ORAL PATHOLOGY
Toothless patient

Does he need a **dentist**?
Who is responsible for diagnosis and who for treatment?

Vit. B\textsubscript{12} hypovitaminosis (pernicious anemia)

Before and after treatment
What is this?
14 months later...
Scope of responsibility

- Diseases of the head & neck
- Diseases of the supporting hard & soft tissues
- Diseases of the lips, tongue, salivary glands, oral mucosa
- Diseases of the oral tissues which are a component of systemic disease
Examination of the Oral Cavity
Oral Examination

- Many diseases (systemic or local) have signs that appear on the face, head & neck or intra-orally.

- Making a complete examination can help you create a differential diagnosis in cases of abnormalities and make treatment recommendations based on accurate assessment of the signs & symptoms of disease.
Oral Examination

- Each disease process may have individual manifestations in an individual patient
- And there may be individual host reaction to the disease
- Careful assessment will guide the clinician to accurate diagnosis
Equipment

- Assure that you have all the supplies necessary to complete an oral examination
  - Mirror
  - Tissue retractor (tongue blade)
  - Dry gauze
Equipment

- You must dry some of the tissues in order to observe the nuances of any color changes.
Exam of the Head & Neck; Oral Cavity

- Be systematic
- Complete the exam in the same order
Oral hygiene habits
I WANT YOU TO BRUSH YOUR TEETH

Motivation if needed
Breath

- **Oral odors can indicate:**
  - Infection: caries, periodontal dx
  - URT infections
  - Chronic G.I. disturbances
  - Lung abscess
  - Diabetic acidosis
  - Uremia, kidney problem
  - Liver failure: mousy, musty odor
  - Self-medication with alcohol
Common pathological processes in the epithelium and connective tissue related to different diseases of the oral cavity
Hyperkeratosis (from Greek: ὑπέρ (hyper, “over”); keratos - keratin) is thickening of the stratum corneum, often associated with the presence of an abnormal quantity of keratin
Clinically, hyperkeratotic lesions appear as white, rough, non-painful patches that do not rub off. They are often secondary to chronic irritation, such as biting or tobacco use.
What is this?
Epithelial changes

Parakeratosis is a mode of keratinization characterized by the retention of nuclei in the stratum corneum
Epithelial changes

Parakeratosis is a typical for oral lichen planus
**Dyskeratosis** is abnormal keratinization occurring prematurely within groups of cells below the stratum granulosum.

It is a histological feature of squamous cell carcinoma!
Epithelial changes

**Acanthosis** is diffuse epidermal hyperplasia. It implies increased thickness of the stratum spinosum. It is characteristic of chronic inflammation.
Epithelial changes

Acantholysis is the loss of intercellular connections (desmosomes), resulting in loss of cohesion between keratinocytes seen in diseases such as pemphigus vulgaris.
Epithelial changes

pemphigus vulgaris
Epithelial changes

Atrophy is the partial or complete wasting away of a part of the tissue. Causes of atrophy include mutations, poor nourishment, poor circulation, hormonal disturbances, loss of nerve supply to the target tissue and excessive amount of apoptosis of cells.
Connective tissue changes

Acute (neutrophils) vs chronic (mononuclear cells) inflammation
HOW TO DESCRIBE THE ORAL LESIONS?
<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Fixed</td>
<td>a lesion that is nonmobile and firmly attached to the underlying structures</td>
</tr>
<tr>
<td>Mobile</td>
<td>a movable lesion that does not appear to be connected to underlying structures</td>
</tr>
<tr>
<td>Indurated</td>
<td>hard and firm tissue palpation that would normally be soft</td>
</tr>
<tr>
<td>Exophytic</td>
<td>a lesion that appears to be growing outward from the mucosa</td>
</tr>
<tr>
<td>Pedunculated</td>
<td>an exophytic lesion that is attached to the mucosa by a thinner stalk</td>
</tr>
<tr>
<td>Endophytic</td>
<td>a lesion that appears to be growing inward toward the underlying tissues</td>
</tr>
<tr>
<td>Verrucous</td>
<td>papillary and deeply folded epithelial changes that can appear wart-like</td>
</tr>
<tr>
<td>Papillary</td>
<td>a lesion with multiple finger-like projections</td>
</tr>
<tr>
<td>Plaque</td>
<td>a well-defined elevated lesion &gt;0.5 cm in diameter on skin or mucosal surface</td>
</tr>
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</table>
Morphology of the lesions:

1. **Elevated** above the plain of mucosa

2. **Depressed** below the plain of mucosa

3. **Flat** with the plain of mucosa, detected by the change of color
Elevated lesions – blisterform (containing fluid)

