

**WHITE LESIONS OF THE UPPER
AIRWAY**

WHITE LESION CONFIGURATIONS

- Solitary vrs Multifocal
- Flat Plaque
- Verrucous/rippled
- Lacey
- White with red component
- Papular (curdled milk plaques)
- Pseudomembranous

PLAQUES

- FRICTIONAL KERATOSES
 - DENTURE, CHRONIC BITING
- LEUKOPLAKIA
 - IDIOPATHIC
 - SMOKELESS TOBACCO
 - SANGUINARIA
 - ACTINIC CHEILITIS
- WARTY DYSKERATOMA & GROVER'S DISEASE
- LICHEN PLANUS (HYPERPLASTIC)
- DYSKERATOSIS CONGENTIA

Frictional Keratosis

- Cause/Effect
- Edentulous ridge crest, especially retromolar pad
- Ill Fitting prostheses
- Broken cusps and restorations
- Habitual tongue and Cheek biting
- Risk for cancer is low, perhaps nonexistent
- If smoking is a factor, biopsy should be undertaken

Cheek Bite Keratosis (Morsicatio Bucarum)



Frictional Keratosis



Leukoplakia

An upper aerodigestive tract white lesion that:

cannot be rubbed away

does not have a cause (tobacco excluded)

does not represent another clinically and microscopically defined disease

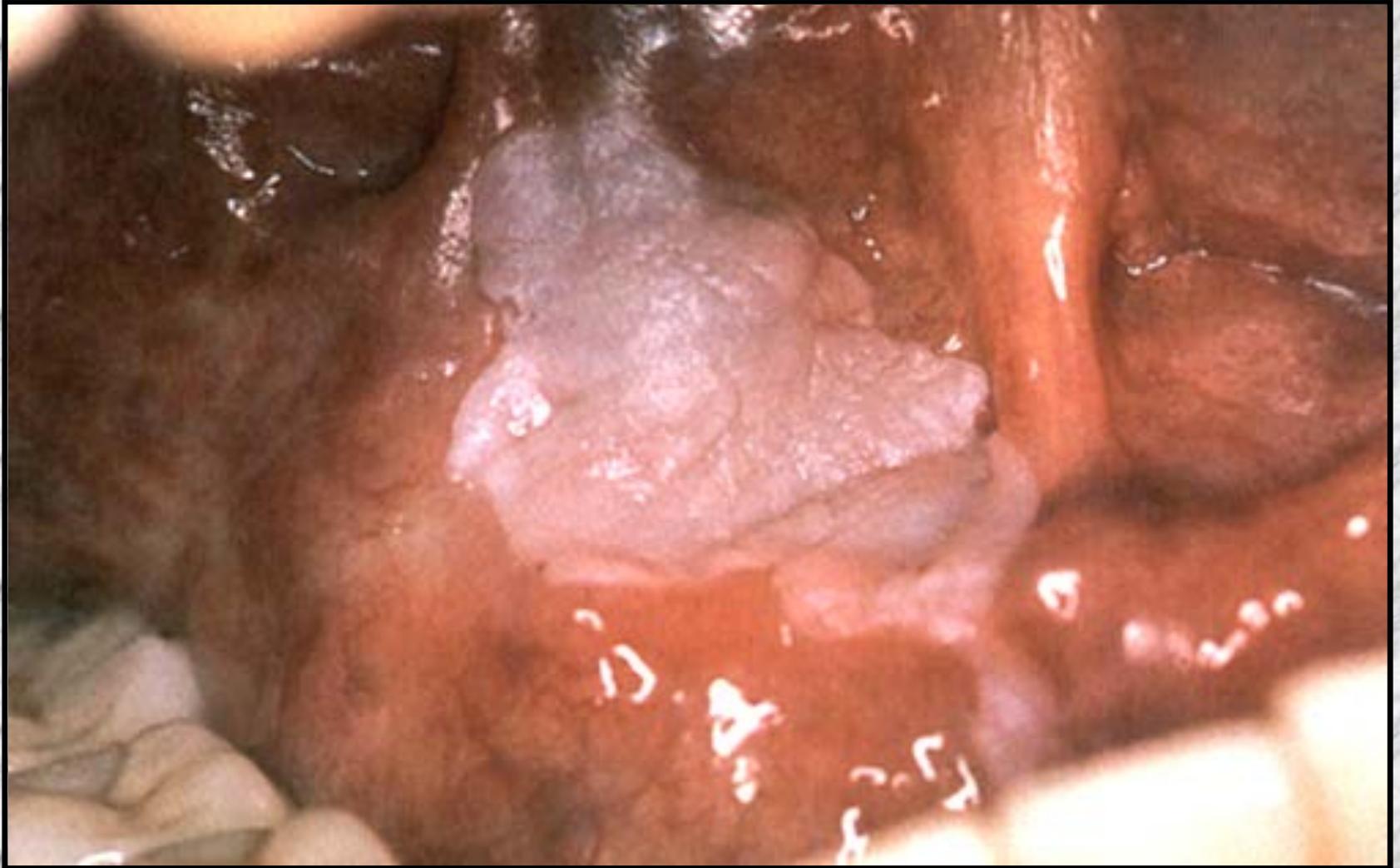
Leukoplakia

- 20% precancerous change histologically
- Floor of the Mouth – 40% dysplastic
- 6% of all leukoplakias will progress to carcinoma within 5-7 years
- Biopsy: no dysplasia > periodic follow up or excision (laser ablation)
- Positive for dysplasia > excision with assessment of margins
- Ploidy assessment: aneuploid leukoplakias carry highest risk for progression to carcinoma

