## CLINICAL STOMATOLOGY CONFERENCE

**DNSC D9910.00**

**September 12, 2007**

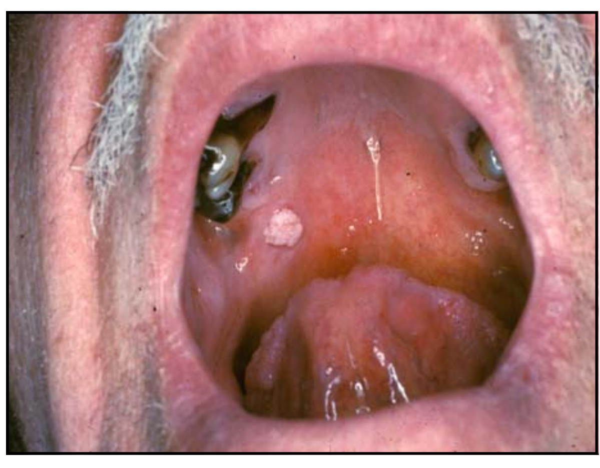
## White lesions

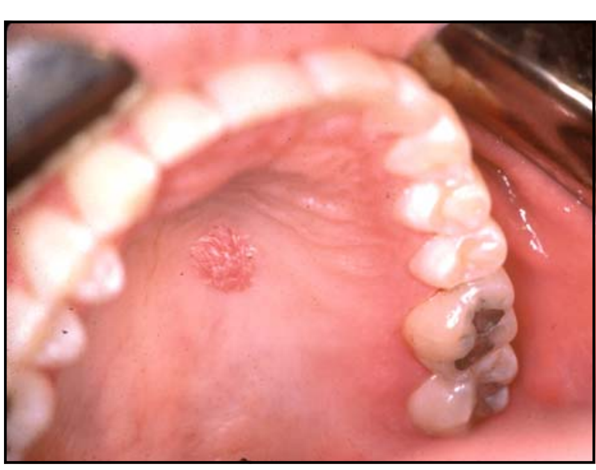
## Overview

- Squamous papilloma
- Smokeless tobacco keratosis
- Leukoplakia
- Squamous cell carcinoma
- Verrucous carcinoma

## Squamous papilloma

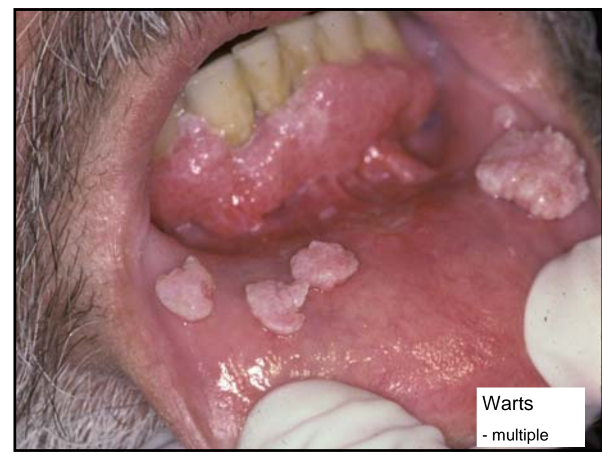
- Benign proliferation of *squamous cells*
- Etiology: Presumably human papillomavirus (HPV)
  HPV types 6 and 11 have been identified
- Gender: No gender predilection
- Age: Any age
- Site: Any oral site
  Mostly tongue, lips, soft palate
- Clinical features:
  White to pink
  Soft, painless
  Finger-like projections – "cauliflower-like"



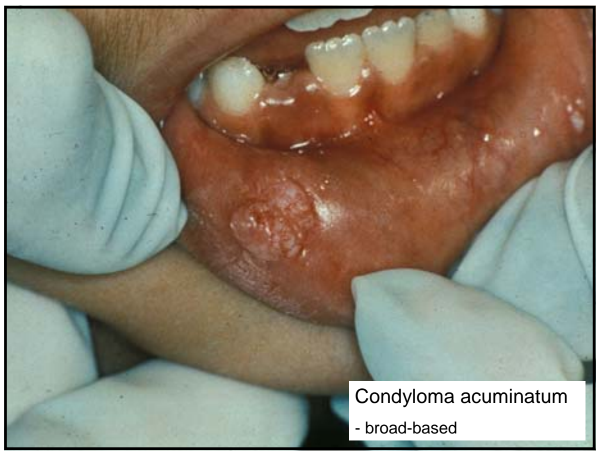


# Squamous papilloma

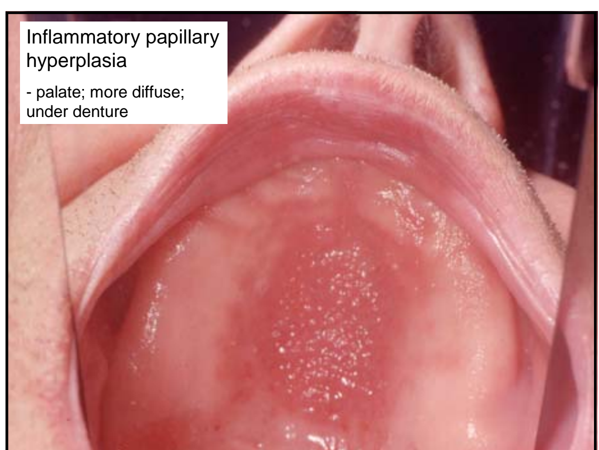
- Differential diagnosis:
  1) Verruca vulgaris (common wart)
     * At times, papillomas and warts can appear identical *
  2) Condyloma acuminatum
     - broader base
  3) Inflammatory papillary hyperplasia
     - under ill-fitting denture
  4) Verrucous carcinoma



