Lesions of the Oral Cavity

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Disclosures

Learning Objectives
• Identify common oral cavity infections, lesions and illnesses, as well as form a differential diagnosis
• Select appropriate testing based on the history and physical findings
• Develop a medical management plan including referral and follow up as necessary
Lesions of the Oral Cavity

Head and Neck Anatomy

Oral Cavity:
- Functions: respiration, digestion, swallowing, taste
- External components (vestibule)
  - lips
  - vermilion border / philtrum
- Internal components
  - Tongue
    - palatal (hard/soft)
    - buccal mucosa
    - gingiva / alveolar ridge
    - major salivary ducts

Anterior view of the Oral Cavity

Anatomy of the Tongue
Clinical History

• Important factors to consider
  – Age and gender
  – Constitutional symptoms: e.g. Weight loss, fevers, night sweats
  – Duration of symptoms
  – Co-morbid medical conditions: e.g. Immunocompromise
  – Environmental risk factors (ETOH / TOBACCO)
  – Dysphagia / Odynophagia / hemoptysis / Halitosis
  – Respiratory distress / Shortness of Breath

• Duration of symptoms
  – Acute: usually < 7 days – suggests inflammatory
  – Chronic: present for years, often asymptomatic – suggests congenital
  – Recurrent: multiple x per year, often painful – suggests infectious / autoimmune / nutritional
  – Weeks: months, y year – suggests possible neoplastic process

• Pain
  – Need to localize and quantify as accurately as possible. Malignancy may often be masked by low degree of pain
  – REFERRED EAR PAIN – unilateral ear pain with a normal ear exam should raise suspicion for oropharyngeal or laryngeal malignancy, especially in patients with social risk factors such as alcohol and tobacco

Oral cavity – Basic Anatomy

Normal Anatomy
Physical Exam of the Oral Cavity

- Extra-oral exam
  - Carefully exam the skin and symmetry of the head / neck
  - Examination of lymphatic zones in the neck
  - Palpation of parotid and submandibular glands
- Intra-oral Exam
  - *MUST REMOVE DENTURES!!!*
  - Start with vestibule and upper / lower lips
  - Buccal mucosa (including parotid ducts) and alveolar ridge
  - Retromolar trigone
  - Tongue – dorsal / ventral and lateral
  - Floor or Mouth (incl. submandibular ducts) *BIMANUAL PALPATION*
  - Hard / Soft Palate and uvula
  - Palpate tonsillar fossae and base of tongue

Examination of the oral Cavity

Oral Cavity Exam cont.

Palpation of Left Base Of Tongue and Left tonsil
Floor Of Mouth exam with bimanual palpation

Ulcerative Lesions of the Oral Cavity

Stomatitis — defined as inflammation of the mouth with or without ulceration

- Oral Causes
  - Poor hygiene
  - Poor fitting dentures
  - Trauma (hot foods, chemicals)
  - Ingested toxins

Gingivostomatitis — when inflammation also affects the gingiva

Mucositis — not to be used interchangeably, as this refers to systemic mucosal pathology often as a result of chemo / RT

- Systemic Causes
  - Infection
    - Viral
    - Fungal
    - Bacterial
  - Drug reactions
  - Allergic reactions
  - Chemotherapy / Radiation
  - Nutritional deficiencies

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Examples of Severe Stomatitis

Evaluating Stomatitis and Oral Ulcers

- Questions to Consider:
  - Acute or chronic process
  - Single or multiple lesions
  - Location of lesion(s)
  - Duration of symptoms
  - Associated pain or prodrome of pain?
  - Systemic symptoms or mucocutaneous lesions elsewhere?
  - Medications
  - Timing of symptoms – i.e., triggers

Systemic disease associated with oral ulcers
Common Forms of Stomatitis

- **Aphthous**
- **Viral**
  - Herpetic
  - Herpangina
  - Zoster
- **Fungal**
  - Angular Chelitis
  - Diffuse oral candidiasis (“Thrush”)

