

# THE DAILY GRIND: PRACTICAL ORAL PATHOLOGY FOR YOUR PRACTICE

Ashley Clark, DDS, FACD  
Division Chief & Laboratory Director  
Associate Professor, University of Kentucky College of Dentistry  
Diplomate, American Board of Oral and Maxillofacial Pathology

## Conflicts of interest & disclaimers

- This presentation is sponsored by Pierrel Pharma; they have generously covered my honorarium for this talk.
- The opinions expressed in this presentation are those of the speaker and not necessarily those of my employer.
- The opinions expressed in this course should not be construed as advice to care for specific patients.



## Objectives

- Upon completion of this course, you will be able to:
  - Recognize common lesions of the oral cavity
  - Determine which lesions should be viewed as potentially malignant
  - Understand how to manage patients with oral pathology

## Outline of topics

- Infections:
  - Herpetic ulcerations
  - Candidiasis
- Allergic:
  - Recurrent aphthous ulcerations
- Epithelial:
  - Pigmented lesions
  - Papillary lesions
  - Leukoplakia
  - Squamous cell carcinoma

## INFECTIONS

Herpetic ulcerations  
Candidiasis



## Herpes simplex virus (HSV)

- HSV-1:
  - Spread primarily through saliva or active perioral lesions and best adapted to above the waist locations
  - HOWEVER: A 2003 study followed college students for 9 years; up to 77% of new genital herpes infections were caused by HSV-1
  - HSV-1 is the most common cause of new genital herpes infections; there is a reversal of the usual HSV-1/HSV-2 ratio
- HSV-2:
  - Spread primarily through sexual contact and best adapted to below the waist locations (though some oral lesions are due to HSV-2)
  - Approximately 20% of the population is affected by genital herpes; however, this is based solely on HSV-2 seroprevalence

Neville B, Damm D, Allen C, et al. Oral and Maxillofacial Pathology, Fourth edition. Elsevier, Inc.: St. Louis, Missouri. Pp 218-224.  
Roberts CM, Pfister JR, and Spear SJ. Increasing Proportion of Herpes Simplex Virus Type 1 as a Cause of Genital Herpes Infection in College Students. Sexually Transmitted Diseases. 2003;30(10):797-800.

## Herpes simplex virus – primary infection

- Acute herpetic gingivostomatitis has an abrupt onset accompanied by constitutional symptoms such as fever
- Numerous pinhead vesicles collapse rapidly to form small red, lesions; these areas ulcerate and coalesce
- Both movable and attached oral mucosa can be affected in health; this is not the case with recurrences
- In all cases, the gingivae are enlarged, painful, and extremely red; the gingivae may also exhibit "punched-out" erosions of the midfacial free gingival margins
- Vermilion and perioral skin may be involved
- Self-inoculation of fingers, eyes, and genitals can occur
- All cases resolve in 1-2 weeks

Neville B, Damm D, Allen C, et al. Oral and Maxillofacial Pathology, Fourth edition. Elsevier, Inc.: St. Louis, Missouri. Pp 218-224.



© Photo(s): Dr. Jerry Bouquet, University of Texas School of Dentistry Houston, Texas



© Photo(s): Dr. Jerry Bouquet, University of Texas School of Dentistry Houston, Texas



© Photo(s): Dr. Ashley Clark, University of Kentucky College of Dentistry

## Recurrent herpes simplex

- Most common site of recurrence is vermillion border and adjacent skin of the lips (herpes labialis; AKA cold sore or fever blister)
- 40% of US have a history; typically experience 2 per year
  - Most have a prodrome 24 hours before the lesion appears
- Lesions are multiple, small, erythematous papules which form clusters of fluid-filled vesicles
  - These rupture and crust within 2 days; active viral replication is complete
  - Rupture of intact vesicles releases the virus and can result in spreading of lesions (do not treat patients with intact vesicles)
- Lesions heal without scarring in 7-10 days

Neville B, Damm D, Allen C, et al. Oral and Maxillofacial Pathology, Fourth edition, Elsevier, Inc.: St. Louis, Missouri. Pg 218-224.



© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas



© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas



## Recurrent herpes simplex

- Intraoral recurrent lesions:
  - In health, **ALWAYS** on keratinized, bound mucosa (hard palate, attached gingiva)
    - If proven on movable mucosa, immune status tests are REQUIRED
  - Intraoral lesions exhibit subtle changes with less intense symptoms
  - Lesions begin as 1-3 mm vesicles
    - These vesicles rapidly collapse to form a cluster of erythematous macules that coalesce and slightly enlarge
    - Damaged epithelium is lost and a central, yellowish area of ulceration appears
    - The lesions heals without scarring in 7-10 days

Neville B, Damm D, Allen C, et al. Oral and Maxillofacial Pathology, Fourth edition, Elsevier, Inc.: St. Louis, Missouri. Pg 218-224.



© Photo(s): Dr. Yvette Martinez

One week later



© Photo(s): Dr. Yvette Martinez



© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas



© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas

## Primary herpes simplex - treatment

- Primary herpetic gingivostomatitis:
  - Rinse-and-swallow acyclovir suspension: 15mg/kg up to adult dose of 200 mg 5x/d for 5d (do not use capsule or tablet forms as they are less effective in primary infections)
- Recurrences:
  - Valacyclovir (Valtrex®): 2 grams at prodrome and 2 grams 2 hours later
  - Acyclovir: 400 mg taken 5x/d for 5 days
- If recurrences are associated with dental procedures:
  - 2 grams valacyclovir 2x/d on day of procedure and 1 gram the following day
- Short term prophylactic (ex: beach vacation):
  - Acyclovir 400mg 2x/d or Valacyclovir 1g daily

Neville B, Damm D, Allen C, et al. Oral and Maxillofacial Pathology, Fourth edition, Elsevier, Inc.: St. Louis, Missouri. Pp 218-224.

## Candidiasis

- The best recognized form is pseudomembranous candidiasis, AKA "thrush"
- White plaques that resemble cottage cheese
  - Plaques are composed of tangled masses of hyphae, yeast, desquamated epithelial cells, debris
- Characteristic: these plaques are **removable**
  - Apply pressure with gauze
  - Underlying mucosa may be normal or red



© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas



## Erythematous candidiasis

- More common than pseudomembranous but often overlooked clinically
- Several clinical presentations:
  - Median rhomboid glossitis
  - Chronic multifocal
  - Angular cheilitis
  - Denture stomatitis
  - Acute atrophic (antibiotic sore mouth)

## Candidiasis - erythematous

- Median rhomboid glossitis:
  - Well-demarcated red zone affecting the midline, posterior dorsal tongue just anterior to the circumvallate papilla
  - Asymptomatic and symmetrical
- Chronic multifocal candidiasis:
  - Median rhomboid glossitis with signs of infection at other sites
    - Junction of hard and soft palate ("kissing lesion")
    - Angles of the mouth (angular cheilitis)
- Angular cheilitis:
  - Occurs most commonly in older edentulous patients
  - Characterized by erythema, fissuring, and scaling at the corners of the mouth
  - Etiology can be fungus, bacteria, or both

## Candidiasis - erythematous

- Denture stomatitis:
  - Redness on denture-bearing areas of a removable denture
  - Denture harbors most of the organism
- Acute atrophic candidiasis:
  - "Antibiotic sore mouth" – follows a course of broad-spectrum ABX
  - Mouth feels as though a hot liquid scalded it
  - Diffuse loss of filiform papillae of dorsal tongue (appears bald)
  - Similar appearance & symptomology is noted in xerostomia patients

## Angular cheilitis



© Photo(s): Dr. Indraneel Bhattacharyya, The University of Florida College of Dentistry, Gainesville Florida

## Angular cheilitis



© Photo(s): Dr. Jerry Bouquod, University of Texas School of Dentistry Houston, Texas

## Candidiasis - treatments

- Clotrimazole 10 mg troche, #70, dissolve 1 on tongue 5x/d for 14 days. Finish all medication
- Fluconazole 100 mg tab, #15, take 2 tab on first day and 1 tab every day after. Finish all medication\*\*
  - \*\*Ensure patient can take this medication! Call pharmacy if you must. Examples of contraindications include cisapride, astemizole, erythromycin, pimozide, and quinidine.
- Clotrimazole 1% cream is over the counter
  - Best for angular cheilitis because it also has antibacterial properties
- Clean denture if the patient has chronic atrophic candidiasis (denture stomatitis)

