

Lumps, Bumps and Ulcerations



Common intraoral pathologic findings



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Disclosures

- Employee of Delta Dental of Michigan, Ohio, and Indiana and Renaissance Health Service Corporation
- Employee of Oakland County
- Board Member, Delta Dental Foundation

Objectives

- Review common lesions seen in the oral cavity
- Oral manifestations of systemic disease
- Suggested therapeutic regimens



Classifications

- Dental pathosis (caries, periodontitis)
- White lesions
- Red lesions
- Bumps / lumps
- Blue black lesions
- Oral manifestation of systemic disease

Dental Caries



- Loss of tooth structure due to *S.mutans* infection
- *S.mutans* converts fermentable carbohydrates to lactic acid
- Lactic acid demineralizes the enamel/dentin causing cavitation
- Untreated, the infection spreads to the root canal, then bone
- Treated by removal of carious tooth structure and restoration with an intracoronal restoration, extraction

Dental Caries





Caries entering
the root canal,
exiting into
bone



Left untreated, root canal involvement:



Periodontal Diseases

- Bacterial plaque infection results in gradual loss of gum and bone around the teeth
- Gingivitis: Inflammation of the gums without alveolar bone loss
- Periodontitis: Inflammation of the gums with alveolar bone loss

Healthy gum



Gingivitis



Periodontitis



Advanced periodontitis



Healthy tooth

Inflammation and tissue damage

Plaque

Pocket

Bone loss

Advanced bone loss

Deep pocket

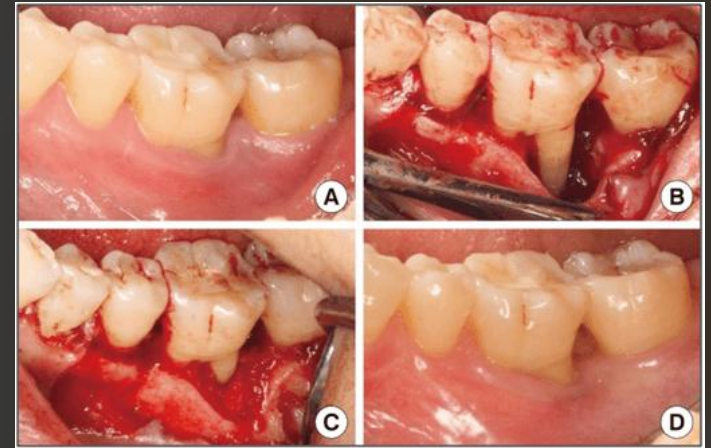
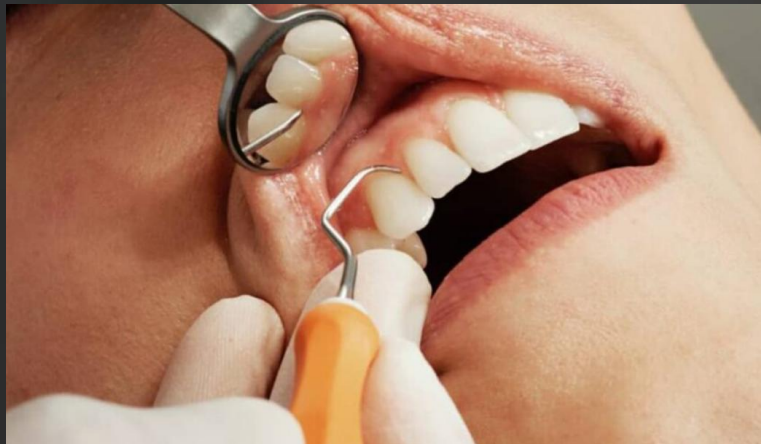
Gingivitis

Periodontitis

Advanced periodontitis

Treatment

- Oral hygiene instructions
- Debridement: Scaling and Root Planing, Surgical Debridement, Regeneration



White Lesions

Can scrape off:

- Materia Alba
- Candidiasis / Angular Cheilitis

Can't scrape off:

- Aphthous Ulcer (Cancer Sore)
- Trauma
- Leukoplakia, Hairy Leukoplakia (Epstein-Barr Virus)
- Hyperkeratosis, Metaplasia, Dysplasia, Leukoedema
- Lichenoid Lesions
- Verrucous Carcinoma