Warts
- multiple



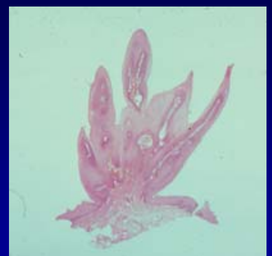
Condyloma acuminatum
- broad-based



Inflammatory papillary hyperplasia
- palate; more diffuse; under denture

# Squamous papilloma

- Histology:
  - keratinized, stratified squamous epithelium
  - papillary configuration
  - fibrovascular connective tissue
  - variable inflammation



- Treatment: Conservative surgical excision

# Smokeless tobacco keratosis

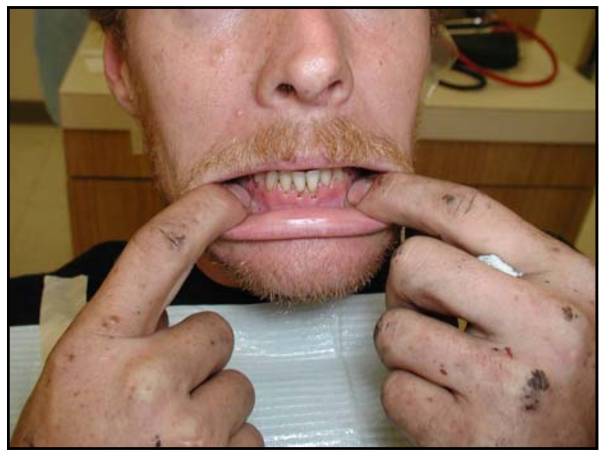
- Etiology:
  Habit of chewing or holding tobacco in oral cavity
  - allows absorption of nicotine and other carcinogens through oral mucosa

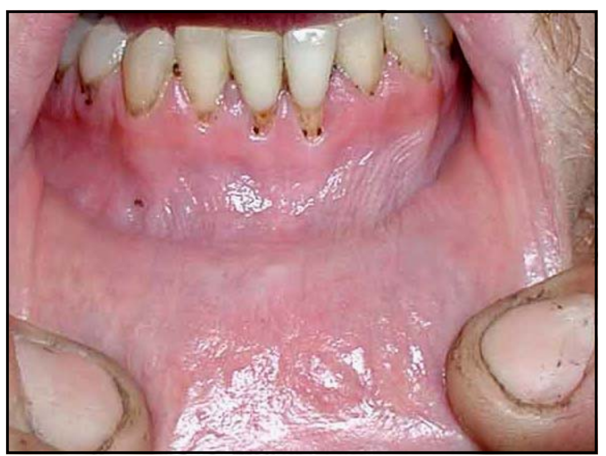
- Age and gender:
  Older and young males
  In some populations, females predominate

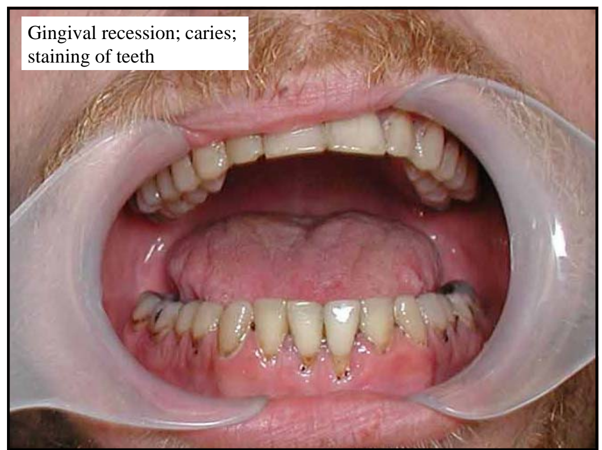
## Smokeless tobacco keratosis

- Clinical features:
  Thin, gray-white plaque
  Velvety
  Fissured, rippled
  Older lesions: leathery or nodular