# ALLERGIES

## Recurrent aphthous ulcerations

## Recurrent aphthous ulcerations (RAU)

- Prevalence is about 20%
- Most commonly cited antigens:
  - Sodium lauryl sulfate (SLS) or sodium dodecyl sulfate (SDS) – a surfactant (foaming agent) found in most toothpastes
  - Systemic medications like NSAIDs
  - Foods like chocolate, nuts, milk, strawberries, tomatoes, etc
- Smoking cessation can lead to ulcerations
- Exclusively occur on movable mucosa with rare exception
- Occurs more commonly in younger patients
- 80% of patients with RAU have their first ulceration before age 30 (if not, a systemic condition should be suspected)

Akintoye SO and Greenberg MS. Recurrent Aphthous Stomatitis. *Dent Clin North Am.* 2014;58(2):281–297.

Neville B, Damm D, Allen C, et al. *Oral and Maxillofacial Pathology*. Fourth edition. Elsevier, Inc.: St. Louis, Missouri. Pp 303-308.

## Recurrent aphthous ulcerations

- All ulcerations will have a yellow-white, removable fibrinopurulent membrane with surrounding red halo and are much more painful than they appear
- Minor form:
  - Patients experience ulcers every few days to few years
  - Between 3-10 mm, heal without scarring in 1-2 weeks; 1 to 5 lesions per episode
- Major form:
  - 1-3 cm in diameter, heal in 2-6 weeks and may scar upon resolution, 1-10 lesions per episode
  - Most commonly occur on the labial mucosa, soft palate, and tonsillar fauces

Akintoye SO and Greenberg MS. Recurrent Aphthous Stomatitis. *Dent Clin North Am.* 2014;58(2):281–297.

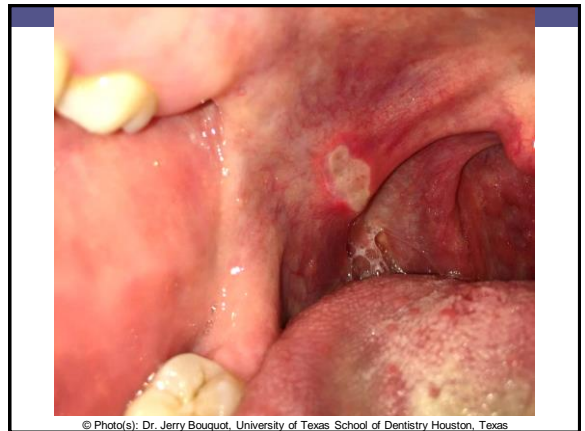
Neville B, Damm D, Allen C, et al. *Oral and Maxillofacial Pathology*. Fourth edition. Elsevier, Inc.: St. Louis, Missouri. Pp 303-308.



© Photo(s): Dr. Jerry Bouquet, University of Texas School of Dentistry Houston, Texas



© Photo(s): Dr. Ashley Clark, University of Kentucky College of Dentistry, Lexington, KY



© Photo(s): Dr. Jerry Bouquet, University of Texas School of Dentistry Houston, Texas



© Photo(s): Dr. Jerry Bouquet, University of Texas School of Dentistry Houston, Texas

## Recurrent aphthous ulcerations

- Diagnosis is made from the clinical presentation and exclusion of other conditions
  - Patients with complex ulcerations should be evaluated for other systemic conditions (refer)
  - About 60% will have an associated deficiency or disease

Akintoye SO and Greenberg MS. Recurrent Aphthous Stomatitis. *Dent Clin North Am.* 2014;58(2):281–297.

Neville B, Damm D, Allen C, et al. *Oral and Maxillofacial Pathology*. Fourth edition. Elsevier, Inc.: St. Louis, Missouri. Pp 303-308.