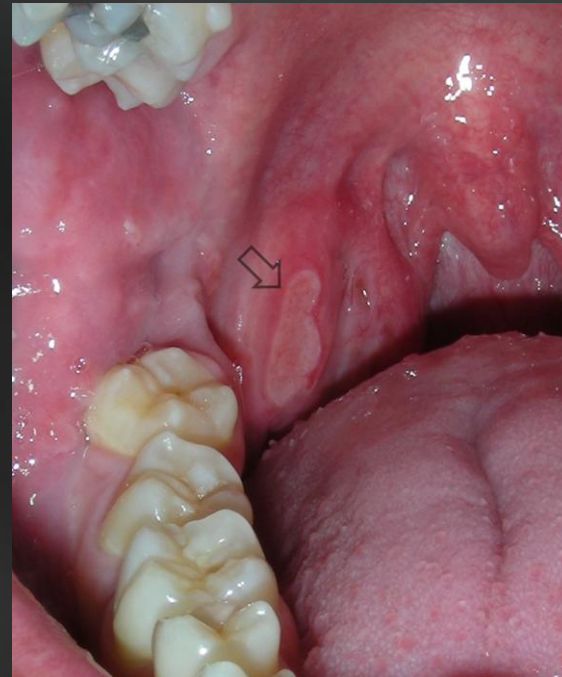
Oral Candidiasis



Treatment

- Mechanical therapy, washcloth debridement
- Nystatin oral suspension
 - 5 mL of the 100,000 units/mL suspension QID daily for 7 days and 48 hours after symptoms subside
- Diflucan (Fluconazole) 100mg tabs, 200mg load, 100mg per day for two weeks
- Angular cheilitis: Lotrisone cream (Clotrimazole and Betamethasone)

Minor Aphthae



Major Aphthae Bechet Syndrome



Treatment

- Tincture of time (7 – 10 days)
- Mechanical removal of pseudomembrane with tongue depressor
- Cautery with sucrose
- Topical Steroid: Kenalog (Triamcinolone) in Orabase, Temovate (Clobetasol Propionate), 0.05% Ointment

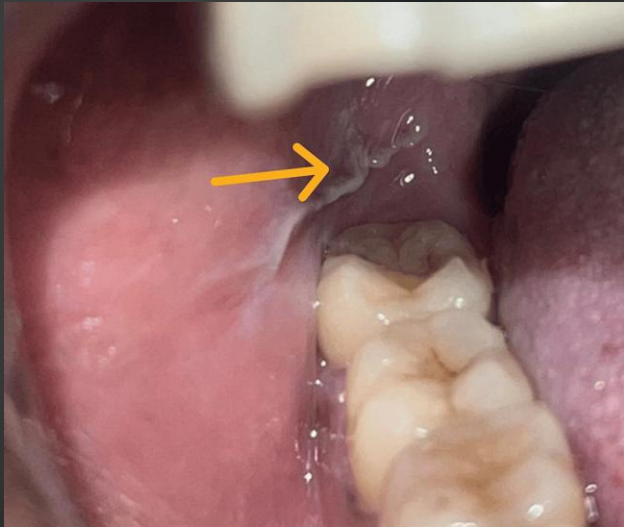
Hairy Leukoplakia



Management

- Excisional/incisional biopsy
- R/O Epstein-Barr, HIV

Hyperkeratosis / Leukoedema



Management

- Leukoedema, no treatment necessary
- Hyperkeratosis: Remove source of irritation (smooth sharp tooth structure or sharp restoration)
- Excisional/incisional biopsy

Lichen Planus



Treatment

- Decadron Elixer 0.5mg/5ml, 1 tsp swish 1 min and expectorate
- Temovate (Clobetasol Propionate) ointment 0.05%
- Antifungals? Griseofulvin?

DDx of Suspicious Lesions



Oral Lesions

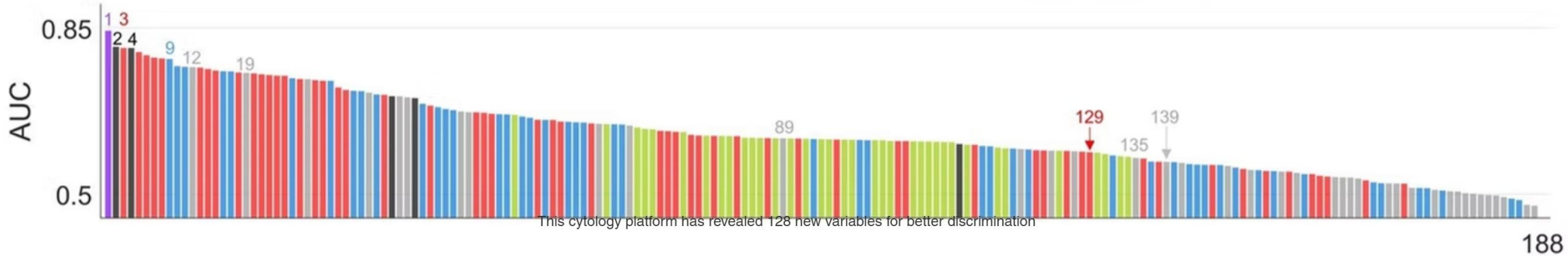
- Current exfoliative cytology has low specificity/selectivity
- Observe, therapeutic challenge, incisional / excisional biopsy