Recurrent Aphthous Stomatitis

- A.k.a. Canker Sores
- Affect 30-35% of the population
- Equal age / gender distribution
- Last 10-30 days on average
- Vary in size and shape
  - Minor: 80% <1cm heal without scarring
  - Major: >1cm often associated with delayed healing and scarring
- Clinical Features
  - White-gray ulceration with erythematous halo, occasionally with fibrinopurulent exudate
  - Buccal, labial, soft palate, FOM, lateral / ventral tongue
- Treatment aimed at pain reduction and promoting healing
  - Topical/systemic corticosteroids (Kenalog in Orabase, prednisolone liquid)
  - Topical pain relief (2% viscous lidocaine)
  - Identifying systemic triggers (e.g., nutritional deficiency or systemic disease)

Treatment of Aphthous Stomatitis

Many types of “Magic Mouthwash”

- 80ml each:
  - Nystatin 100,000U suspension
  - Prednisolone 15mg / 5ml solution
  - Benadryl 12.5mg / 5ml elixir
  - Maalox
  - 2% viscous lidocaine
  - Distilled H2O

- Sig: 10ml swish, gargle, spit q 6hr as needed.
- BMX – variant with only lidocaine, Maalox and benadryl

- Other preparations may include: Sucralfate (coating agent), erythromycin or tetracycline
- Need to be aware of potential drug interactions / side effects

Aphthous Stomatitis

- Work-up for recurrent ulcerative stomatitis may include:
  - CBC
  - ESR / CRP
  - Iron studies
  - B12 titers
  - SS-A / SS-B, autoimmune studies
  - Glucose levels
  - Thyroid function
  - HSV titers
  - HIV

Oro-labial Herpes Simplex (HSV-1)

- DNA virus transmitted via saliva
- Up to 90% of adults are have antibodies to HSV-1
- Increase prevalence with age
- Associated with lower socioeconomic status
- Clinical: may have fever, lymphadenopathy, fatigue with multiple painful mucosal ulcers
- May have prodrome of pain / burning
- Treatment with topical / systemic antivirals
Oro-labial HSV1

- Ulcerated vesicles often in groups
- Typically found on keratinized mucosa
  - Lips
  - Gingiva
  - Hard palate

Treatment of Primary HSV-1

**Acyclovir 400 mg**
Sig: 400mg PO TID x 7-10 days

**Famvir 250 mg**
Sig: 250mg PO TID x 7-10 days (recurrence = 1000mg PO x 1d)

*Treat early; meds are no help after day 5 or 6.*

Treatment of recurrent oro-labial HSV-1

**Topical Therapy:**
- Acyclovir 5% ointment (Zovirax)
  Disp: 15 gm
  Sig: Apply hourly at sx onset
- Penciclovir 1% cream (Denavir)
  Disp: 2 gm
  Sig: Apply every 2 hrs for 4 days

**Systemic Therapy:**
- RX: Valacyclovir 1 gm (Valtrex)
- RX: Famciclovir 500 mg (Famvir)
- RX: Acyclovir 400mg (Zovirax)
  Give multiple refills
Herpangina

- Not as common as Herpetic lesions of the oral cavity
- Coxsackie A virus
- Typically multiple small ulcers on palate
- May have single larger ulcerations or bullae
- Hand-Foot-Mouth Disease similar eruptions on hand and feet
- Usually self-limited within

Herpes Zoster / Shingles

- May present as clusters of vesicular ulcers in a dermatomal-like distribution
- Varicella-Zoster virus (Human Herpes Virus HHV-3)
- May have prodrome of burning or itching mimicking tooth pain
- Post-herpetic neuralgia may linger for a month or more after resolution of oral ulcerations
- Antiviral tx within 48-72 hours of treatment
- Vaccination booster over 60 yrs if not contraindicated

Oral Candidiasis

- Most common fungal infection of oral cavity. Detected in 55% of healthy individuals
  - Very young / elderly common
- Dependent on host immune status
  - DM, HIV, pregnancy, chemo / RT
  - Pulmonary inhalers (eg Advair)
- Usually mild-self limiting with recurrent infections necessitating underlying disease
- Treat with topical / systemic antifungal therapy
Oral Candidiasis

