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

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- 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
 - 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

<u>Cysts</u>

- A cyst is an <u>abnormal</u>, <u>pathologic</u> 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
- NO 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.
- 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