Oral Squamous Cell Carcinoma (OSCCA)

- OSCCA affects 59,000 Americans per year, has one of the worst outcomes and highest expense rates of all cancers,
- Overall survival rate is 69.5%. Early detection leads to improved 5-year survival rates (85% vs. 18% for late-stage cancer), only 28% of oral / oropharyngeal cancers are diagnosed at an early stage
 - <https://seer.cancer.gov/statfacts/html/oralcav.html>
- Clinical lesions are difficult to discriminate macroscopically
- Oral lichenoid conditions have a 1.4-2.8 5% 5-year malignant transformation rate.
 - Arduino PG, Magliano A, Gambino A, Macciotta A, Carbone M, Conrotto D, Karimi D, Carrozzo M, Broccoletti R. Risk of Malignant Transformation in 3173 Subjects with Histopathologically Confirmed Oral Lichen Planus: A 33-Year Cohort Study in Northern Italy. *Cancers (Basel)*. 2021 Nov 16;13(22):5740.
 - Tsushima, F., Sakurai, J., Uesugi, A. et al. Malignant transformation of oral lichen planus: a retrospective study of 565 Japanese patients. *BMC Oral Health* 21, 298 (2021).
 - Tenore G, Mohsen A, Rocchetti F, Rossi G, Cassoni A, Battisti A, Della Monaca M, Di Gioia CRT, De Felice F, Botticelli A, et al. Risk of Oral Squamous Cell Carcinoma in One Hundred Patients with Oral Lichen Planus: A Follow-Up Study of Umberto I University Hospital of Rome. *Cancers*. 2023; 15(11):3004.
- Current cytology has low sensitivity / selectivity and is not widely used
- OraLiva, Inc. developed a tool for AI-linked cytomics-on-a-chip using cytosignatures
- Algorithms are used in conjunction with C-AIIDE (Cytology Artificial Intelligence IDentification)
 - 94% sensitivity, 92% specificity compared to 43.75 and 81.25 for oral CDx
 - Reddy SG, Kanala S, Chigurupati A, Kumar SR, Poosarla CS, Reddy BV. The sensitivity and specificity of computerized brush biopsy and scalpel biopsy in diagnosing oral premalignant lesions: A comparative study. *J Oral Maxillofac Pathol*. 2012 Sep;16(3):349-53.

Univariate AUCs for Moderate versus Severe Dysplasia (4|5)



Ora-Liva Pilot D7287, D7288

Improved Cytology for Oral Dysplasia

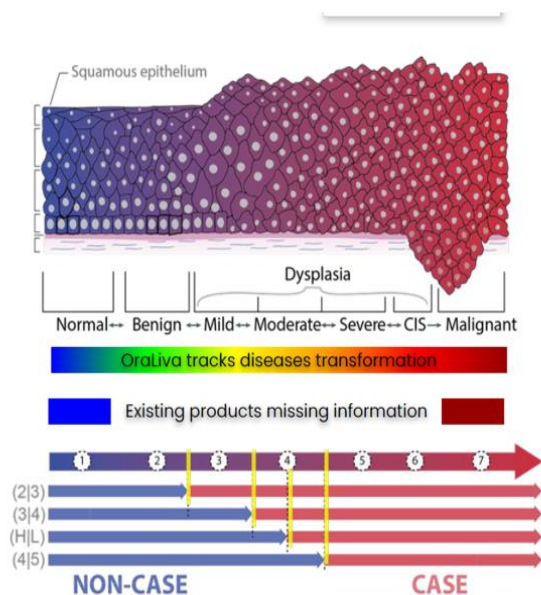


New Insights with ONCI™ Score

OraLiva's test results offer actionable steps allowing providers to safely monitor benign disease or refer at risk patients.