Severe ulcerative candidiasis due to inhaled corticosteroid use

Diffuse candidiasis after extended antibiotic therapy for pneumonia

Angular Cheilitis / Candidiasis

- Oral candidal infection of the corner of the mouth often seen in denture wearers
- Can also be seen with S. aureus infection, nutritional deficiency, contact dermatitis, Sjogren’s, and Crohn’s disease
- Treatment usually directed topically at fungal source:
  - Nystatin
  - Clotrimazole
  - Ketoconazole
  - Amphotericin B
- Culture if failure to resolve
- Search for systemic source

Median Rhomboid Glossitis

- Candidal infection that generally manifests as a denuded area of erythematous mucosa on the dorsal tongue usually anterior to the circumvallate papillae
- Often an incidental finding
- Treatment if symptomatic is with topical anti-fungals
  - Nystatin
  - Clotrimazole
- Patients with pain, dysphagia or otalgia would warrant a biopsy
**Geographic Tongue**

- Benign inflammatory condition of unknown etiology.
- Characterized by areas of atrophic erythematous mucosa
- Up to 15% of adults F>M 2:1
- Often asymptomatic and self-limited
- Treatment directed at symptomatic relief and judicious use of topical corticosteroids

**Hairy Tongue**

- Results from failure of the filiform papillae to desquamate
- Precipitating factors:
  - poor oral hygiene
  - Medications
  - xerostomia (head / neck RT, Sjogren's)
- Roughly 0.5% of adult population
- Treatment is scraping or brushing of the tongue in order to denude the papillae
Torus Mandibularis

- Dense bony outgrowth usually along the inner table of the mandible
- Most often near premolars
- 90% bilateral
- More common in Asians
- Etiology not clearly understood
- Can be susceptible for overlying ulcers
- Can be problematic with denture fitting
- Excision not often helpful, although laser excision a possibility

Torus Palatinus

- Bony protrusion of the palate
- Usually less than 2cm, but can fluctuate in size
- Almost always midline
- More common in Asians
- 20-35% incidence in US
- 2x more common in females
- Denture fitting can be problematic and necessitate excision

Ankyloglossia “tongue tie”

- Tethering of the anterior tongue tip due to thickened frenulum
- Incidence ranges from <1% to 10%, depending on criteria for diagnosis
- Associated with:
  - Breastfeeding difficulties (up to 25%)
  - Speech/language difficulty
  - Tongue mobility issues
- Treatment: Frenotomy, speech


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Oral Cavity Fibroma

- Most common “tumor” or oral mucosa
- Localized growth of fibrous tissue in response to chronic trauma / irritation
  - Buccal mucosa, lateral tongue
- F>M 2:1 30-50 years
- Often painless / asymptomatic
- Local excision
- May recur if persistent trauma
  - i.e., poorly fitting dentures

Pyogenic granuloma (lobular capillary hemangioma)

- Benign hemangioma of the oral cavity characterized by histologic arrangement of vessels (lobular)
- All ages with = gender distribution
  - Increase incidence in pregnancy
- Lips, gingiva, cheek and tongue
- Non-painful but may bleed easily
- Conservative local excision curative
  - Pregnancy-induced tend to regress following delivery

Squamous Papilloma

- Wart-like growth consisting of squamous mucosa in an exophytic pattern
- Most common benign “neoplasm” in the oral cavity
- Strong assoc with HPV 6-11
- Benign with little potential to progress to malignancy
- M>F (slight), W>AA (slight)
  - 30-50 yrs
- Local excision or laser usually curative
Squamous Papilloma – Soft Palate

Pharyngitis

• Defined as infection and or irritation of pharynx and tonsils
• Majority of cases are viral and self-limited, however most bacterial cases are due to Group A streptococci. Candida also a possibility
• Delayed use of antibiotics is encouraged.
  – Judicious use of antibiotic treatment reduces risk of complications and need for re-evaluation / re-treatment
  – Most cases will resolve spontaneously