## Recurrent aphthous ulcerations

- You can suggest your patients use SLS-free toothpaste:
  - Prevident® 5000+ Dry mouth (Only SLS-free Prevident® product)
  - Biotène® (GSK) – 2 types; both SLS-free
  - Sensodyne® – 21 types; not all are SLS-free
  - Squigle® Enamel saver (Mild toothpaste with no SLS, no irritating flavors, no tarter control agents); need to buy online
- Patients with minor or simple aphthae often receive no treatment or over the counter palliative care
  - Zilactin® or Orabase® is usually sufficient
- Dentists can also prescribe Magic Mouthwash if necessary (Most common formulation for RAU is equal parts diphenhydramine, Maalox®, ± viscous lidocaine)
- Topical steroids may be necessary in severe cases

Akintoye SO and Greenberg MS. Recurrent Aphthous Stomatitis. *Dent Clin North Am.* 2014;58(2):281–297.

Neville B, Damm D, Allen C, et al. *Oral and Maxillofacial Pathology*. Fourth edition. Elsevier, Inc.: St. Louis, Missouri. Pp 303-308.

## Recurrent aphthous ulcerations

- Most other treatments have not been examined in a double-blind, placebo-controlled fashion
  - Example of a widely accepted alternative: amlexanox paste (Aphthasol®)
- Laser ablation will shorten duration and decrease symptoms, though it is likely impractical
- Cautery with sulfuric acid and phenolic agents (Debacterol®) can be used, but misuse can lead to local tissue necrosis
- Cautery with silver nitrate is not recommended (numerous safer alternatives; rare association with massive necrosis and systemic argyria)

Akintoye SO and Greenberg MS. Recurrent Aphthous Stomatitis. *Dent Clin North Am.* 2014;58(2):281–297.

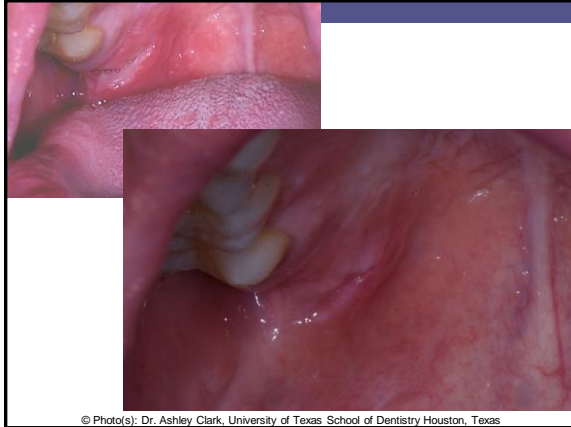
Neville B, Damm D, Allen C, et al. *Oral and Maxillofacial Pathology*. Fourth edition. Elsevier, Inc.: St. Louis, Missouri. Pp 303-308.



© Photo(s): Dr. Ashley Clark, University of Texas School of Dentistry Houston, Texas



© Photo(s): Dr. Ashley Clark, University of Texas School of Dentistry Houston, Texas



© Photo(s): Dr. Ashley Clark, University of Texas School of Dentistry Houston, Texas



© Photo(s): Dr. Ashley Clark, University of Texas School of Dentistry Houston, Texas

