with forward lean
- Place the 5th distal phalange in the fossa created by the lateral aspect of the trachea and the medial aspect of the SCM
- The depth should be the same
- Tracheal deviation can occur with chest or neck masses, lung collapse, and pleural effusion

Palpate the thyroid

- Sit with a slight extension of the head
- Locate the hyoid bone, just under the mandible
- Immediately inferior to the hyoid bone is the thyroid cartilage
- The thyroid cartilage is the most prominent and easily identified structure in the midline (superior notch)
- Inferior to the thyroid cartilage is the cricoid cartilage (3 cm or two digit span)
- The isthmus of the thyroid gland is immediately below the cricoid cartilage
- You should end up about 2 cm above the clavicles

Thyroid gland

- The inferior margins of the thyroid lobes are located just within the SCM
- The superior margins of the thyroid lobes just touch the prominent thyroid cartilage

Thyroid palpation of a patient

- You may use either the posterior approach or the anterior approach
- The posterior approach is more commonly used
- Pick one approach and stick with it
- Palpation should confirm the size, shape, location, symmetry, and mobility of the gland
- Palpation also should evaluate the texture
- It normally feels like an almond

Should the thyroid be palpable?

- Not always. Thyroids of 15 to 20 grams (upper limit of normal) are not always palpable
- Under this are rarely palpable
- The average size is 2 cm wide, 5 cm high, and 2.5 cm thick
- The isthmus is 1.25-2 cm in width and height

Palpation

- Stand behind the patient
- Place the 2nd and 3rd digit pads together in the midline, about 2 cm above the clavicles and about .5 cm inside the medial margin of the SCM
- First try to find the isthmus (below the cricoid cartilage and above the suprasternal notch)
- Then palpate the lateral lobes
- To palpate unilaterally, fix (hold) the trachea with one hand while palpating with the other

Nodules or asymmetry

- If asymmetry or a nodule is noted, it helps to have the patient flex and rotate the head while you inspect and palpate
- This may make the nodule more obvious
- Finally, ask the patient to swallow repeatedly while you palpate the gland
- Should the gland move with swallowing?

Thyroid palpation

- The size of the thyroid in a specific population is determined largely by the supply of iodine in the diet
- Larger glands occur in iodine-deficient areas
- Formerly, 35 gm was the upper limit of normal, but with iodine supplementation the upper limit of normal has decreased to 15-25 gm
- Mountainous regions tend to be iodine-deficient; common away from the sea

Differences

- Women have larger and more easily palpable thyroid glands than men
- The right lobe is often larger than the left
- In up to 1%, the entire left lobe can be absent
- A pyramidal lobe may be present in up to 15%, extending as high as the hyoid
- Up to 5% have posterior extracapsular tissue, extending superiorly from the posterior aspect of the tongue (nondescent)
- This is called a lingual thyroid and can extend inferiorly into the mediastinum

False-positive results

- False-positive results caused by:
 - Thin patients have misleading accessibility of the lobes
 - Same for patients with long necklines—these “pseudogoiters” have been termed Modigliani syndrome after the Italian artist’s drawings
 - The presence of a **fat pad** in the anterolateral neck of young women and obese patients--- does not rise with deglutition
 - Other anterior neck masses may be mistaken for thyroid masses--unlikely to rise with deglutition

False-negative results

- False-negative results caused by:
 - Inadequate examination skills are the most common reason for false-negative results
 - Short and thick-necked patients, especially the obese or elderly or those with COPD
 - Atypical or ectopic placement of the thyroid—retrosternally, laterally, obscured by the SCMs

So, how do you decrease the errors?

1. Examine the thyroid through inspection and palpation (cross-lighting)
2. Categorize the thyroid as either normal or goitrous (enlarged)
3. Consider that a small goiter may be an overestimation
4. Evaluate the mass from the profile and note whether it is visible on frontal view with mild extension
6. Make appropriate referral to ___?