ONCI™ Score

Above 65	Severe risk: suggests malignant lesion	REFERRAL
Above 22	Moderate risk: suggests presence of dysplasia	REFERRAL
Below 22	Low risk: suggests normal or benign lesion	MONITOR



Workflow



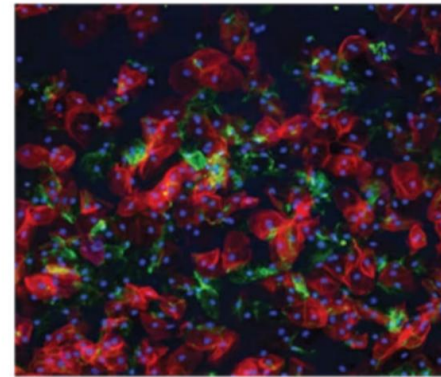
Non-invasive
sampling
biopsy brush



Sophisticated
microfluidics
engine



Point of care
cytomics-on-a-chip
analyzers allow for
high-content



Cloud-based AI
performs analysis
that human beings
cannot



Intuitive test
results and reports
based on
high-content

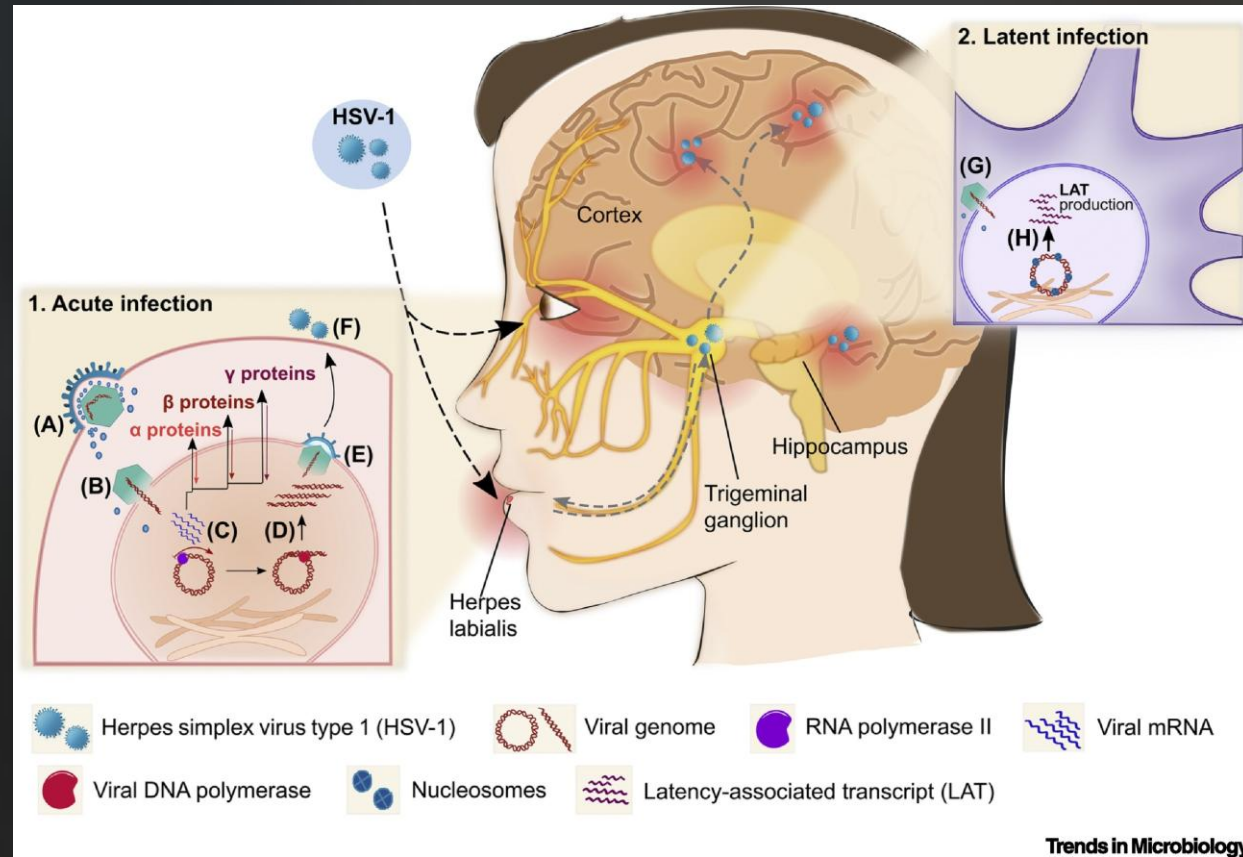
Red Lesions

- Herpetic Lesion (gingivostomatitis)
- Erythroplakia
- Traumatic Ulcers / ASA Burn
- Allergic (contact) Dermatitis
- Benign Migratory Glossitis
- Bald Tongue
- Hemangioma
- Pyogenic Granuloma
- Peripheral Giant Cell Granuloma

Herpetic Lesions



Herpetic Lesions



Herpetic or Aphthae?