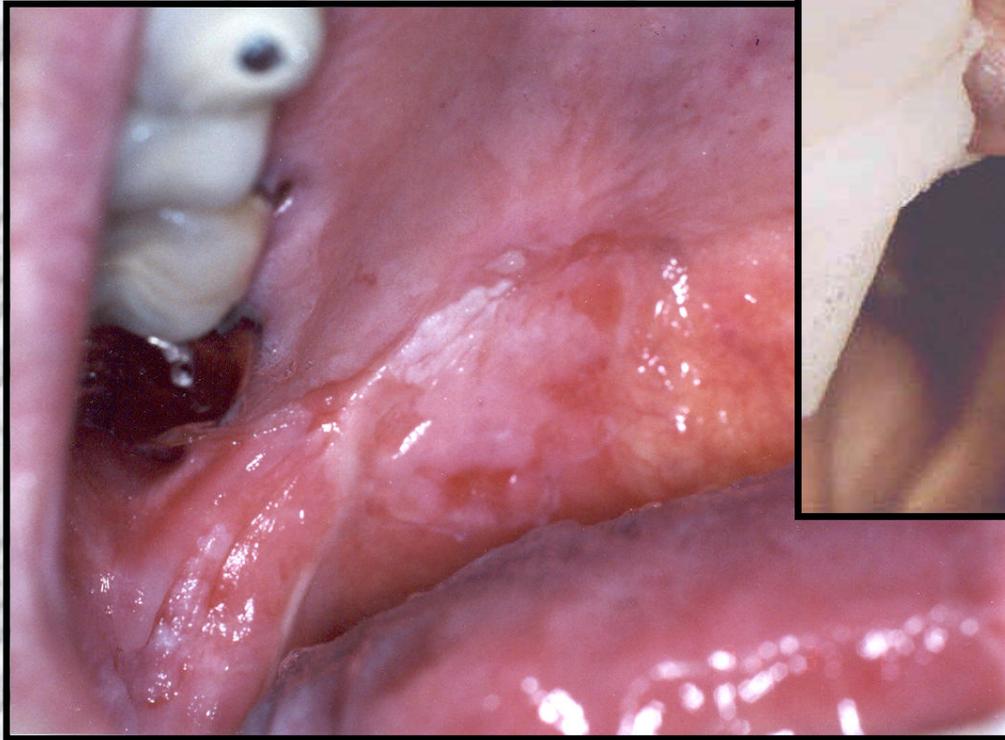
LEUKOPLAKIA



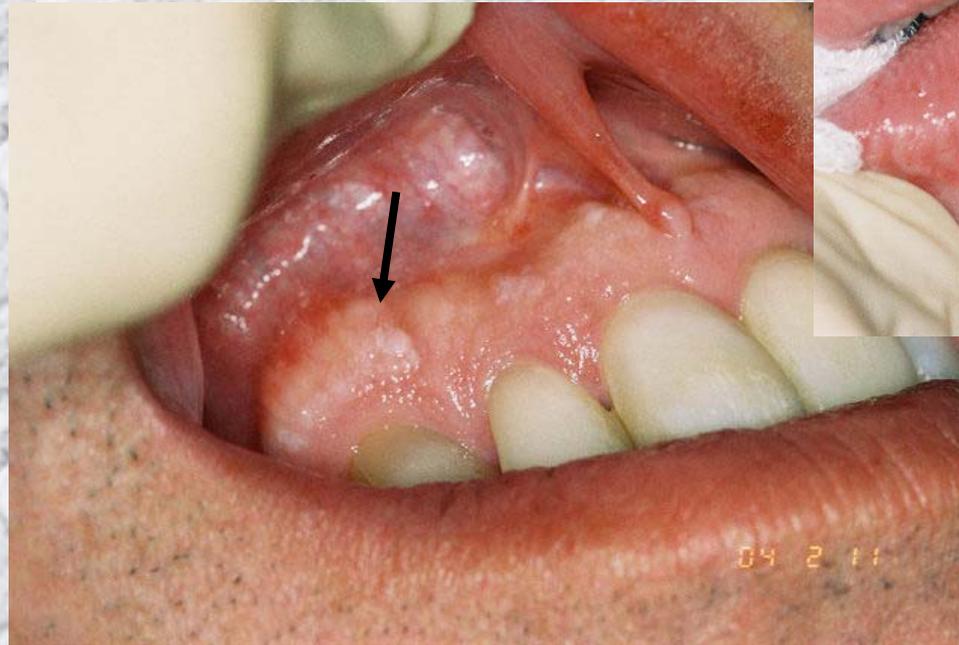
LEUKOPLAKIA



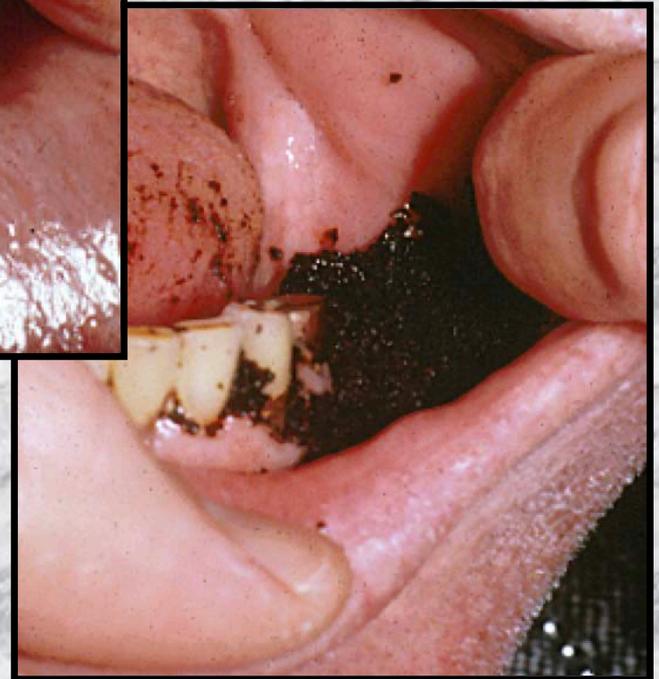
LEUKOPLAKIA



FOCAL LEUKOPLAKIA



Smokeless Tobacco Keratosis



SANGUINARIA LEUKOPLAKIA



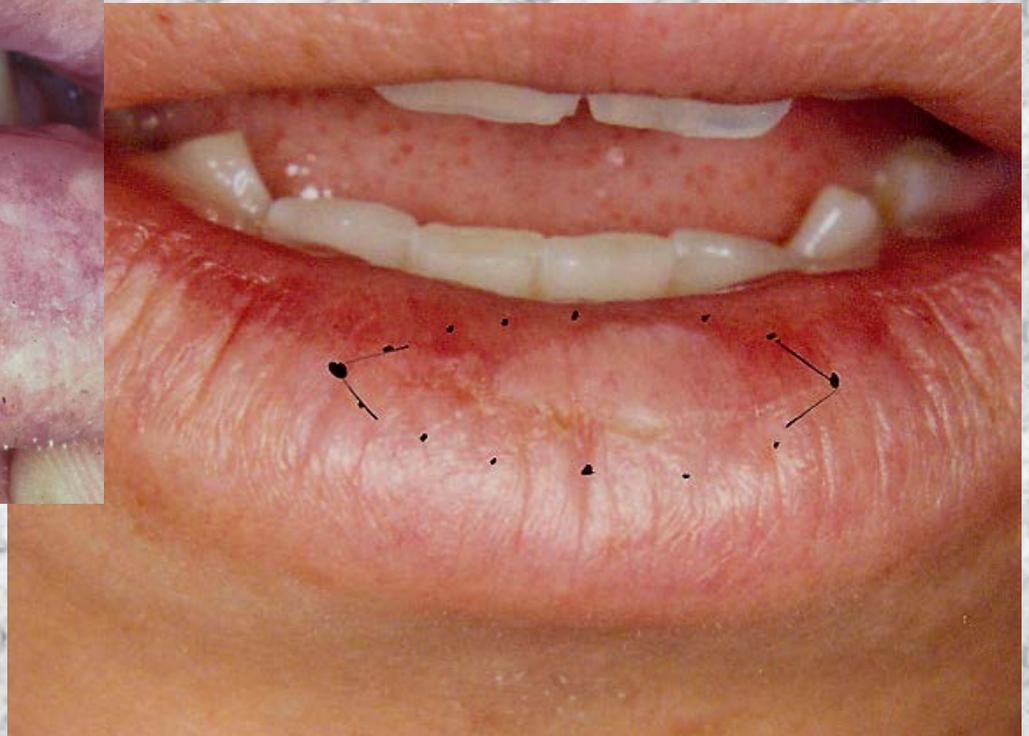
Actinic Cheilitis

- Solar irradiation to lower lip
- Diffuse leukoplakia across vermilion
- Light complected most prone
- Prolonged outdoor jobs or recreation
- Microscopically ranges from benign keratosis to dysplasia to carcinoma. Connective tissues show elastic degeneration.
- Tx: lip stripping or 5-fluorouracil cream