The Visual Examination

Procedures

The Visual Examination

- External eye inspection (least invasive)
- Visual acuity: measured and recorded at the beginning of the eye exam
- Visual fields testing: detects and defines important neurological or ocular disease
- Pupillary exam: valuable clinical information about disease processes
- Ophthalmoscopy (most invasive)
- Follow this order of exams

Visual acuity

- Equipment needed: Snellen or Sloan chart, pinhole occluder, near-vision card, color vision screening plates
- Measurement of visual acuity tests CN II (optic nerve) and is a test of central vision
- Very easy and quick to perform

Snellen chart

- Position the patient 20 feet away from the Snellen chart
- The chart should be placed at eye level (average) and should be well-lighted
- Each eye is tested individually, and by convention, we begin with the right eye
- A 3 x 5 card works well to occlude the other eye (doesn't compress the eye)
- Testing should be performed with the patient wearing his or her distance glasses

Snellen chart

- Ask the patient to read all of the letters on the smallest line he or she can see clearly
- After successful completion of one line, ask the patient to identify as many letters as possible on the next smallest line
- The visual acuity may be recorded in two manners (*know both*):
 - the smallest line on which the patient can accurately identify more than one-half of the letters is the visual acuity, recorded as 20/that line's number (20/25); additionally, record the number of letters missed on that same line (i.e. 20/25 -2 indicates 2 missed letters on that line)
 - **** Or, record the number of the line seen with 100% accuracy and the number of letters correctly identified on the next line (i.e. 20/30 +3 indicates 3 correct letters on next line)

What do the numbers mean?

- 20/20 means that the patient can read at a distance of 20 feet a letter that was designed to be read at 20 feet
- 20/40 means that the patient can read at a distance of 20 feet a letter that was designed to be read at 40 feet
- Right eye = Oculus Dextra = O.D.
- Left eye = Oculus Sinistra = O.S.
- Both eyes = Oculus Uterque = O.U.

Pinhole Occluder

- Tests for visual acuity improvement
- If you have trouble reading something, what do you do?
- If the patient's vision improves by reading through a small hole in the 3 x 5 card, the patient likely needs a prescription correction

Near vision testing

- A Rosenbaum near vision card is standard
- You may use other text to evaluate (office papers, large newsprint, Reader's Digest)

External eye exam

- Eyelids:
 - should cover the top of the iris
- Lacrimal gland
 - Look for prominence of gland and excessive tearing
- Conjunctiva
 - Should be pink at the lid margins

- Sclera:
 - Should be white, without prominent blood vessels
- Cornea:
 - Should be clear
- Iris:
 - Should be same color without redness (minimal color variation is okay)
- Pupil:
 - Shape, size, and responses
 - Should be equal size and **PERRLA**
 - Pupils are **E**qual, **R**ound, **R**eactive to **L**ight and **A**ccommodation

The muscles of vision

- 4 rectus muscles: superior, inferior, medial (CN III), and lateral (CN VI)
- 2 oblique muscles: superior (CN IV) and inferior (CN III)
 - SO4--LR6--All others 3
- Superior oblique: medial and downward movement
- Inferior oblique: medial and upward movement
 - DeJong

Peripheral vision testing

- AKA: Visual fields testing, confrontation
- With peripheral fields testing, one can find previously undetected occipital strokes and optic chiasmal tumors (pituitary or suprasellar masses)

Peripheral vision testing

- Sit (or stand) 2 feet from patient and ask him or her to cover one eye with the palm of one hand or card while fixating on the examiner's nose or opposite eye
- The examiner outstretches his or her hand and hold up 1, 2, or 5 fingers or a penlight (**some definitive object**) and moves from the periphery to centrally
- The patient reports when he or she can see the stimulus
- Confront in **each** quadrant of **each** eye
- P. ____ of Mosby's: 60 nasally, 90 temporally, 50 superiorly, 70 inferiorly

Cardinal fields/planes of gaze

- Sit (or stand) approximately 3 feet in front of the patient and hold a penlight or finger as a fixation point
- Ask the patient to follow the stimulus with his eyes only, without moving his head
- Draw a wide "H" pattern or asterisk
- You are not testing accommodation (or convergence), so move far enough away to allow binocular vision

Pupillary light reflexes/responses

- Accommodation/Near point reflex:
 - Convergence causes constriction of the pupils

Using a penlight:

- Corneal light reflex/reflection:
 - Shine the light at the nasal bridge. Ask patient to look at near object (not the light). If both eyes are aligned, the penlight will be reflected in both pupils equally
- Direct light reflex:
 - The pupil constricts with light stimulus
- Indirect light reflex/Consensual light reflex:
 - The opposite/contralateral pupil constricts with light stimulus