Herpetic Ulcer

- Extraoral / intraoral
- Fluid filled
- Keratinized Mucosa (palate, gingiva)
- Multiple
- Prodrome

Aphthous Ulcer

- Intraoral only
- Not fluid filled
- Nonkeratinized tissue
- Pseudo membrane (white)
- Solitary
- Hx of citrus or tomatoes



Primary Herpetic Gingivostomatitis



Management

- Herpetic: Tincture of time 10 – 14 days
- Antivirals: Valtrex (valacyclovir HCL 1 gm tab X8) 2 gm BID for 1 day at prodrome
 - Limited efficacy after prodrome
- Primary Herpetic Gingivostomatitis
 - Supportive / palliative therapy
 - Magic Mouth rinse
 - Adults: 1 gram twice daily for 7-10 days
 - Children: Dosing is weight-based (e.g., 20 mg/kg three times daily)

Erythroplakia

- Highly suspicious for malignancy



Management

- All erythroplakia should be biopsied unless there is a known cause (traumatic ulcer)

Traumatic Ulcer / ASA Burn



Management

- Remove the cause
- Tincture of time (1 to 2 weeks)
- Supportive therapy
 - Warm saline rinse
 - Magic Mouth rinse
 - Rx Viscous Xylocaine (2%) rinse, topical Benzocaine

Magic Mouth Rinse (Tetranydril Rinse)

Analgesia: Viscous lidocaine provides local anesthetic relief for pain.

Anti-inflammatory: Dexamethasone (a steroid) reduces swelling and irritation.

Antifungal: Nystatin Oral Suspension

Antihistamine: Diphenhydramine

Coating/Base: Liquid antacids (Maalox) help coat ulcerations

Antibiotics: Tetracycline Oral suspension

Tetracycline HCl 12.5 mg/ml/Nystatin 12,000

Units/ml/Hydrocortisone 0.46 mg/ml/Diphenhydramine HCl

Dispense 500 mls, Swish and hold 1 min, expectorate QID

Allergic Dermatitis



Management

- Remove prosthesis and mechanically clean
- Soak in Nystatin oral suspension
- R/O Nickel (or other material) allergy

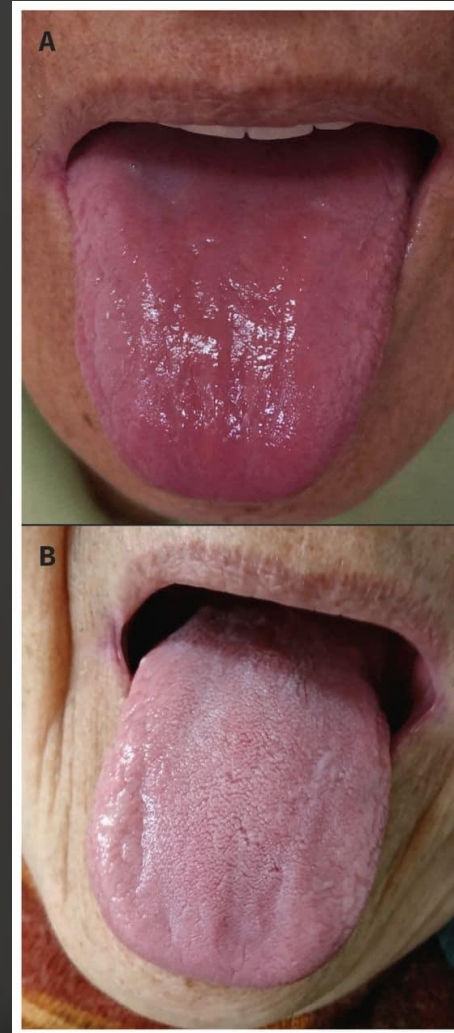
Benign Migratory Glossitis (Geographic Tongue)



Management

- Asymptomatic: No treatment indicated
- Symptomatic: (burning mouth)
- Rx :
 - Magic Mouth rinse
 - Decadron (Dexamethasone), (0.5 mg per 5 mL) Elixir