** Gingival recession; dental caries; staining **



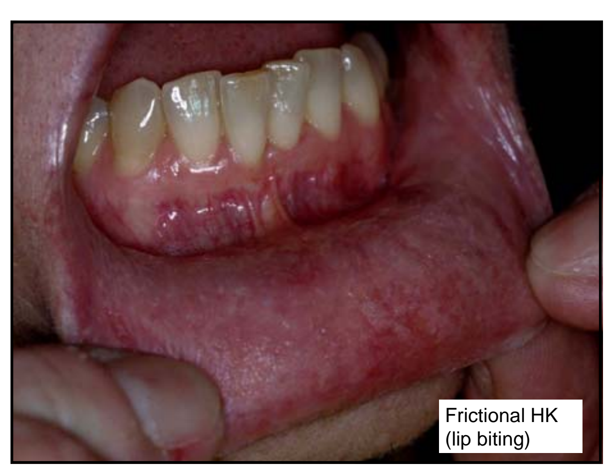




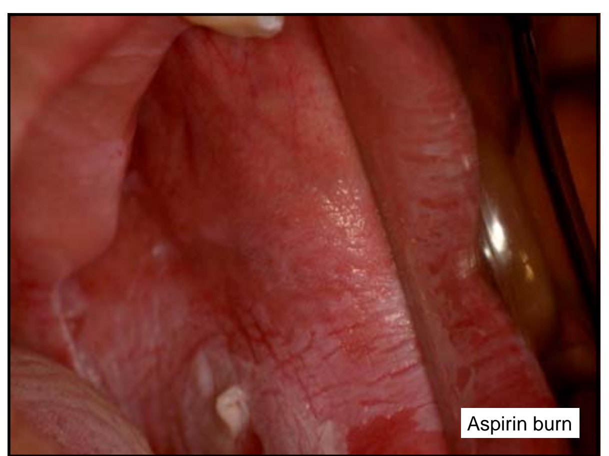
Gingival recession; caries; staining of teeth

## Smokeless tobacco keratosis

- Differential diagnosis:
  1) Frictional hyperkeratosis
     Cheek/lip biting
  2) Chemical injury / burn
  3) True leukoplakia
  4) Lichen planus

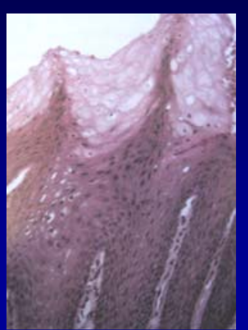


Frictional HK (lip biting)




## Smokeless tobacco keratosis

- Histology:
  - hyperkeratosis
  - parakeratin chevrons
  - thickened spinous layer (acanthosis)
  - amorphous material in connective tissue
  - ± dysplasia, CIS, SCC



## Smokeless tobacco keratosis

- Treatment:
  Depends on histologic diagnosis
  Risk of developing:
  1) Squamous cell carcinoma
     - risk 4x greater than non-smokeless tobacco users
     - if combined with *betel quid*, risk 10x greater
  2) Verrucous carcinoma

* 98% of mild smokeless tobacco keratoses will resolve on cessation of habit *

## Leukoplakia

- Definition:

  "A ***white***, plaque-like lesion which cannot be wiped off AND cannot be clinically diagnosed as any other disease entity"

- *Clinical* term, not related to *histopathology*

## Leukoplakia

- Diagnosis of exclusion
  Must exclude *clinically distinct* entities
  1) Frictional (traumatic) keratosis
     - e.g. chronic cheek/lip biting
  2) Lichen planus
  3) Leukoedema
     - bilateral buccal mucosa; translucent
  4) Nicotine stomatitis
     - hard palate; mostly related to pipe smoking

## Leukoplakia

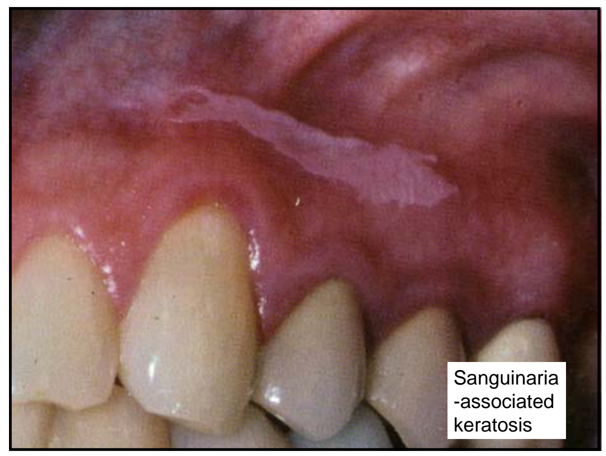
- 5-25% of leukoplakias are diagnosed as *dysplasia* after microscopic examination
- 4% diagnosed as *squamous cell carcinoma (SCC)*

Therefore, true leukoplakias are considered to be *premalignant lesions*

## Leukoplakia

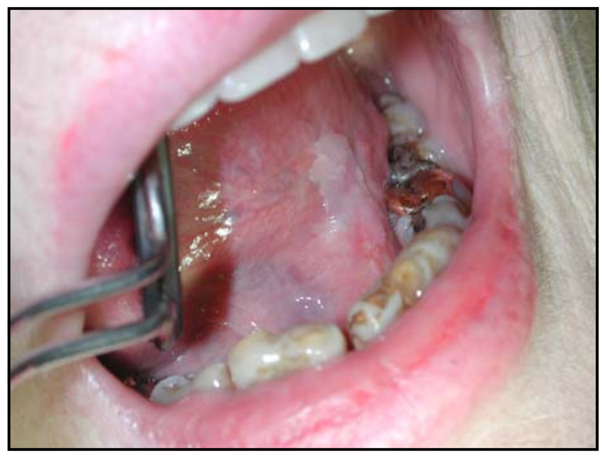
- Proposed etiologies:
  1) **Tobacco**
     - large proportion of leukoplakias in smokers disappear after 1st year of smoking cessation
  2) **Smokeless tobacco** (tobacco pouch keratosis)
  3) **Sanguinaria** (sanguinaria-associated keratosis)
     - Viadent products
     - location: maxillary vestibule or alveolar mucosa
     - may not disappear after cessation of sanguinaria use

