Differential Diagnosis of Oral Lesions

Organizing the Diagnostic Mind Using an Audience Response System

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Goals

1. Review the diagnostic process needed to formulate a differential diagnosis
2. Present practical classification ideas to refine clinical diagnoses
3. Formulate differential diagnosis on soft tissue and radiographic lesions

- A properly performed history and clinical examination are the most definitive of the diagnostic procedures.
- Without this critical information the diagnostic process is simply haphazard.
- Clinical pathology is essentially a study of changes that are usually precipitated by pathogenic or disease-producing agents.

* It is essential to have a thorough knowledge of the oral and perioral regions.

The Diagnostic Sequence

- An established approach accomplishes the following:
  - Effective and efficient use of time
  - Identification of all pertinent features
  - High success rate in diagnosis

The Diagnostic Sequence

- Detection of the patient’s lesion

- Examination of the patient
  - Chief complaint
  - Onset and course
  - Etiologic factors
The Diagnostic Sequence

- Classification of the lesion
- Listing the possible diagnoses
- Develop a differential diagnosis
- Develop the working diagnosis/clinical impression
- Final diagnosis – Biopsy and/or response to treatment

Terminology

- Lesion – a zone of tissue with impaired function as a result of damage by disease or wounding.
- Description of a Lesion
  - Size
  - Color
  - Appearance
  - Soft Tissue Consistency
  - Surface Texture
  - Radiographic Appearance

Description of a Lesion

- Size
  - Metric
    - Millimeter (mm)
    - Centimeter (cm)
Description of a Lesion

■ Color
  - Red, pink, white, blue, black, blue-black, yellow, brown.
  - Can be used to identify specific lesions or be incorporated into general descriptions.
    ■ “Erythroplakia”
    ■ “Leukoplakia”

Description of a Lesion

■ Color
  - Why do white lesions appear white and red lesions appear red?

Description of a Lesion

■ Clinical Appearance
  - Sessile
  - Macule
  - Papule
  - Pedunculated
  - Lobule
  - Vesicle
  - Bulla
  - Pustule
  - Fistula
  - Ulcerated
Description of a Lesion

- Size
- Color
- Appearance
- Soft Tissue Consistency
- Surface Texture

Description of a Lesion

- Soft Tissue Consistency
  - Palpation
    - Nodule
      - Soft
      - Firm
      - Fluctuant

Description of a Lesion

- Surface Texture
  - Corrugated
  - Fissured
  - Papillary
  - Smooth
  - Rough
  - Folded
  - Ulcerated
Description of a Lesion

- Surface Texture
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Radiographic Appearance

- Radiolucent
- Radiopaque
- Mixed radiolucent-radiopaque
- Unilocular
- Multilocular
- Well circumscribed
- Focal
- Diffuse
The Diagnostic Process

- Collection of Data
  - Historical
  - Clinical
  - Radiographic
  - Laboratory
  - Differential findings
  - Surgical
  - Microscopic
  - Therapeutic

The Diagnostic Process

- Within Normal Limits (WNL)
  - “WNL”
  - “ASSUME”
The Diagnostic Process

- Compilation and processing of information
- Collection of Information

Historical
- Personal
- Family
- Past and present medical history
- Past and present pharmacologic history
- History of the presenting disease

Personal History
- Frequency
- Duration
- Intensity

Family History
- Amelogenesis Imperfecta
- Dentinogenesis Imperfecta
- Gorlin Syndrome (Basal Cell-Bifid Rib)
- Gardner’s Syndrome
Radiographic
- Normal anatomic landmarks
- Abnormalities
  - Radioluencies
  - Radiopacities

Laboratory
- Blood tests
- Urinalysis
- Microbiologic
- Allergy tests
- Dental tests
  - Vitality
  - Taste
  - Neurologic

Microscopic
- Biopsy specimen
  - Clinicopathologic correlation

Surgical Diagnosis
- Information gained during surgical procedure
  - Aspiration
- Therapeutic Diagnosis

* Burning Mouth/Tongue
  - Nutritional
  - Hormonal

- Differential Diagnosis
  - The interpretation and use of diagnostic information

- The Diagnostic Process
- Presentation of Findings
- The Diagnostic Process
- Presentation of Findings

- Variants of Normal
  - Fordyce’s Granules
  - Torus Palatinus
  - Mandibular Tori
  - Racial Pigmentation
  - Ethnic Pigmentation
  - Lingual Varicosities
  - Linea Alba
  - Leukoedema
  - Retrocuspid Papilla
Cysts

- A cyst is an abnormal, pathologic sac or cavity lined by epithelium and enclosed in a connective tissue capsule.
- The most common cyst observed in the oral cavity is caused by pulpal inflammation and is commonly called the radicular cyst.
  - The residual cyst is a radicular cyst that remains after extraction of the offending tooth.