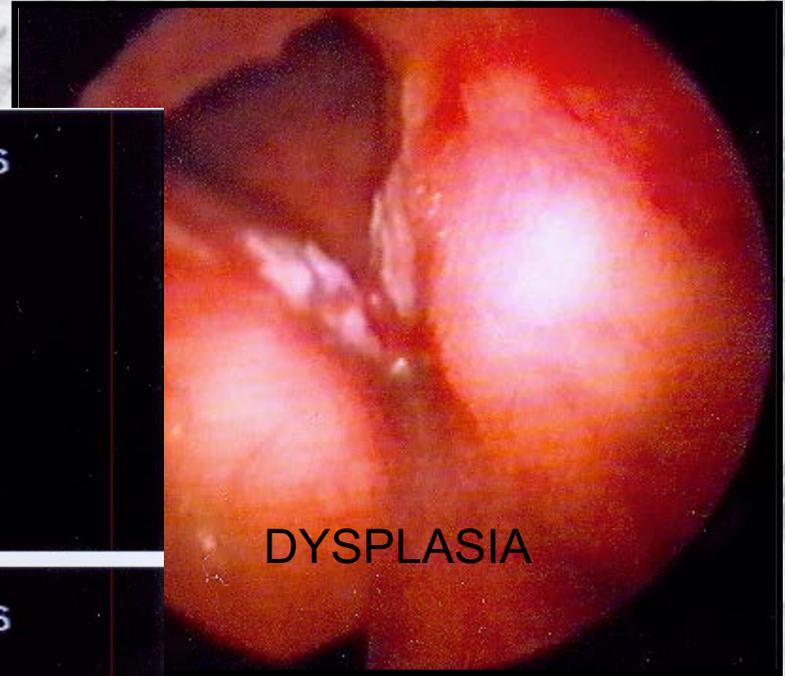
Actinic Keratosis of the Lip



Proposed Excision areas inked



VOCAL CORD LEUKOPLAKIA



DYSPLASIA

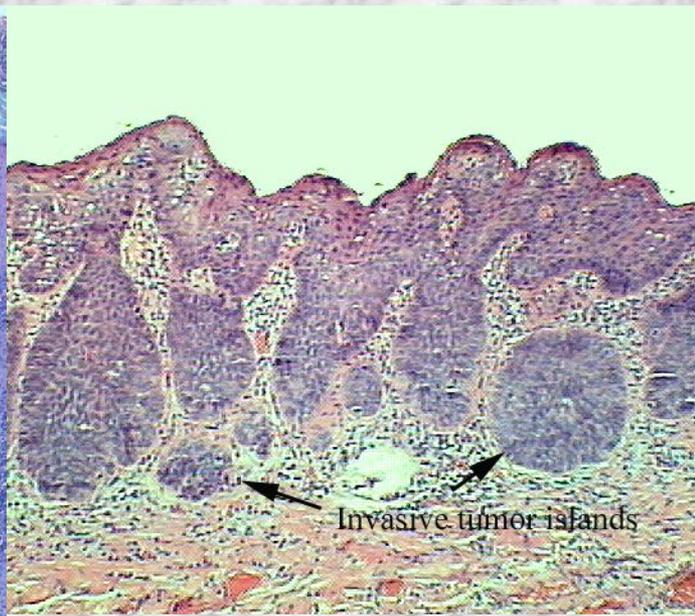
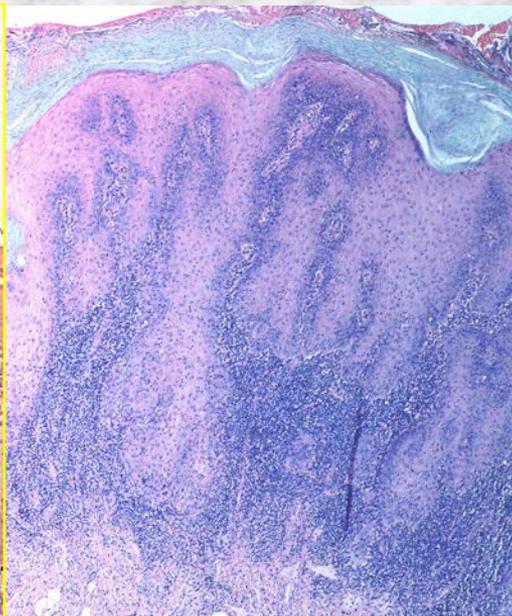


SQUAMOUS CELL CA

Proliferative Verrucous Leukoplakia

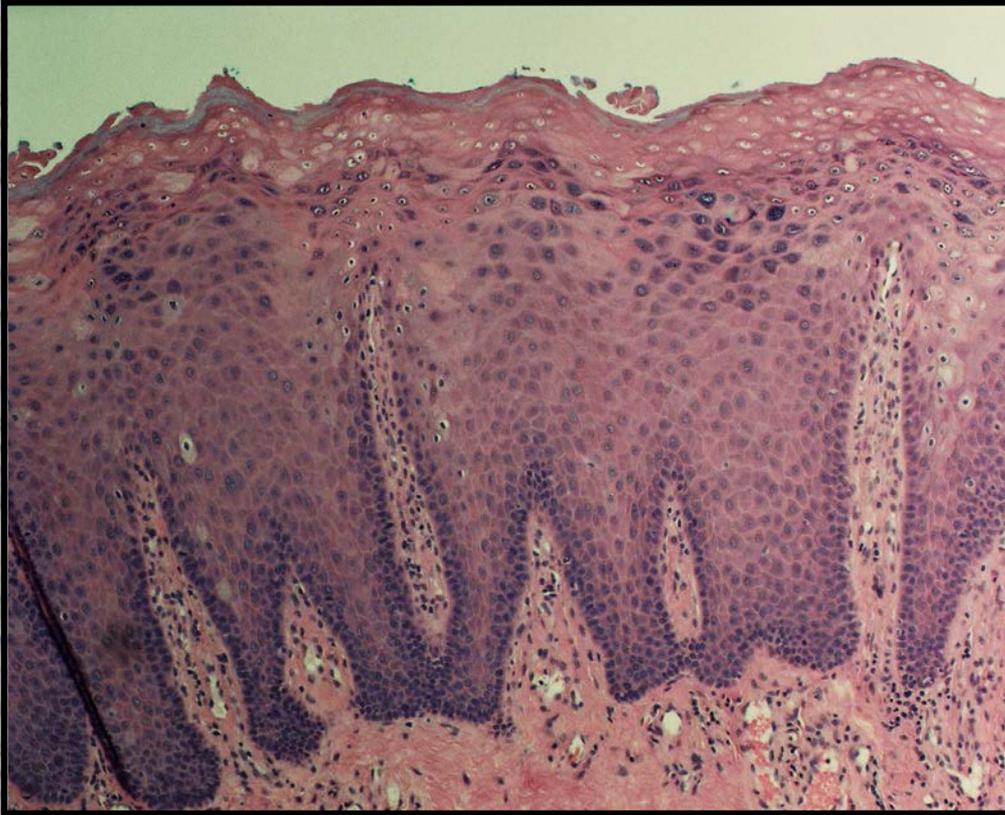
- A specific subtype of leukoplakia characterized by verrucous white lesions that tend to spread laterally and recur following excision
- Elderly females
- Gingiva and vestibule
- Smoking habit seen in less than 50%
- Microscopically, the lesions range from verrucous keratosis to atypical verrucous hyperplasia that may progress to either verrucous carcinoma or invasive squamous cancer
- Tx: aggressive excision by scalpel or laser with close periodic followup and re-excision when recurrences develop

