

## Part One

### 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

- Corrugated
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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
  - Radiolucencies
  - 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)

## PART TWO

- 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**