<table>
<thead>
<tr>
<th>Vesicle</th>
<th>a fluid-filled blister &lt;0.5 cm in diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulla</td>
<td>A fluid-filled blister &gt;0.5 cm in diameter</td>
</tr>
</tbody>
</table>

A) vesicula  
B) bulla  
C) cysta
Elevated lesions – nonblisterform (not containing fluid)

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Nodule</td>
<td>a solid mass visible or palpable within or underneath the mucosa</td>
</tr>
<tr>
<td>Papule</td>
<td>a well-defined elevated lesion &lt;0.5 cm in diameter</td>
</tr>
<tr>
<td>Tumor</td>
<td>literally of swelling. The term is used to imply enlargement of tissues by normal or pathological materials or cells that form a mass</td>
</tr>
</tbody>
</table>

A) *papula*  
B) *nodulus and nodus*  
C) *vegetatio sive papillomatosis*
Oral papillomatosis (HPV)
Nonelevated lesions

Macule

A well-defined flat lesion with color or texture changes.
<table>
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<tr>
<th>Condition</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Petechia</td>
<td>A small, punctate area of submucosal hemorrhage</td>
</tr>
<tr>
<td>Purpura</td>
<td>A spots and patches of submucosal hemorrhage</td>
</tr>
<tr>
<td>Ecchymosis</td>
<td>A macular area of submucosal hemorrhage</td>
</tr>
<tr>
<td>Hematoma</td>
<td>A tumor-like collection of blood in the submucosa presenting as a well-defined raised lesion that is red, purple, or black</td>
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### Depressed lesions – ulcers (most common)

<table>
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<th>Condition</th>
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<tr>
<td>Erosion</td>
<td>Loss or thinning of superficial epithelial layers not extending through the full thickness of epithelium, typically secondary to inflammation.</td>
</tr>
<tr>
<td>Ulcer</td>
<td>Loss of epithelium, typically presenting with a yellow or whitish-gray pseudomembrane.</td>
</tr>
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</table>

**A)** Erosion  
**B)** Aphtha  
**C)** Ulcus  
**D)** Rhagades
Which ulcer is luetic, tuberculous or cancer?
Secondary lesions

A) squama
B) crust
C) cicatrix
Extra-oral examination

- Observe: color of skin, eyes
What is this?
Jaundice (also known as icterus) is a yellowish pigmentation of the skin, the conjunctival membranes over the sclerae and other mucous membranes caused by high blood bilirubin levels.
Graves' disease: exophthalmos (protuberance of one or both eyes)
Alopecia is a loss of hair from the head or body. Alopecia can refer to general hair loss or androgenic alopecia (male pattern baldness). Some types of alopecia (alopecia areata) represent an autoimmune disorder.
Hirsutism: excessive hairiness on women in those parts of the body where terminal hair does not normally occur or is minimal.
Functioning of cranial nerves:

- Normal vs. abnormal
  - Paralysis
    - Stroke, trauma, Bell’s Palsy

I Olfactorius
II Opticus
III Occulomotorius, IV Trochlearis, VI Abducens
V Trigeminus
VII Facialis
VIII Acusticus
IX Glossopharyngeus
X Vagus
XI N. Accessorius
XII Hypoglossus

Bell’s Palsy
Palpation at the Vallé points to assess N. trigeminus function
Extra-oral examination

• Major salivary glands (palpation)
  - Position
  - Size
Extra-oral examination

- TMJ
- Palpate upon opening
- Use stethoscope to listen to sounds
• What is the maximum intermaxillary space?
• Is the opening symmetrical?
• Is there popping, clicking, grinding?
• What do these sounds tell you about the anatomy of the joint?
• When do sounds occur?
Екстраорално изследване

Digestion mussels – m. masseter и m. temporalis
• Bidigital palpation during function
• Pain?
• Trismus (lockjaw)
• Tumors?
Extra-oral examination

- Lymph node palpation
- **Preauricular**
- **Tonsilar**
- **Submental**
- **Submandibular**
- **Cervical (II)**
- **Cervical (!)**
- **Supraclavicular**

- **Size**
- **Consistency**
- **Mobile/fixed**
- **Pain**
Intra-oral examination
Exam: Lips

- Observe the color & its consistency: intra-orally and externally
- Is the vermillion border distinct?
- Bi-digitally palpate the tissue around the lips. Check for nodules, bullae, abnormalities, mucocele, fibroma
What is this?
Exam: Lips

- Clear mucous filled pockets may be seen on the inner side of the lip (mucocele). This is a frequent, non-pathologic entity which represents a blocked minor salivary gland.
Exam: Lips