Bald Tongue Vit B12 Deficiency



Management

- R/O Vit B12 Deficiency

Hemangioma



Pyogenic Granuloma Peripheral Giant Cell Granuloma

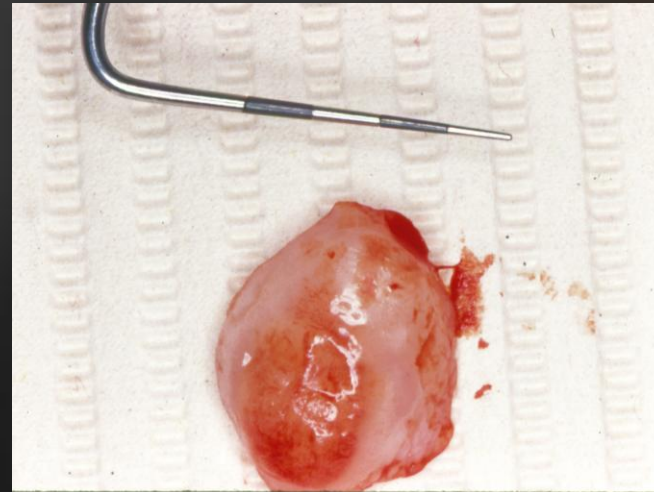


Management

Surgical excision (biopsy)

For Pyogenic granuloma, ask about /test for pregnancy

Tx 2nd trimester, Observe for reoccurrence



Bumps

- Fibromas
- Papilloma
- Palatal Papillomatosis

Lumps

- Lipomas
- Cysts
- Mucocele
- Sialolith
- Tori/Buccal exostosis

Fibroma



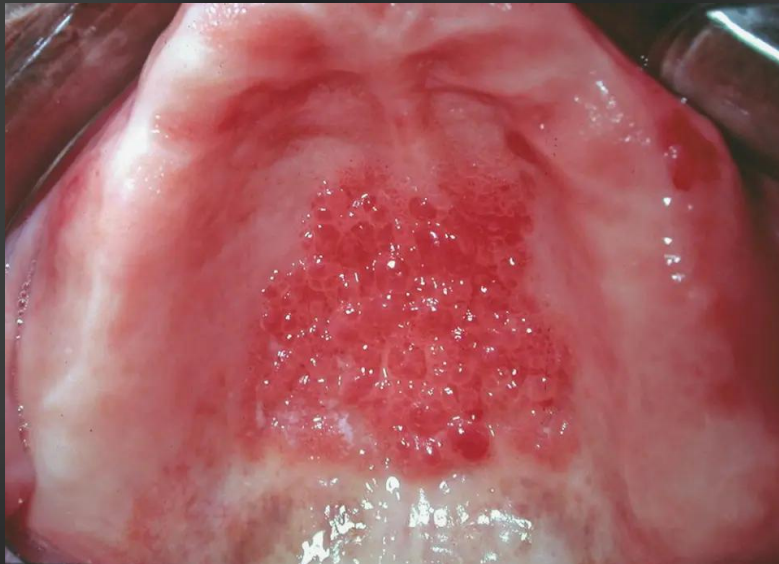
Papilloma



Management

- Surgical excision (biopsy)
- Evaluate for Cowden's Syndrome

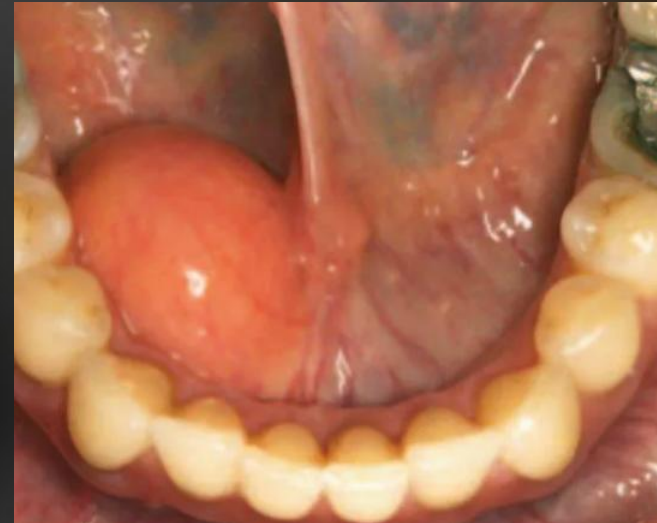
Inflammatory Papillary Hyperplasia Palatal Papillomatosis