PVL



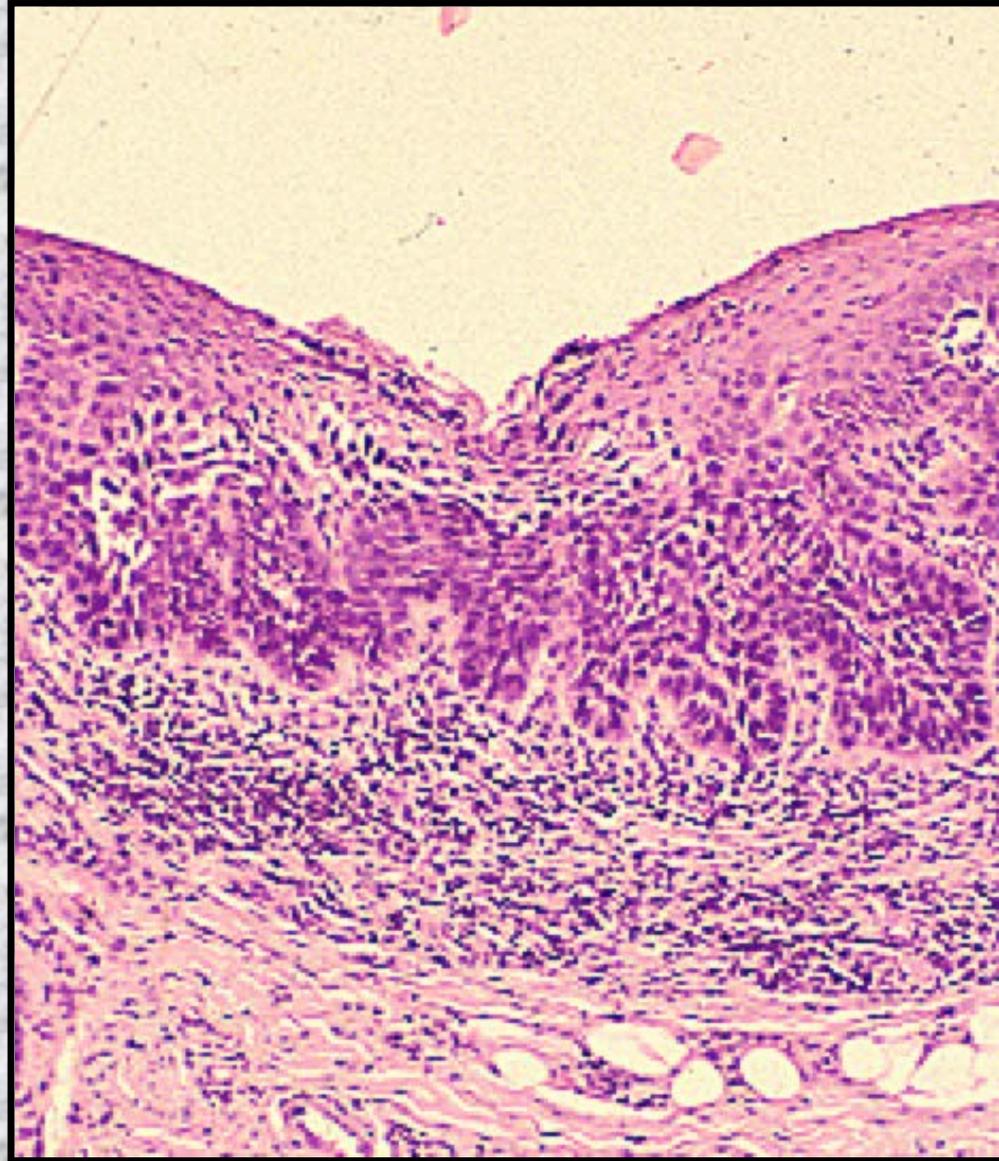
Leukoplakia Histology