Developmental Cysts

- Odontogenic – related to tooth development
- Nonodontogenic – not related to tooth development
- Intraosseous – occur within bone
- Extraosseous – occur in soft tissue (out of bone)

Oral Differential Diagnosis

- Lower Lip Lesions
- Papillary Lesions
- Ulcers
- Erosive Lesions
- Burning Mouth
- Palatal Petechiae
- Nodules
- Gingival Hyperplasia
- Papules of Face
- Diffuse Lip Swelling
- Lateral Neck Swelling
- Midline Neck Swelling
- Red Lesions
- White Lesions
- Red and White Lesions
- Blue Lesions
- Brown Lesions
- Yellow Lesions
- Red Tongue
- Generalized Pigmentation
- Sialadenosis
- Midline Lesions

- **Red & White Lesions**
  - Carcinoma
  - Dysplasia
  - Lichen Planus
  - Candidiasis
  - Lupus Erythematosus
  - Erythema Migrans
  - Chemical Burn
Differential Diagnosis of Radiographic Lesions

- Unilocular Radiolucency
- Multilocular Radiolucency
- Bone Expansion
- Mixed Density
- Radiopacity
- Diffuse Radiolucency/Radiopacity
- Multiple Radiolucencies
- Widened PDL
- Floating Teeth

Unilocular Radiolucency
- Odontogenic Cyst/Tumor
- Ossifying Fibroma
- Idiopathic Bone Cavity
- Periapical Cyst
- Developmental Cyst
- Giant Cell Granuloma
- Stafne Defect

Reference Materials
1. Differential Diagnosis of Oral and Maxillofacial Lesions (Norman K. Wood and Paul W. Goaz)
2. Oral Soft Tissue Diseases (LEXI-COMP)
3. Oral Hard Tissue Diseases (LEXI-COMP)
Lichen Planus

A chronic skin disease that often involves the oral mucosa...first described in 1869 by British physician Erasmus Wilson

Evidence indicates this is an immunologically mediated disorder that primarily affects basal and parabasal epithelial cells

Oral Lichen Planus

*Classic 1961 article “The Oral Lesions of Lichen Planus” Shklar and McCarthy presented the diagnostic criteria still used today by most experience clinicians and pathologists

Two main forms: Reticular and Erosive

Lichenoid Drug Reaction

* Growing number of patients who present clinically with white reticular lesions but do not have lichen planus

* Histopathologically indistinguishable from lichen planus

- Drugs
  - Antihypertensives, anxiolytics, NSAIDs, Oral hypoglycemics, Uricosuric agents
- Dental materials
  - Amalgam, semi-precious cast restorations
- Food or oral hygiene products
  - cinnamon and mint flavored candies, chewing gum, mouthwashes, toothpastes, breath fresheners

Lichenoid/Erosive LP

Lidex Ointment (Fluocinonide) 0.05%

- corticosteroid

Head and Neck Cancer

Cancer of the head and neck is the sixth most common cancer

More than 90% are SCCA and arise from the mucosal surfaces of the oral cavity, oropharynx and larynx
The habits of tobacco and alcohol contribute to 80% of all SCCA globally.

Head and Neck Cancer

HPV-associated SCCA involves the post-third of tongue, tonsils, and lateral pharyngeal walls.

- HPV 16, 18, 31 and 32

* >90% are 16...which is also for cervical Ca

- 30-60% have + lymph nodes
  - 82% survival after 3 years
  - 57% survival if also a smoker

Head and Neck Cancer

Tongue

- 25-40% of all oral SCCA
- Marked increase since the 1970’s
- Increased incidence in younger females without tobacco or alcohol use

*More aggressive with high recurrence and low survival

Head and Neck Cancer

Floor of Mouth 15-20%

Gingiva 10%

Premalignant Lesion

Leukoplakia and erythroplakia are considered precancerous lesions

Actinic keratosis, oral submucosal fibrosis (betel nut chew) and Lichen Planus are designated as precancerous conditions