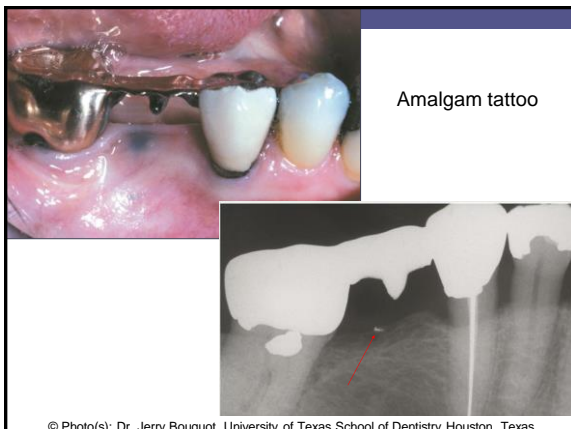
## EPITHELIAL LESIONS

Pigmented lesions, papillary lesions, leukoplakia, squamous cell carcinoma

## Pigmented lesions

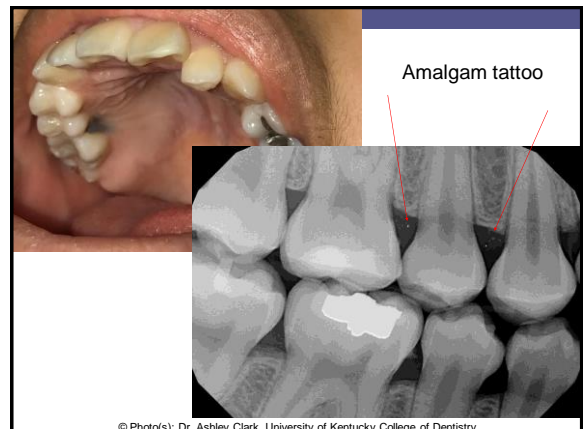
- Differential diagnosis includes: amalgam tattoo, melanotic macule, melanocytic nevus, melanoma
- Anytime one encounters a solitary pigmented lesion in the oral cavity:
  1. If appropriate, take a radiograph
  2. If radiopacity is present: no further treatment
  3. If no radiopacity present: biopsy is required
    - Exceptions: documented, unchanging, labial melanotic macule
  4. If it is not melanoma, no further action required unless there is clinical change
- Mucosal melanomas tend to present in an advanced state and have a poor prognosis

Neville B, Damm D, Allen C, et al. Oral and Maxillofacial Pathology: Fourth edition. Elsevier, Inc.: St. Louis, Missouri. Pg 281-284, 345-353, 401-407.



Amalgam tattoo

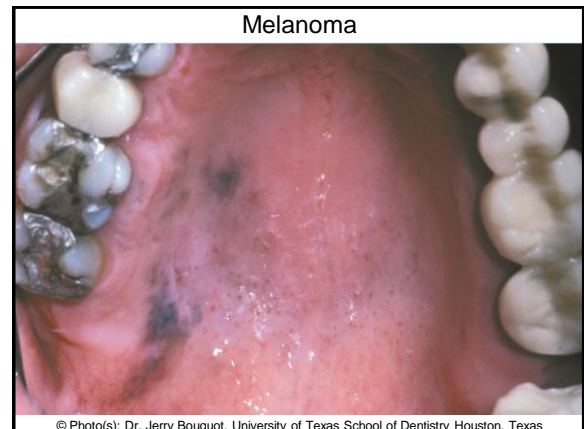
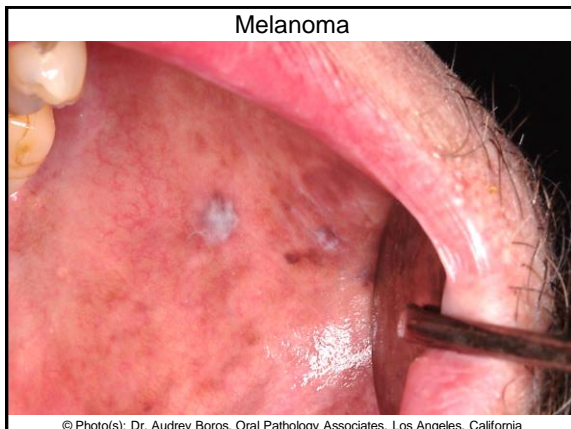
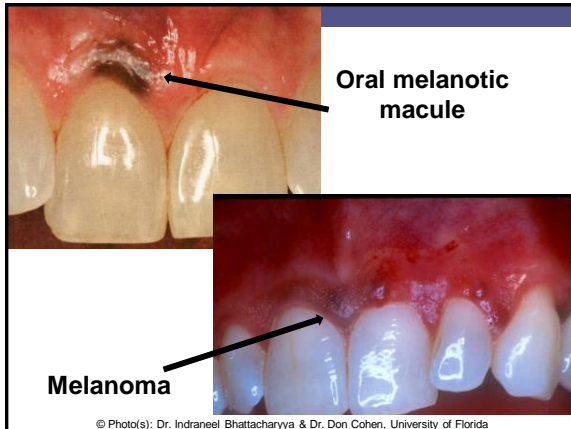
© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas



Amalgam tattoo

© Photo(s): Dr. Ashley Clark, University of Kentucky College of Dentistry

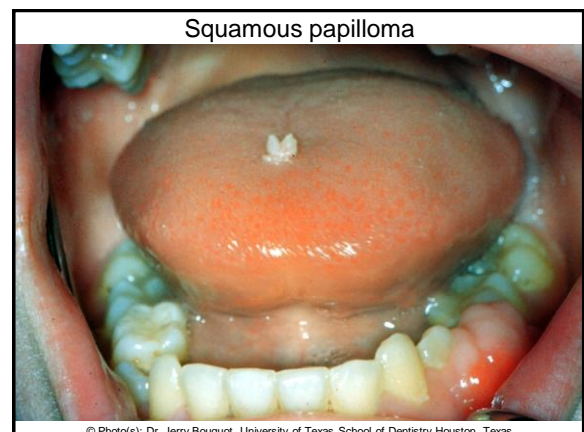




### Papillary lesions

- All papillary lesions must be biopsied
- Squamous papilloma:
  - Common, solitary, not an STD, not very infectious (doesn't spread easily), no malignant potential, no further action after diagnosis
- Verruca vulgaris:
  - Not an STD, multiple lesions, infectious (spreads easily), no malignant potential, follow-up in case the patient has recurrences
- Condyloma acuminatum:
  - Is an STD, infectious, no malignant potential unless co-infected with high-risk strain (never been documented in oral cavity), follow-up in case the patient has recurrences

Neville B, Damm D, Allen C, et al. Oral and Maxillofacial Pathology: Fourth edition. Elsevier, Inc.: St. Louis, Missouri. Pg 331-340.



Squamous papilloma



© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas

Squamous papilloma



© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas

Verruca vulgaris



© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas

Verruca vulgaris



© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas

Verruca vulgaris



© Photo(s): Dr. Don Cohen, University of Florida College of Dentistry Gainesville, Florida

Condyloma acuminatum



© Photo(s): Dr. Ashley Clark, University of Kentucky College of Dentistry, Lexington, KY

Condyloma acuminatum



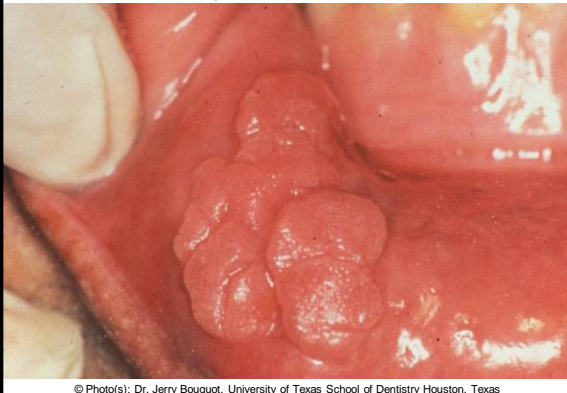
© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas

Condyloma acuminatum



© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas

Condyloma acuminatum



© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas

## Leukoplakia

### • Clinical features:

- Most commonly seen in older adults
- Most leukoplakias are on the buccal mucosa and gingiva, but nearly all those with dysplasia or carcinoma are on the lateral/ventral tongue or floor of mouth
- Disease evolution: Starts as a thin leukoplakia, gets thicker, develops surface irregularity, then develops red patches
- Lesions have sharply demarcated borders

Neville B, Damm D, Allen C, et al. Oral and Maxillofacial Pathology: Fourth edition. Elsevier, Inc.: St. Louis, Missouri. Pp 355-390.  
 Mehanna HM, Rattay T, Smith J, et al. Treatment and Follow-Up of Oral Dysplasia – A Systematic Review and Meta-Analysis. *Head & Neck*. 2009;31(12):1600-1609.

## Leukoplakia

- Roughly speaking, the thinner leukoplakias are a lower-grade dysplasia
- By the time the lesion develops red areas, it is high-grade dysplasia or squamous cell carcinoma
  - Note: The only definitive way to tell is histopathologic evaluation; therefore, all areas of leukoplakia require biopsy
- Differential diagnosis includes:
  - Hyperkeratosis
  - Mild, moderate, or severe dysplasia
  - Carcinoma *in-situ*
  - Squamous cell carcinoma

## Leukoplakia – treatment

- Hyperkeratosis = periodic follow up
  - Recurrences or changes must be re-biopsied
- Mild dysplasia =
  - Option 1 = lesion destruction (what I recommend)
  - Option 2 = With small lesions in patients with tobacco use, it is okay to follow up in 3 months if they quit to see if the lesion goes away on it's own. If not, lesion destruction
- Moderate dysplasia or worse = complete removal of the affected tissue is required
- Long-term (literature says 20 years!) follow-up at least every 6 months to watch for recurrences

Neville B, Damm D, Allen C, et al. Oral and Maxillofacial Pathology: Fourth edition. Elsevier, Inc.: St. Louis, Missouri. Pp 355-390.