Pupil abnormal responses

- Physiological anisocoria: a normal variant in 20%, characterized by a physiological difference in muscular tone between right and left pupils; does not change with illumination
- Pharmacologic dilation: sometimes unknowingly
- Horner's syndrome: the pupil of the affected eye is smaller (miotic); patients also have ipsilateral ptosis and anhidrosis; difference varies with illumination

- Argyll Robertson pupils: constrict only in response to accommodation, but not in response to light; may be seen in tertiary syphilis, diabetics, alcoholics, neoplasms, infections; it is **ALWAYS pathological**
- Adie's pupil: a tonic pupil that fails to constrict in response to BOTH light and accommodation; eventually it may constrict, but is sluggish; it is **ALWAYS benign**

Afferent pupillary defect

- AKA: Marcus Gunn pupil: has a normal efferent system, but an abnormal afferent pathway; using the "swinging flashlight test", the affected eye will dilate in response to the light; on first stimulus, the Marcus Gunn pupil will constrict (normal), but poorly; optic neuritis is the most common cause, followed by asymmetric optic neuropathy, such as retinal lesion, artery occlusion

Ophthalmoscopic Examination

Procedures

Internal Eye

- The internal eye is composed of three separate layers or tunics
- The **outer tunic** consists of the cornea and sclera
- **Cornea**: transparent, clear, very thin membrane of epithelium in anterior 1/6 of tunic; contains no blood vessels and very few cells, keeping it clear; the cornea focuses entering light rays
 - Best viewed from the lateral side of the patient
- **Sclera**: continuous with the cornea and is the white portion of the eye; makes up the posterior 5/6 of the outer tunic and is made up of collagen and elastin; serves as the attachment for extrinsic muscles

Internal Eye

- The **middle tunic** consists of the choroid posteriorly, and the ciliary body and iris anteriorly
- **Choroid**: posterior 5/6 of middle tunic; is very loosely attached to the sclera and contains blood vessels and **melanocytes** to nourish the eye and keep the inside dark
- **Ciliary body**: thickest part of middle tunic; attached to suspensory ligaments, which attach to and change the lens shape
- **Iris**: colored portion of eye that acts as a diaphragm; extends from ciliary body and is the dividing point between the anterior and posterior chambers; the iris contracts in response to light, gaze, and emotions

Internal Eye

- The **inner tunic** consists of the retina
- **Retina (fundus)**: light sensitive with photoreceptors and is continuous with the optic nerve; the retina ends at the ciliary body; it contains rods (peripheral and night vision) and cones (central and color vision)
 - **Macula (fovea centralis or macula lutea)**: contains the highest concentration of cones and therefore is the area of most precisely focused vision; is a yellowish-red area about 1mm by 1mm

• Retina:

- **Optic disk**: head of the optic nerve and is the most prominent structure seen with ophthalmoscopic exam; can vary from white to pink and flat to “scooped out” or cupped
- **Optic nerve**: axons of ganglion cells of retina, converging to the optic disk; the optic nerve connects the eye to the brain (continuous with the subarachnoid space of the brain)
- **Central retinal artery and vein**: provides circulation and nourishment to the eye

Internal Eye

- **Other structures**:
- **Aqueous humor**: clear, watery fluid from posterior cavity, through pupil, into the anterior chamber; nourishes the cornea and lens and helps maintain the shape of the anterior eye
- **Anterior chamber**: bordered by the cornea and the iris and is filled with aqueous humor
- **Posterior chamber**: bordered by the iris and the front of the lens
- **Canal of Schlemm**: aqueous humor leaves through veins and the canal

Internal Eye

- **Lens**: clear, elastic structure immediately behind the iris; it refracts and focuses light onto the retina, which is then carried to the optic nerve and brain; the lens is under constant tension by the ciliary bodies and suspensory ligaments;
 - **Near vision**: decreased tension, allowing for a more convex shape and accommodation
 - **Far vision**: increased tension, causing a less convex shape