Management

- Remove Denture
- Fabricate new denture if needed

Lipoma



Cysts



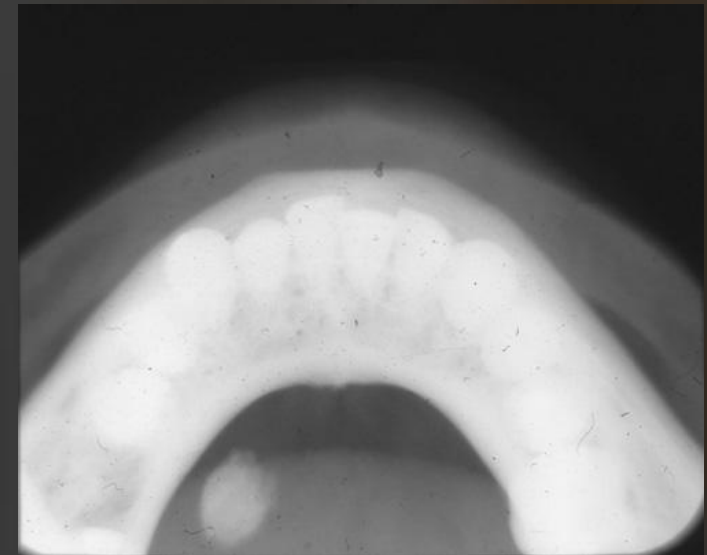
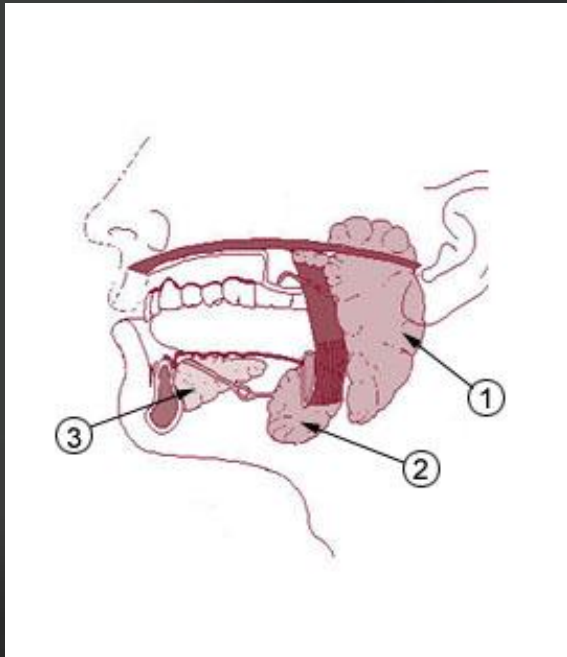
Mucocele



Management

- Surgical excision (biopsy)
- Determine etiology of cyst (odontogenic, developmental, trauma?)
- Observe for reoccurrence (esp. Odontogenic Keratocysts)

Sialolith



Management

- Negotiate duct with lacrimal canulas to dislodge stone
- Surgical excision of gland
- Observe for reoccurrence

Torus Palatinus



Mandibular Tori



Buccal Exostosis



Management

Surgical excision if:

Exostosis interferes with dental appliance or function

Chronic trauma of mucosa

Blue/Black Lesions

- Racial pigmentation (melanosis)
- Focal Argyrosis
- Varix
- Palatal ecchymosis

Racial Pigmentation



Focal Argyrosis (Amalgam Tattoo)



Management

- No treatment unless it is a cosmetic issue for the patient
- Surgical excision

Difficult Esthetics



Frenectomy



Gingivoplasty



Before



After



Varix



Palatal Ecchymosis



Management

- Palliative therapy, remove the cause
- Caution when removing varix

Medications

Complications from:

- Bisphosphonates
- Calcium Channel Blockers

Medication Related Osteonecrosis of the Jaws (MONJ)

Bisphosphonates



Medication Induced Gingival Hyperplasia



Management

- Surgical excision of redundant tissue
- Current evidence supports no tx for MONJ
- Observe for reoccurrence

Oral Lesions and Systemic Disease

- Leukemias
- HIV/AIDS
- Diabetes

Leukemias

Gingival hyperplasia and bleeding, painful ulcers,
persistent thrush, red mucosa



Acute Myeloid Leukemia

HIV/AIDS

- Kaposi's Sarcoma
- Candida
- Hairy leukoplakia
- Xerostomia



Diabetes Mellitus

- Xerostomia
- Mucositis
- Candida
- Poor wound healing, PPP

Vesiculobullous Disease

- Bullous pemphigoid
- Pemphigus vulgaris, foliaceus, and paraneoplastic
- Epidermolysis Bullosa
- Erythema Multiforme
- Stevens-Johnson Syndrome