Thin leukoplakia; mild dysplasia



© Photo(s): Dr. Eugene Ko

Thin leukoplakia; mild dysplasia



© Photo(s): Dr. Kyra Holt, Holt Family Dental, Pearland, Texas

Thin leukoplakia; carcinoma *in situ* (HPV-16)

© Photo(s): Dr. Debra Stewart, University of Texas School of Dentistry Houston, Texas

Thick leukoplakia; mild dysplasia with hyperkeratosis



© Photo(s): Dr. Jerry Bouquot, University of Texas School of Dentistry Houston, Texas

Verrucoid leukoplakia; atypical epithelial proliferation suggestive of SCC



© Photo(s): Dr. Larry Pepper

Erythroleukoplakia; moderate dysplasia



© Photo(s): Dr. Eugene Ko



## Squamous cell carcinoma

- We won't do an in-depth discussion on SCC
- The job of the general dentist is to spot suspicious lesions and then biopsy or refer for biopsy
- I do want to show you some images of HPV-negative SCC so your memory is refreshed about their varied appearance
- The most common locations are the lateral/ventral tongue, floor of mouth, and soft palate
- Gingival carcinomas can masquerade as other lesions so be wary of unknown gingival lesions

Exophytic



© Photo(s): Dr. Ashley Clark, University of Kentucky College of Dentistry

Ulcerated erythroleukoplakia



© Photo(s): Dr. Ashley Clark, University of Kentucky College of Dentistry

Non-healing ulcer



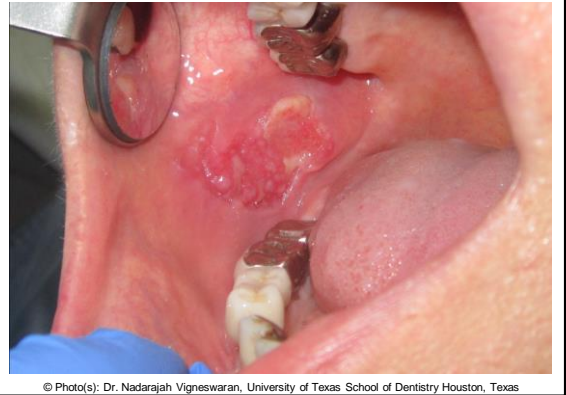
© Photo(s): Dr. JE Bouquot, University of Texas School of Dentistry Houston, Texas

Denture didn't fit



© Photo(s): Dr. Ashley Clark, University of Kentucky College of Dentistry

Unusual location



© Photo(s): Dr. Nadarajah Vigneswaran, University of Texas School of Dentistry Houston, Texas

Remember to have patients remove dentures so you can do your screening!



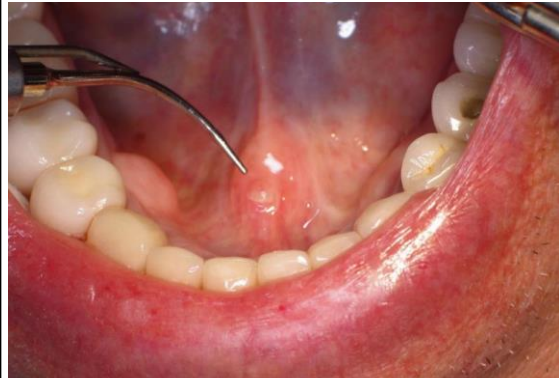
© Photo(s): Dr. Indraneel Bhattacharyya, The University of Florida College of Dentistry, Gainesville Florida

Gingival lesion – may resemble herpes or injury but did not go away in 2 weeks



© Photo(s): Dr. Nadarajah Vigneswaran, University of Texas School of Dentistry Houston, Texas

Biopsy even small lesions in this location



© Photo(s): Dr. Indraneel Bhattacharyya, The University of Florida College of Dentistry, Gainesville Florida



© Photo(s): Dr. Greg Vance



© Photo(s): Dr. John McGehee



© Photo(s): Dr. Christopher Meyer

For questions or a free biopsy kit,  
please contact

Ashley.Clark.DDS@uky.edu