Equipment Overview

- **On/Off switch**
- **Front of ophthalmoscope**
 - **Optics**: angled mirror allows compatible axes of both illumination and vision, reducing shadows
 - **Aperture**: 6 choices
 - **Micro-spot**: quick entry into undilated pupil
 - **Small**: excellent view of fundus in undilated pupil
 - **Large**: standard for dilated pupils
 - **Fixation**: cross-hairs for measuring eccentric fixations and lesions
 - **Slit or streak**: useful to determine levels of lesions
 - **Cobalt filter**: used with fluorescein dye to evaluate small lesions, corneal abrasions, foreign bodies

- Front of ophthalmoscope

- Filters

- Center = no filter
- Crossed-linear polarizing filter = reduces glare of light reflection off cornea
- Red-free filter = preferred for evaluation of vessel alterations, retinal hemorrhage, exudates, nerve fibers

Disc = white

Macula = yellow

Fundus reflex = intensified

Veins = stay blue/black

Arteries = blackest

- Back of ophthalmoscope

- Lens selection disc:

- Some have -25 to +40 diopters
- Allows for compensation of the patient's and the examiner's vision
- Allows examiner to focus on different portions of the eye

- Halogen light:

- Brighter than a regular penlight

- Brow rest:

- Steadies the ophthalmoscope
- Can be used with eyeglasses

Examining the eye

1. Dim the lights in the room. This allows the pupil to remain open.
2. Examine the patient's right eye with your right eye and by holding the scope in your right hand. Stand slightly to the right of the patient (about 20-30° off center)
3. Ask the patient to look at a distant point in the room. The pupil dilates when using far vision and fixating on a far point decreases fatigue on the patient's eyes.

4. Turn the light on. Experienced examiners will begin with the light high, then lower the intensity for patient comfort.
5. Put the scope to your eye with your **thumb** on the lens selection wheel. Don't hold the scope like a club.

6. With the light about 6 inches and 25 degrees lateral (temporal) to the patient's eye, look through the optic lens to view the patient's pupil. Look for the red reflex, which indicates that you are appropriately viewing the retina (fundus).
7. Place your left hand on the patient's forehead and lift the upper eyelid away from the iris with your thumb. For younger patients, you may not need to lift the lid; older patients frequently have lids that override the iris, requiring lifting.

8. Move slowly towards the patient until the optic disc comes into view. You should see the vessels and the optic disc. When using the Panoptic scope, you will place the soft cup around the patient's eye.
9. Rotate the lens selector until the optic disc becomes clear. Patients who are myopic (near-sighted) will require the use of the "minus" lenses or red numbers. Patients who are hyperopic (far-sighted) will require the use of the "plus" lenses or green numbers.

- 10. Examine the disc for clarity of outline, color, elevation, and condition of the vessels. Follow each vessel as it leaves the optic disc to the periphery. Switch the filter to the red-free filter to more closely evaluate the vessels and subtle findings.
- 11. You will need to move your body so that you can look at the superior, inferior, temporal, and nasal portions of the retina.

- 12. Lastly, view the macula (fovea centralis or macula lutea). It is the sight of central vision and may be best viewed by asking the patient to look directly into the light (much easier to view with dilated pupil). It is usually located 2 DD temporal to the optic disc and appears as a yellow dot with a pinkish periphery. No blood vessels enter the fovea.

- 13. Repeat the procedure on the left eye. Use your left hand and left eye, and stand slightly to the left of the patient.
- 15. Practice, practice, practice!

Ears, Nose, and Throat Examination

Procedures

Anatomy and Physiology: Ears

- Sensory organ - identifies, locates, and interprets sound; maintains equilibrium
- Three parts
 - External
 - Middle
 - Inner

Anatomy and Physiology: Ears

- External structures
 - Auricle
 - External auditory canal
- External functions
 - Protective
 - Helps gather/channel sound

Exam & Findings: Ears

External Exam

- Inspect auricles
 - Size/shape/symmetry
 - Landmarks/position on head
 - Color
 - Presence of deformities/lesions/nodules
- Inspect external auditory canal
 - Discharge/odor

Exam & Findings: Ears

External Exam

- Palpate auricles/mastoid area
 - Tenderness/pain
 - Swelling
 - Nodules
- Consistency of auricle should be firm and mobile, without nodules