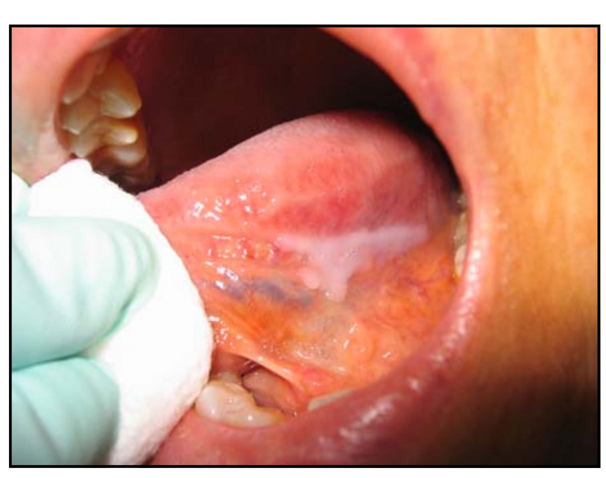
****Frictional keratosis** – not true leukoplakias

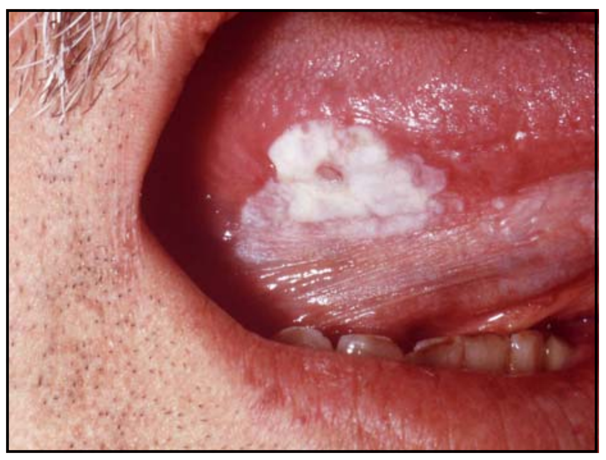


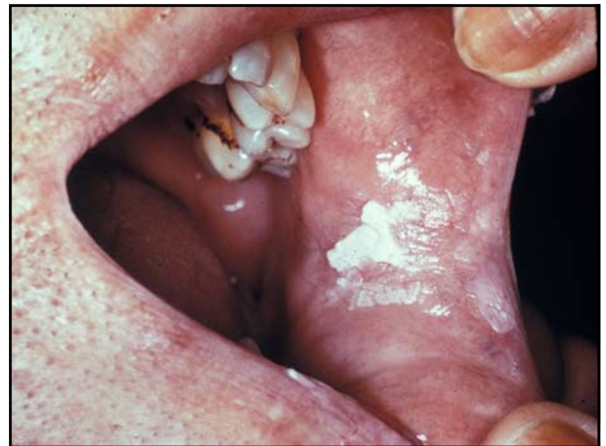
## Leukoplakia

- Gender: Male predilection
- Age: Older than 40 yo
- Site: Lip vermilion, bu mucosa, gingiva
  Tongue, floor of mouth, lip vermilion
  - *high risk areas for dysplasia*
- Clinical features:
  Gray to white plaques
  Flat; slightly elevated; fissured
  Clinical variants:
  Thin; thick; granular/nodular; verrucous; proliferative verrucous leukoplakia (PVL)



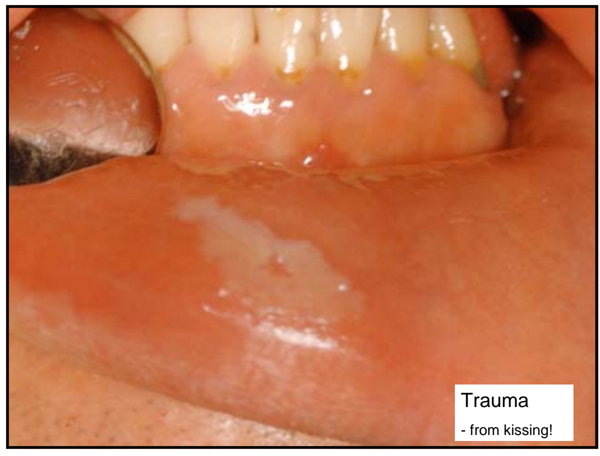


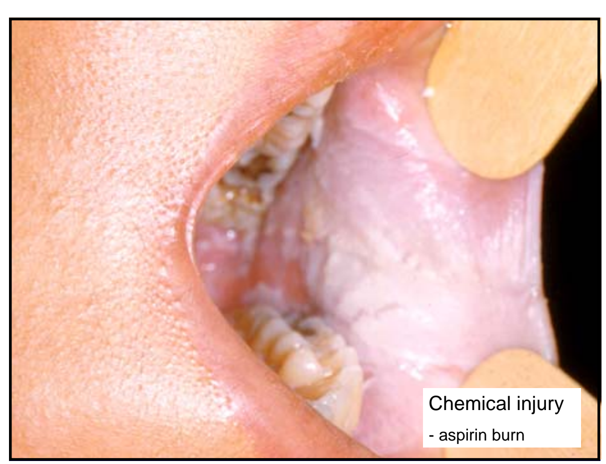




## Leukoplakia

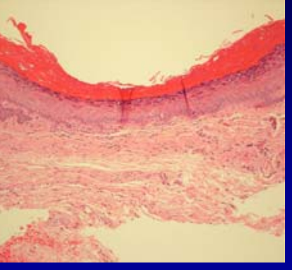
- Differential diagnosis:
  1) Frictional (traumatic) hyperkeratosis
  2) Linea alba
     - bilateral lines on buccal mucosa; level of occlusal plane
  3) Lichen planus
     - look for striations
  4) Chemical injuries
     - e.g. aspirin, hydrogen peroxide