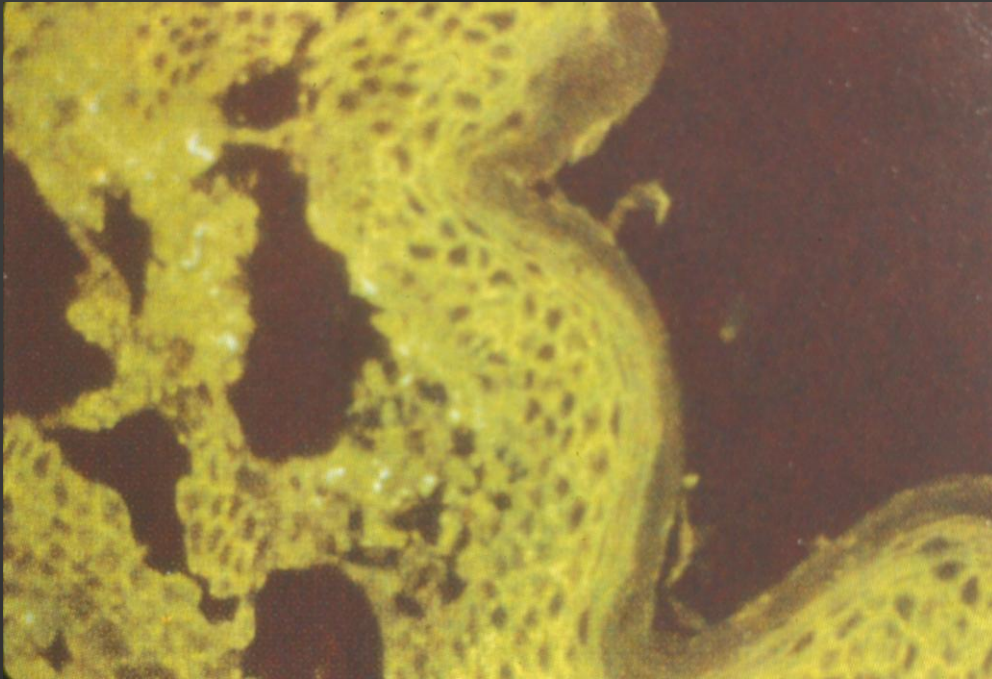
Vesiculobullous Disease

- Nikolsky test
- Biopsy (H&E and Immunofluorescence)
- Referral to Dermatology

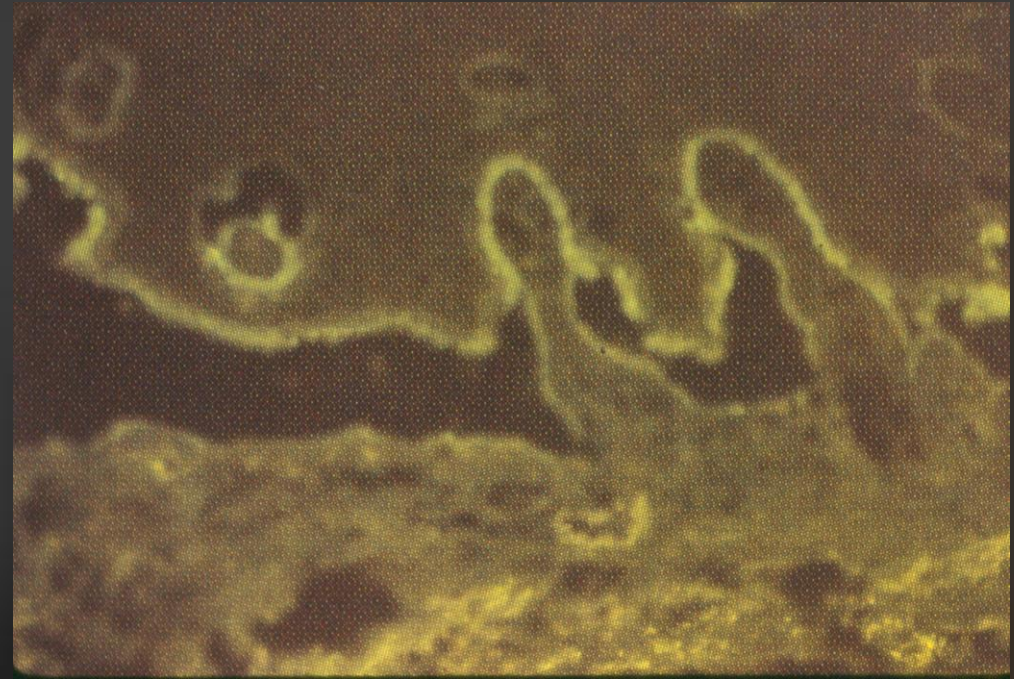
Vesiculobullous Disease



IgG: Acantholysis vs Basement membrane



Pemphigus



Pemphigoid

There are two types of
people in this world



Thank you for listening!