Anatomy and Physiology: Ears

- Middle ear structures
 - Ossicles - malleus, incus, stapes
 - Tympanic membrane
- Middle ear functions
 - Ossicles transmit sound from tympanic membrane to inner ear
 - Tympanic membrane separates middle from external ear

Anatomy and Physiology: Ears

- Inner ear structures
 - Vestibule
 - Semicircular canals
 - Cochlea
- Inner ear functions
 - Cochlea transmits sound to eighth CN
 - Semicircular canals involved in vestibular function

Anatomy and Physiology: Ears

- Hearing is interpretation of sound waves that travel through the ear to the brain
- Sound also transmitted by bone directly to inner ear

Exam & Findings: Ears

Hearing Evaluation

- Evaluate auditory function
 - Response to questions/directions
 - Whispered voice test
 - Finger rustle test
 - The above are all GROSS assessments with limited diagnostic accuracy
- Compare air to bone conduction
 - Weber test
 - Rinne test

Exam & Findings: Ears

Hearing Evaluation

- Distinguish type of hearing loss
 - Sensorineural
 - Conductive
- Refer patients with loss for thorough auditory exam

Weber Test

- Use 512 Hz tuning fork
- Place the tuning fork at midline of the skull (usually frontal bone, forehead, chin)
- Ask the patient if he hears it better in one ear or the same in both ears
- If they hesitate, it usually means they hear it equally well in both ears
- If they hear it well in both ears = normal = Weber midline
- If they hear it better in the left or right = abnormal = Weber left or Weber right (respectively)

Weber Test Interpretation

- If the sound lateralizes to one ear, it is **either**:
 - Ipsilateral conductive hearing loss
 - or**
 - Contralateral sensorineuronal hearing loss
- This test assumes that the patient has only one form of hearing loss

Conductive hearing loss

- Conductive hearing loss is the most common cause of hearing loss
- Usually under age 40 years
- Causes:
 - Middle ear effusion (otitis media, eustachian tube)
 - Cerumen impaction
 - Foreign body
 - Bony growths (osteoma, choleostoma)
 - Otosclerosis
 - Mastoiditis
 - TM perforation
 - Otitis externa

Rinne Test

- Place the tuning fork on the mastoid and time it until the patient signals he can't hear it
- Quickly move the tuning fork to 1" from the EAM
- Time it until he can no longer hear it
- If the air conduction (Part II) is 2 x as long as the bone conduction (Part I), the test is normal (= Positive Rinne)
- If bone conduction is better = Negative Rinne = suggests a conductive hearing loss

Sensorineuronal hearing loss

- Usually over age 40
- Most commonly due to:
 - Presbycusis
 - Noise-induced hearing loss
 - CN VIII disease (Meniere's or Acoustic neuroma)
 - Viral (mumps)
 - Anemias
 - Diabetes mellitus
 - Hyperlipidemia
 - Ototoxic medications (often lead to tinnitus)
 - Hypothyroidism
 - Trauma

Exam & Findings: Ears

Otoscopic Exam

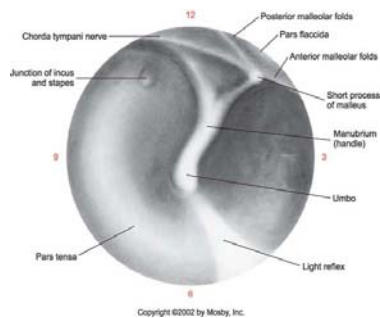
- Used to inspect external auditory canal and middle ear
- Inspect auditory canal from meatus to TM
 - Discharge
 - Redness
 - Scaling
 - Lesions
 - Foreign bodies
 - Cerumen

Exam & Findings: Ears

Otoscopic Exam

- Inspect TM
 - Landmarks
 - Color
 - Contour
 - Perforation
- Use pneumatic attachment and evaluate
 - Mobility/compliance of TM

Right ear (clock reference)



Exam & Findings: Infants

- Ears
 - Inspect auricle for full formation/flexibility
 - Auditory canals should be examined first few weeks of life
 - TM becomes conical after 1st months
 - Evaluate infant hearing using sound stimuli

Exam & Findings: Children

- Perform otoscopic/oral exam at end of PE
- Ears
 - Pull auricle down to view TM on exam
 - Evaluate toddler's hearing by observing response to whispering, noisemakers
 - Evaluate speech development
 - Do Weber, Rinne after age 3
 - Audiometry should be performed on all newborns