- Evert the lip and examine the tissue
- Observe frenum attachment/tissue tension
Exam: Lips-palpation

- Color, consistency
- Area for blocked minor salivary glands
- Lesions, ulcers
Exam: Lips

- Frenum:
  - Attachment
  - Level of attached gingiva
  - Palpate in the vestibule, observe color
Examination: Buccal Mucosa

- Observe color, character of the mucosa
  - Normal variations in color among ethnic groups
  - Amalgam tattoo

- Palpate tissue

- Observe Stenson’s duct opening for inflammation or signs of blockage

- Visualize muscle attachments, hamular notch, pterygomandibular folds
Examination: Buccal Mucosa

- Linea alba
- Stenson's duct
Examination: Buccal Mucosa

- Lesions – white, red
- Lichen Planus, Leukedema
Gingiva

- Note color, tone, texture, architecture & mucogingival relationships
Gingiva

- How would you describe the gingiva?
  - Marginal vs. generalized?
  - Erythematous vs. fibrous

- Drug reactions: Anti-epileptic, calcium channel blockers, immunosuppressant
Exam: Hard palate

- Minor salivary glands, attached gingiva
- Note presence of tori
Nicotine stomatitis (smoker's palate)
Oro-nasal communication

Ulcerated torus palatinus
Sinus Transillumination

Indication: Acute Sinusitis
Evaluation

Frontal Sinusitis
Maxillary Sinusitis
Exam: Soft palate

- How does soft palate raise upon “aah”?
- Vibrating line, tonsilar pillars, tonsils, oropharynx
Exam: Oropharynx

- Color, consistency of tissue
- Look to the back, beyond the soft palate
- Note occasional small globlets of transparent or pink opaque tissue which are normal and may include lymphoid tissue
Exam: Tonsils

- Tucked in at base of anterior & posterior tonsilar pillars
- Globular tissue that has “punched out” appearing areas
- Regresses after adulthood
- May see white “orzo rice like” or “torpedo” shaped white concretions within the tissue
Exam: Tongue

- The tongue and the floor of the mouth are the most common places for oral cancer to occur.
- It can occur other places; so visualize all areas.
- You may observe:
  - Circumvalate papillae, epiglottis
Exam: Tongue

- Have the patient stick out their tongue
- Wrap the tongue in a dry gauze and gently pull it from side to side to observe the lateral borders
- Retract the tongue to view the inferior tissues
Exam: Tongue
Exam: Tongue

- You may observe lingual varicosities
Exam: Tongue

- You may observe geographic tongue
Exam: Tongue

- You may observe drug reaction
Exam: Tongue

- Observe signs of nutritional deficiencies, immune dysfunction
Exam: Tongue

- You may observe oral cancer
Exam: Floor of mouth

- Visualize, palpate - bimanually
- Wharton’s duct
- Must dry to observe
  - Does “lesion” wipe off?
- Where are the two most likely areas for oral cancer?
  - lateral border of the tongue
  - Floor of mouth
Palpation of the floor of the mouth
Exam: Floor of mouth
“Ranula”
Exam: Floor of mouth

- Oral Cancer:
  - Red
  - White
  - Red and White

- Does the patient have important risk factors for oral cancer?
  - Counseling for smoking and alcohol
    - Cessation
Squamous Cell Carcinoma
Exam: Maxilla & Mandible

• size, shape, contour

• pre-prosthetic treatment
  • Tori removal

• tuberosity reduction
  • Soft or hard tissue or both
Exam: Maxilla & Mandible
Exam: Edentulous Mandibular Ridge

Leukoplakia and Epulis fissuratum
Occlusion

- Orthodontic classification
- Interferences
Occlusion

A: Class I Normal Occlusion
B: Class I Crowded
C: End to End
D: Class II-1
Abnormal high and narrow hard palate - “Gothic”
Triaging Lesions *

- Describe its characteristics
  - Size, shape, color, consistency, location
- How long has it been present?
- Is it related to a trauma?
  - Fractured cusp, occlusal trauma
- Has it occurred before?
- Can you wipe it off?
- Does the patient have specific risk factors for neoplastic lesions?
Triaging Lesions *

- Any lesion that is suspicious should be re-evaluated in 2 weeks
  - Lesions due to infectious processes would have healed in that time frame
  - If it remains, the lesions should be biopsied
Systematic Oral Examination

- Done at initial exam & at recalls unless patient history requires sooner
- You must visualize all areas of the oral cavity
- Oral cancer can occur in other places than the lateral borders of the tongue & the floor of the mouth
- Be complete
- Do good, do no harm, do justice, respect autonomy