There are no known precursor lesions for HPV-associated Oropharyngeal CA

Premalignant Lesion

Leukoplakia accounts for 85% of all oral premalignant lesions and most frequently occur at a single site

Erythroplakia is less common but nearly 100% will exhibit dysplasia or Ca in situ or invasive SCCA
- Microscopic Diagnosis
- Epithelial hyperkeratosis
- Epithelial hyperplasia with or without dysplasia

*15-50% transformational risk of moderate to severe dysplasia

- Carcinoma in situ
- Invasive SCCA
- Leukoplakia

- Diagnostic Aids for the Detection of Oral Cancer
- Brush Biopsy (Oral CDX)
- Toluidine Staining (tolonium chloride)

- Light-based detection systems
  - Tissue reflectance
    - ViziLite Plus
    - MicroLux DL

- Narrow-emission blue/violet tissue fluorescence
  - VELscope...400-600nm
  - Identifi...405nm
  - Oral ID...405nm

- Oral Cancer

- 3% of all cancers in the U.S.

- 5 per 100,000 and >90% are SCCA

- 3:1 Male - Female

- Blacks > Whites

- 5 year survival rate for Stage 1 and Stage 2 is 80-90%

- 5 year survival rate for Stage 3 and Stage 4 is 40-50%
Oral Squamous Cell Cancer

TX – No information on primary tumor
T0 – No evidence of primary tumor
Tis – Only carcinoma in situ
T1 – Tumor 2cm or less at primary site
T2 – Tumor >2cm but < 4cm diameter
T3 - Tumor >4cm in diameter
T4 – Tumor is invasive

Oral Squamous Cell Carcinoma

NX – Nodes could not be or were not assessed
N0 – No regional lymph node metastasis
N1 – Metastasis in one ipsilateral node < 3cm
N2 – Metastasis in ipsilateral node 3-6 cm dia
N2a – Single node >3 but <6 cm diameter
N2b – Multiple ipsilateral nodes < 6 cm dia
N2c – Bilateral node involvement < 6 cm dia
N3 – Node more than 6 cm diameter

Oral Squamous Cell Carcinoma

MX – Distant metastasis not assessed
M0 – No evidence of distant metastasis
M1 - Distant metastasis present

Oral Squamous Cell Carcinoma

*Stage 1 T1 N0 M0       68% survival
*Stage 2 T2 N0 M0       53% survival
*Stage 3 T3 N0 M0, or
T1, T2, T3 N1 M0  41% survival

*Stage 4 T4 N0 or N1, or
any M1  27% survival

- Oral Squamous Cell Carcinoma
- Wide (radical) excision
- Radiation therapy
- Chemotherapy sometimes adjunctive therapy
- Monoclonal antibodies

**Overall 5 year survival rate is 50-59%**

- Oral Squamous Cell Carcinoma

**Complications of Radiation Therapy**

  - Mucositis

*Kamillosan*

  chamomile – anti-inflammatory
  essential oils – anti-bacterial
  - Xerostomia

*Saliva substitutes

*Salagen (pilocarpine) 5mg Q6h - parasympathomimetic

*Cevimeline 30mg Q8h – cholinergic agonist with affinity for the muscarinic receptors on salivary gland epithelium
  - Osteoradionecrosis

*Hyperbaric Oxygen

- Chemotherapy Sequela
The Dr. Susan Calderbank Oral Care Protocol for the Chemotherapy Patient

*All removable dental prostheses should be removed before brushing teeth*

1. Eat breakfast – Floss teeth – Brush teeth – Rinse for 30 seconds with chlorhexidine.
2. One hour later, 30 second rinse with Kamillosan (10 drops mixed with 1 ounce of water).
   If ulcerated use Kamillosan full strength.
3. Eat lunch – Floss – Brush – Rinse with chlorhexidine
4. One hour after lunch rinse for 30 seconds with Kamillosan (10 drops with 1 ounce of water).
5. Eat dinner – Floss – Brush – rinse with chlorhexidine
6. One hour after dinner rinse for 30 seconds with Kamillosan (10 drops with 1 ounce of water).
7. At bedtime – Floss – Brush teeth with Prevident 5000, spit but do not rinse.

*At bedtime – soak removable dental prostheses in chlorhexidine for at least 30 minutes then rinse with water
* Do not wear removable dental prostheses while sleeping
*Avoid scratchy and abrasive foods
* Do not use toothpicks