Exam & Findings: Older Adults

- Ears and Hearing
 - If hearing aid is worn, inspect auditory canal for irritation
 - Inspect for coarse hair on auricle
 - Inspect TM for sclerotic changes
 - Note presence of presbycusis/conductive hearing loss
 - Inspect for cerumen impaction

Anatomy and Physiology: Nose/Nasopharynx Functions

- Odor identification
- Passage of inspired and expired air
- Humidification/filtration/warmth of inspired air
- Resonance of laryngeal sounds

Anatomy and Physiology: Nose/Nasopharynx Structures

- External nose
 - Bone
 - Cartilage
 - Nares
- Sinuses
 - Maxillary
 - Frontal
 - Ethmoid
 - Sphenoid

Anatomy and Physiology: Nose/Nasopharynx Structures

- Internal nose
 - Septum
 - Choanae
 - Turbinates (conchae/chonchae)
 - Cribriform plate
 - Kiesselbach plexus/Little's area
 - Adenoids

Exam & Findings: Nose/Nasopharynx

External Exam

- Inspect nose/nares
 - Nose for shape/size/color
 - Nares for flaring/narrowing/discharge
- Palpate nose
 - Displacement of bone/cartilage
 - Tenderness
 - Masses
- Evaluate patency of nares
 - Ask the patient to occlude one nostril while breathing through the other (mouth closed)

Exam & Findings: Nose/Nasopharynx

Speculum Exam

- Inspect nasal mucosa
 - Color
 - Discharge
 - Masses/lesions
 - Swelling of turbinates
- Inspect nasal septum
 - Position/straightness/thickness
 - Perforations/bleeding/crusting

Exam & Findings: Nose/Nasopharynx

- Test sense of smell by recognition of different odors
- Palpate frontal/maxillary sinuses for swelling
- Percuss sinuses for tenderness
- Transilluminate the frontal and maxillary sinuses

Anatomy and Physiology: Mouth/Oropharynx Functions

- Emission of air for vocalization/non-nasal expiration
- Passage for food, liquids, saliva
- Initiation of digestion by mastication and salivary secretion
- Taste

Anatomy and Physiology: Mouth/Oropharynx Structures

- Mouth
 - Tongue
 - Teeth
 - Gums
 - Uvula
 - Hard/soft palates
- Vestibule

Anatomy and Physiology: Mouth/Oropharynx Structures

- Salivary glands
 - Submaxillary/submandibular
 - Parotid
 - Sublingual
- Oropharynx
 - Tonsils

Exam & Findings: Mouth/Oropharynx

- Inspect the lips
 - Symmetry
 - Color
 - Edema
 - Surface abnormalities

Exam & Findings: Mouth/Oropharynx

- Inspect teeth
 - Occlusion/alignment
 - Color/stains
 - Numbers/missing teeth
 - Wear/notches/caries
- Inspect buccal mucosa
 - Color
 - Moisture
 - Ulcers
 - Fordyce spots (small, yellowish white bodies; represent ectopic sebaceous glands)

Exam & Findings: Mouth/Oropharynx

- Inspect gums/gingiva
 - Color
 - Moisture
 - Swelling/bleeding

Exam & Findings: Mouth/Oropharynx

- Inspect tongue
 - Swelling
 - Size/color
 - Variations
 - Coating
 - Ulceration

Exam & Findings: Mouth/Oropharynx

- Inspect floor of mouth/ventral surface of tongue
 - Swelling/varicosities
 - Frenulum
 - Sublingual ridge
 - Wharton duct (duct of the submandibular salivary gland, opens near frenulum)

Exam & Findings: Mouth/Oropharynx

- Inspect uvula
- Evaluate movement of soft palate
 - Say "Ahhh"; raises soft palate, uvula, and pharynx
 - The soft palate should rise symmetrically, the uvula should remain midline, pharynx should constrict medially like a curtain
- Inspect oropharynx with tongue blade (no more than 1/2 way back on tongue)
 - Tonsillar pillars
 - Retropharyngeal wall
- Elicit gag reflex

Exam of oropharynx

- Summarized as 5 Ts
 - Tissues
 - Teeth
 - Tongue
 - Tonsils
 - Throat