## Leukoplakia

- Histology:
  - hyperkeratosis
  - acanthosis
  - ± dysplasia; mild, moderate, severe
  - ± carcinoma-in-situ (CIS)
  - ± squamous cell carcinoma



## Leukoplakia

- Transformation to dysplasia rates:
  - Thin leukoplakia – seldom (80% hyperkeratoses)
  - Thick leukoplakia – 1-7%
  - Granular leukoplakia – 4-15%
- Transformation to SCC rates:
  - Moderate dysplasia – 4-11%
  - Severe dysplasia – 20-35%
  - Usually 2-4 years after onset of leukoplakia
  - Risk increased if *persistent lesion, female patient, nonsmoker, FOM or ventral tongue site*

## Leukoplakia

- Treatment:

  Depends of histologic diagnosis

  1) If *hyperkeratosis or mild dysplasia:*
     - ➡ Clinical follow-up every 6 months
     - ➡ Complete removal (surgical, laser, etc)
  2) If *moderate dysplasia or worse:*

     If high-risk area (*floor of mouth, ventral or lateral tongue):*
     - ➡ Complete removal (surgical, laser, etc)

  Try to preserve specimen for histological exam

## Leukoplakia

Treatment: (cont'd)

** Careful long-term follow-up **

## Squamous cell carcinoma

- Malignant neoplasm of *squamous cells*
- Incidence:

  Oral cancer < 3% of all cancers in U.S.

  94% of oral cancers are SCC

  21,000 new cases diagnosed annually
- Groups at risk:

  Caucasian males, >65 yo; *decreasing*

  AA males, middle aged; *increasing*

## Squamous cell carcinoma

- Etiology:

  **Multifactorial disease**

  Most preceded by *leukoplakia* or *erythroplakia*

  1. **Tobacco smoking**
  2. **Smokeless (spit) tobacco**
  3. **Betel quid (paan)**
  4. **[Alcohol]**
  5. **Iron deficiency**
  6. **Immunosuppression**

## Squamous cell carcinoma

- pipe and cigar smoking, greater risk
- more cigarettes, *greater risk*
- reverse smoking, *greater risk*

- **SCC that occurs in non-smokers**
  - female
  - cancer of oral cavity (esp. tongue) vs. pharynx, larynx
  - young age

## Squamous cell carcinoma

- Gender: M:F = 3:1
- Age: Older adults
- Site:

**Intraoral** – tongue; posterior lateral border, ventral
– FOM > soft palate > gingiva > bu mucosa > la mucosa > hard palate

* FOM SCC – high risk of second primary malignancy

**Oropharyngeal** – tonsil, posterior soft palate, base of tongue

## Squamous cell carcinoma

- Site:

**Lip vermillion**

- *Risk factors* – light-skinned
  – long-term exposure to sunlight
  – outdoor occupation
- *Site* – lower lip

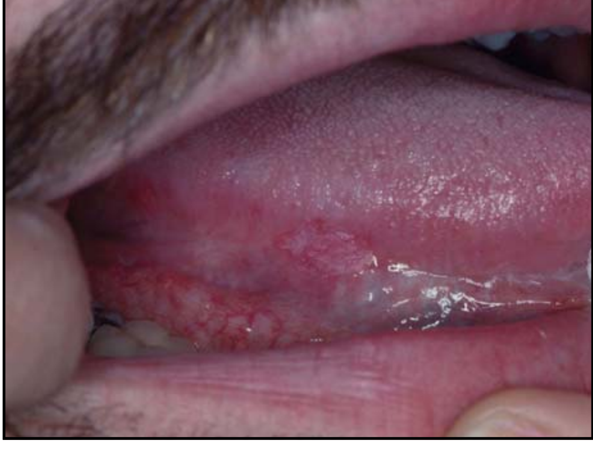
## Squamous cell carcinoma

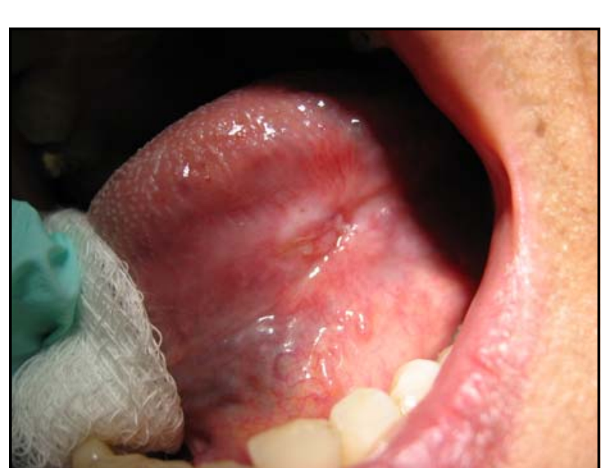
- Clinical features:

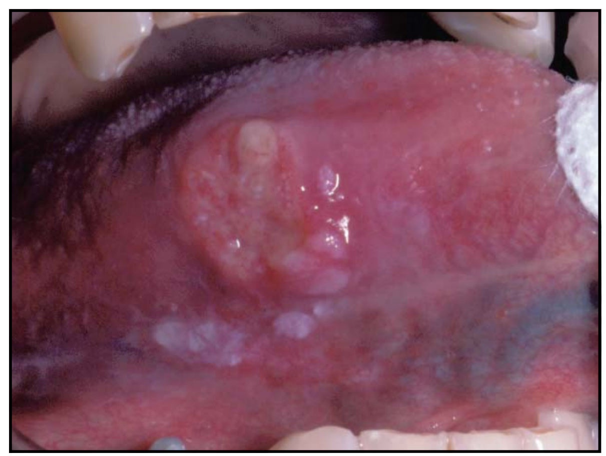
May be painless

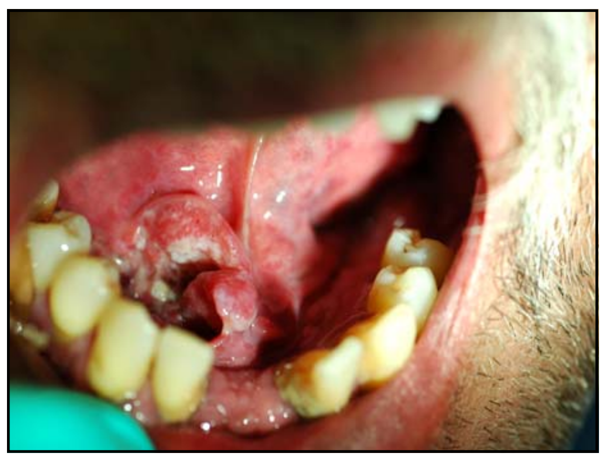
Varied clinical appearance

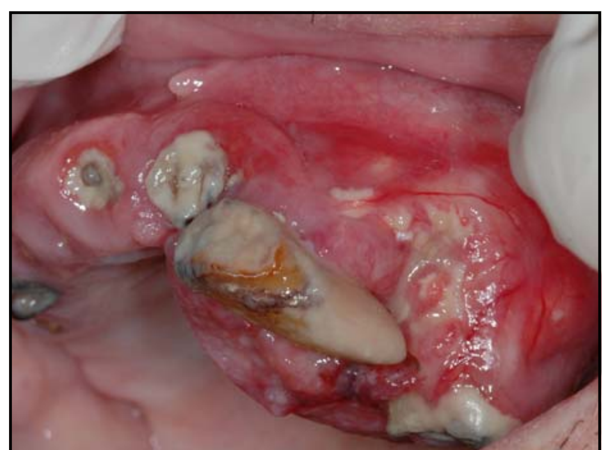
1. **Growth pattern**
   Exophytic, endophytic
2. **Surface characteristics**
   Intact, ulcerated
   Granular, papillary
3. **Color**
   White, red, mixed