Pharyngitis Pearls

• Group A strep (GAS) most common in 4-7 yo age range
  – 14-30% of pharyngitis in school-aged children
  – Only 12% of adult pharyngitis is GAS
• Sudden onset more likely GAS
• Cough generally NOT assoc with GAS
• Headache and vomiting are more consistent with GAS than a viral etiology
• Recent orogenital contact may suggest gonococcal source

CENTOR Criteria for GAS Pharyngitis

- 4 categories worth 1 point each:
  - Fever
  - Absence of cough
  - Tonsillar exudate
  - Tender cervical adenopathy
- 0-1 makes diagnosis likely, with 4 being likely
- Positive predictive values of 40% and 50% for scores of 3 and 4, respectively
- Validity is often conflicting

Treatment of GAS Pharyngitis

- Most cases resolve within 3-4 days without antibiotics, although prompt treatment may shorten the duration by 1 day.
- Antibiotics are mainly given to prevent acute rheumatic fever, despite an already low incidence in the US
- Supportive therapy and analgesics increase patient comfort levels
  - NSAIDs, acetaminophen, steroids
- Antibiotic therapy:
  - Penicillin G
  - Penicillin VK
  - Amoxicillin
  - Cephalexin
  - Azithromycin
  - Erythromycin (resist rates up to 30%)
  - Clindamycin
  - Good for patients with multiple recurrent episodes / carriers
  - Ceftriaxone

Complications of Strep Pharyngitis

- Cervical Adenitis
- Otitis Media / Acute sinusitis
- Peritonsillar abscess
- Retropharyngeal abscess
- Rheumatic fever / rheumatic heart disease
  - <1 case per 1 million*
- Post-streptococcal glomerulonephritis
Mononucleosis Pharyngitis

- Epstein-Barr infection
- Pharyngitis is most common finding in an otherwise syndromic entity
- 45 cases per 100,000
- No sex or ethnic predilection
- Highest incidence in 15-25 yo
- Splenomegaly with rupture more often cause of fatal events, albeit rare.
- Prodrome of fatigue, low-grade fever, malaise and myalgias over 1-2 weeks are common
- Pharyngeal and tonsil symptoms often severe and exudative
- Lymphadenopathy in almost all cases, anterior and posterior
- May have rash or jaundice

Infectious Mononucleosis

Large swollen tonsils with significant edema and exudate
Large posterior triangle node in a Monospot positive 12 yo with 2 weeks of fatigue and adenopathy

Diagnosis and Treatment of Mono

- Work-up may include Monospot test for diagnosis
  - 85% sensitive
  - May have false + in other viral illness (kids especially)
- Elevated WBC may be useful
  - Moderate increase in total WBC, with significant increase in lymphocytes on differential (>50%)
  - Usually > 10% atypical lymphs
- LFTs are often elevated
- Treatment
  - Supportive
    - Analgescics
    - Antipyretics
    - Limit physical contact if evidence of splenomegaly
  - Corticosteroids
    - Use with caution
    - Some limited data to suggest improved recovery time in mono pharyngitis
Sebaceous Tonsillitis and Tonsilloliths

- Frequently encountered
- High association of halitosis*
- Frequent source of discomfort and occasionally chronic tonsillitis

Treatment:
- Irrigation
- Oral lavage
- Laser
- Tonsillectomy **


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Sebaceous tonsillitis / Tonsilloliths

Pre-malignant Conditions of the Oral Cavity

2 main categories:
- Generalized state with an associated with signs of increased risk of oral cavity Ca
  - Lichen planus
  - Discoid lupus erythematosus
  - Submucosal fibrosis
- Morphologically altered tissue in which oral cavity cancer is more likely to occur
  - Leukoplakia
  - Erythroplakia
Oral Lichen Planus

- Chronic inflammatory state
- "Frond-like" white plaques
  - Most often bilateral
  - Buccal mucosa, lateral tongue, gingiva
- +/- erythema / ulceration
- T-cell mediated autoimmune disease *
- 1-2% of population**
- F > M
  - Usually > age 40
- No racial predilection