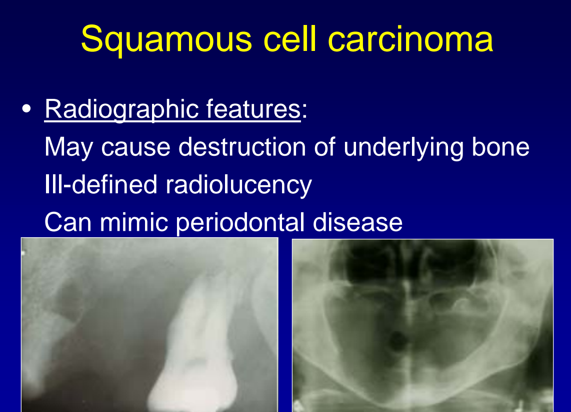










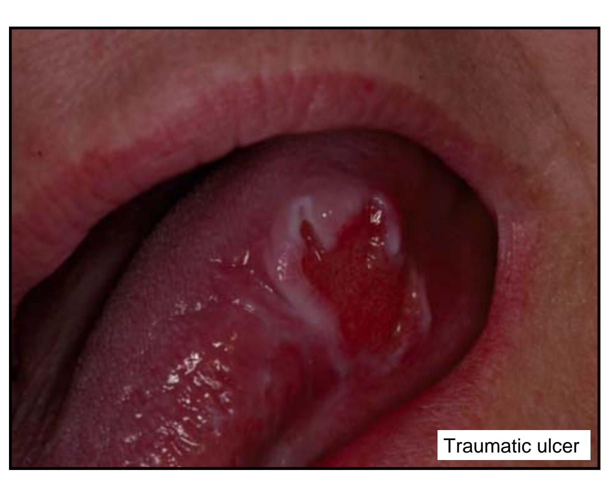


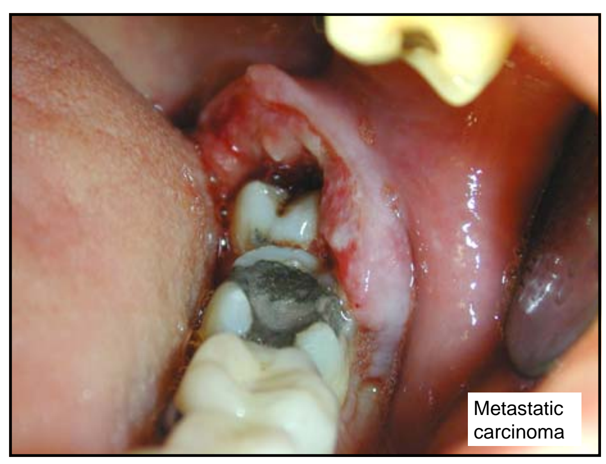

## Squamous cell carcinoma

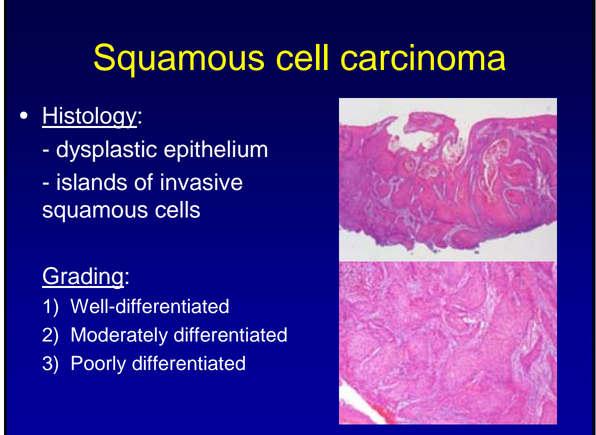
- Differential diagnosis:

**Intraoral SCC**

1) Leukoplakia/erythroplakia
2) Traumatic ulcer
3) Ulcer of infectious origin (e.g. TB, syphilis, deep fungal)
4) Other malignancies (e.g. primary, metastatic, lymphoma)

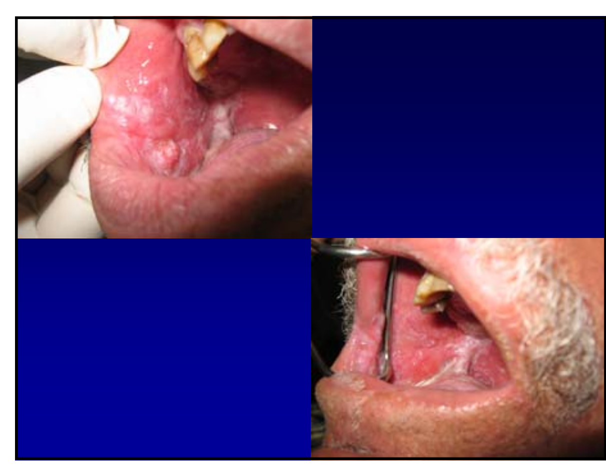


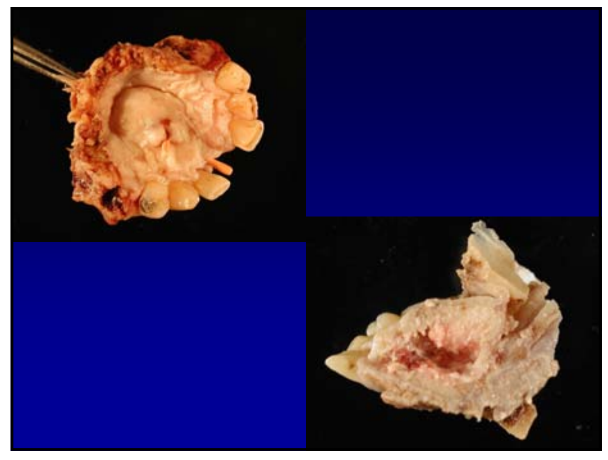



## Squamous cell carcinoma

- Treatment:
  - Depends on clinical staging (size, nodal status, distant metastasis)
  - Surgical resection ± radiation therapy ± chemotherapy
  - ± Neck dissection
  - 5-year survival rates – 9-85%
  - Risk for second primary
    - highest risk for smokers and drinkers
    - FOM location
    - usually within 3 years of initial malignancy



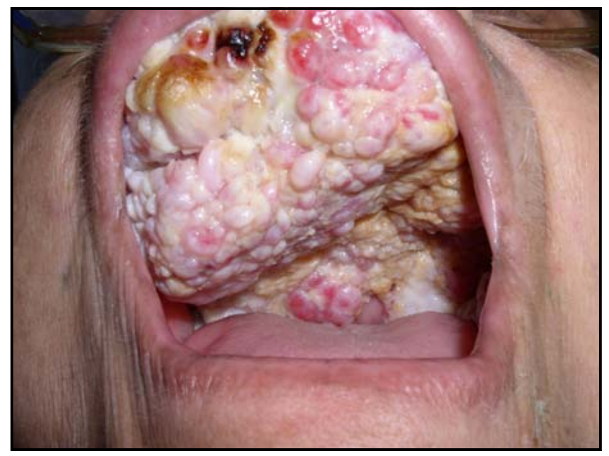


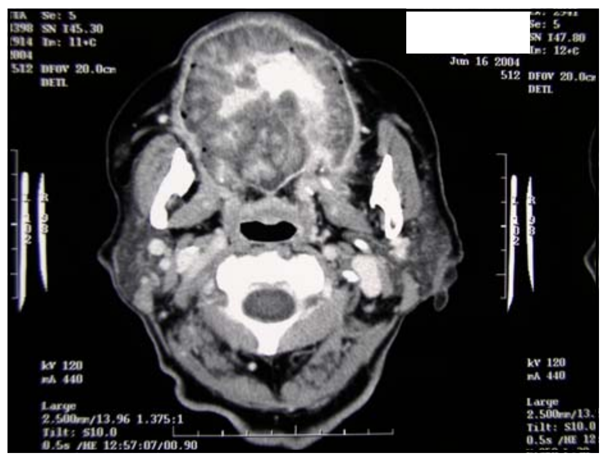
## Verrucous carcinoma

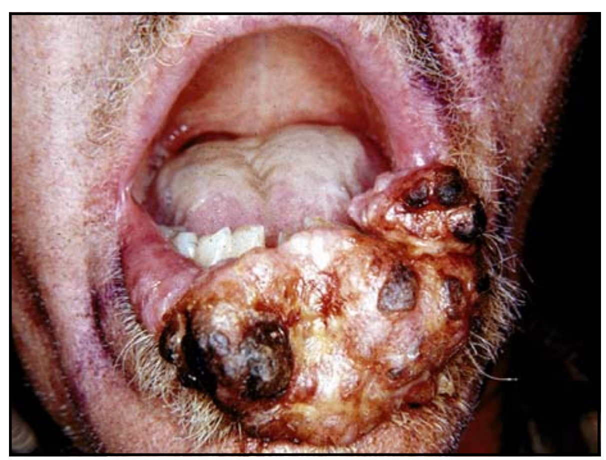
- Malignant neoplasm of *squamous cells*
- Low-grade variant of SCC
- Incidence:
  - 1-10% of oral SCCs
- Etiology / Risk factors:
  - Chewing tobacco use
  - Snuff use

## Verrucous carcinoma

- Gender: M>F
- Age: >55 yo
- Site: Mandibular vestibule, buccal mucosa, hard palate, gingiva
  Site of tobacco placement
- Clinical features:
  White, may be pink
  Diffuse, painless
  Thick mass with papillary projections

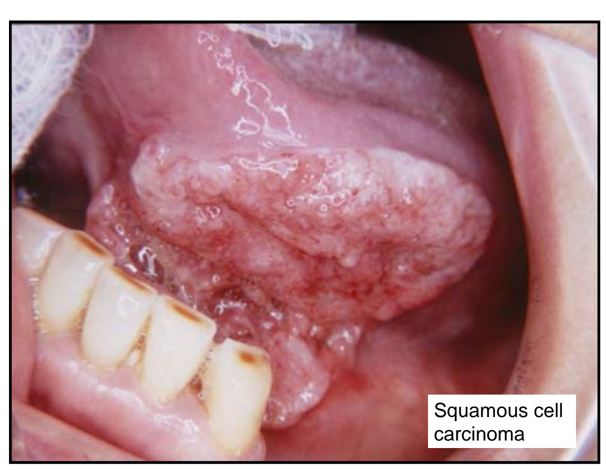


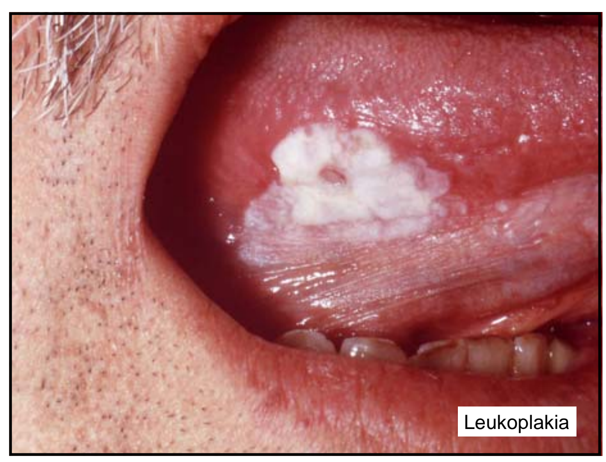


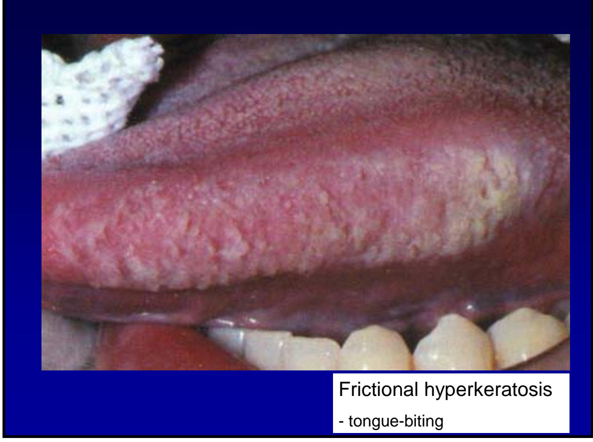



## Verrucous carcinoma

- Differential diagnosis:
  1) Conventional squamous cell carcinoma
  2) Leukoplakia; proliferative verrucous leukoplakia (PVL)
  3) Traumatic lesion, factitial (self-induced) injury
  4) Smokeless tobacco keratosis
  5) Squamous papilloma, verruca vulgaris

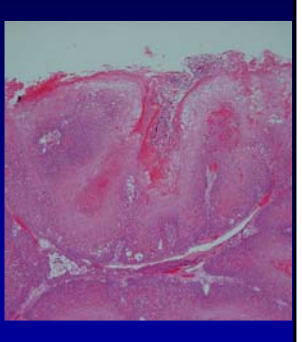

Squamous cell carcinoma




## Verrucous carcinoma

- Histology:
  - papillary surface
  - abundant keratin
  - wide, bulbous rete pegs
  - "pushing" invasion
  - little atypia
- **conventional SCC in 20%**



## Verrucous carcinoma

- Treatment:
  Surgical resection
  Radiation therapy less effective