- Roughly 2/3 will have symptoms
- Associated with medication use
  - Nitrates, lidocaine, gold, 6-mercaptopurine
- Association w/ sensitivity to dental amalgam (mercury)**
- Patch testing
  - Up to a 5% incidence of malignant transformation**
- High incidence of systemic mucosal involvement
  - > 10x female genital involvement

Dif Dx:
- Autoimmune / bullous diseases affecting oral mucosa
- Pre-malignant leukoplakia / erythroplakia
- SCCa

Work-up:
- Biopsy most useful

Treatment:
- Topical steroids (Kenalog in Orabase)
- Topical tacrolimus
- Systemic corticosteroids (selective)
- Hydroxychloroquine, azathioprine, dapsone, retinoids may have potential

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Oral Leukoplakia

• General descriptive term used to describe a white patch on the oral mucosa of uncertain etiology, that cannot be characterized as any other definable lesion.*
• Increased risk of transformation to squamous cell carcinoma (SCCa), albeit low.
  – Annual malignant transformation rate rarely exceeds 1%*
• Etiology:
  – Tobacco, ETOH, trauma, inflammation
  – HIV/AIDS (hairy leukoplakia)

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Left buccal leukoplakia with central ulcerative changes secondary to trauma. (from www.cancer.gov)

Leukoplakia

Homogeneous R buccal plaque w/ h.o. chewing tobacco use

Irregular R buccal plaque c/w dental trauma

Oral Erythroplakia

• Red patch on the oral mucosa that cannot be attributed to any other definable pathology
• Floor of mouth, tongue and soft palate most common
• Usually > 50 yrs M:F 3:1
• ETOH and tobacco = synergistic
• 40%-85% incidence of severe dysplasia, Carcinoma in-situ and SCCa in biopsy specimens*

Squamous Cell Carcinoma

- Accounts for ~90% of all oral cavity malignancy
- Older men  AA > W
- Lip and lateral tongue most common
- Tobacco, EIOH, betel nut, radiation, diet
- HPV – 16 (oropharyngeal)*
- Presentation can range from a painless ulcer or lump to cervical metastases

Tobacco = 20x increase
Alcohol = 5x increase
Alcohol + tobacco = 50x increase!


Squamous Cell Carcinoma of the Lip

SCCA of the Tongue
81 yo WF with 35# weight loss and mouth pain. Tx for 3x in 4 month period.
***Must remove dentures for exam!!

26 yo WM with no social risk factors and 6 weeks of severe right mouth pain. Work-up for Frenpia anemia.

PET-CT of 81 yo WF with left palate SCCa (previous slide)

Alveolar Ridge SCCa
At presentation
Post-radiation therapy
Floor of Mouth SCCa

Left Buccal Mucosa SCCa

Oral Cavity SCCa

- Work-up
  - Biopsy or exfoliative cytology
  - FNA for neck masses
  - CT, MRI, PET-CT
  - Pan-endoscopy to r/o second primary
  - CXR
  - Bone scan in select cases
  - Labs – LFTs, CBC, Ca++

- Treatment Options:
  - Surgery
    - Primary or salvage
    - Conservative vs radical
  - Radiation therapy
  - Chemotherapy
  - Brachytherapy – rare w/improvements in IMRT
  - Gene Therapy / targeted therapy – new and on the horizon
Surgical Specimens - SCCa

SCCa of anterior maxillary gingival-labial sulcus and subsequent anterior maxillectomy

Surgical Specimens - SCCa

Left primary palate SCCa

Left orbital exenteration and hemimaxillectomy

Surgical Specimens - SCCa

R lateral hemiglossectomy

R hemimandibulectomy for RMT SCCa (arrow)
Questions?

Red arrow = Uvula
Green arrow = frenulum

References

- [www.cancer.gov](http://www.cancer.gov)
- [www.entusa.com](http://www.entusa.com) Kevin Kavanagh MD