- Benign Keratosis



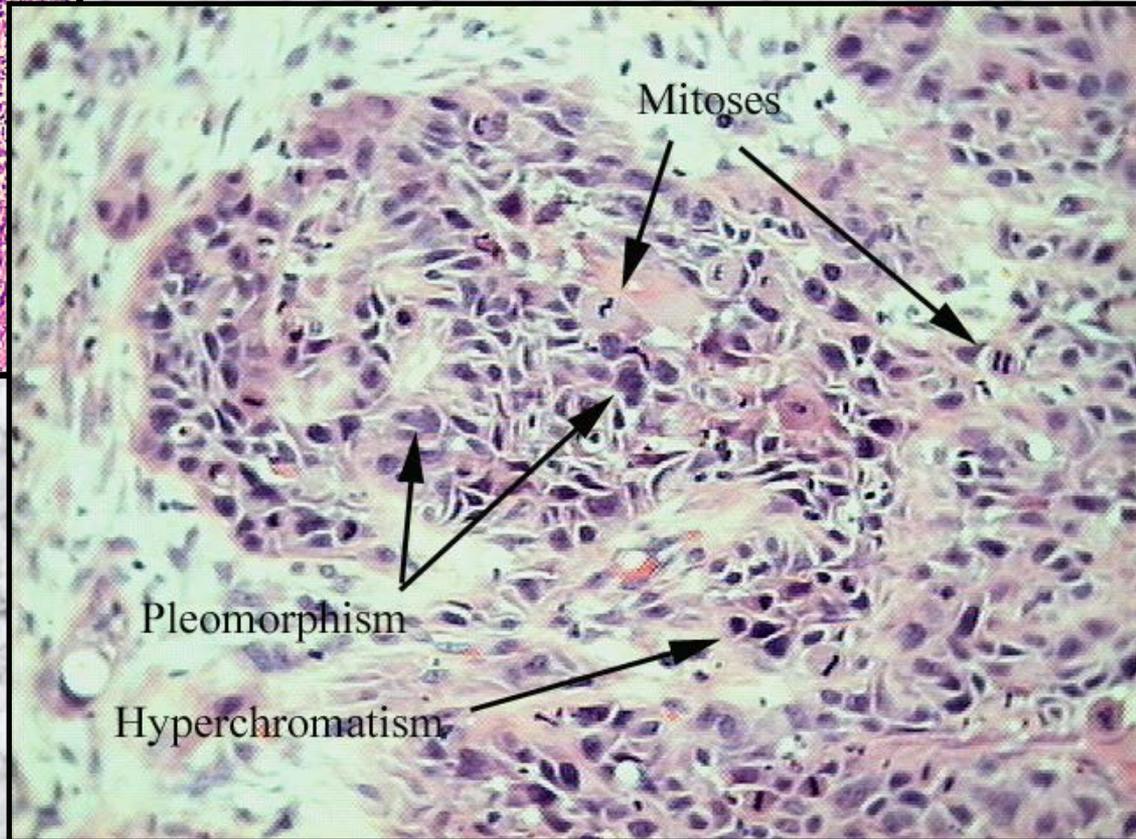
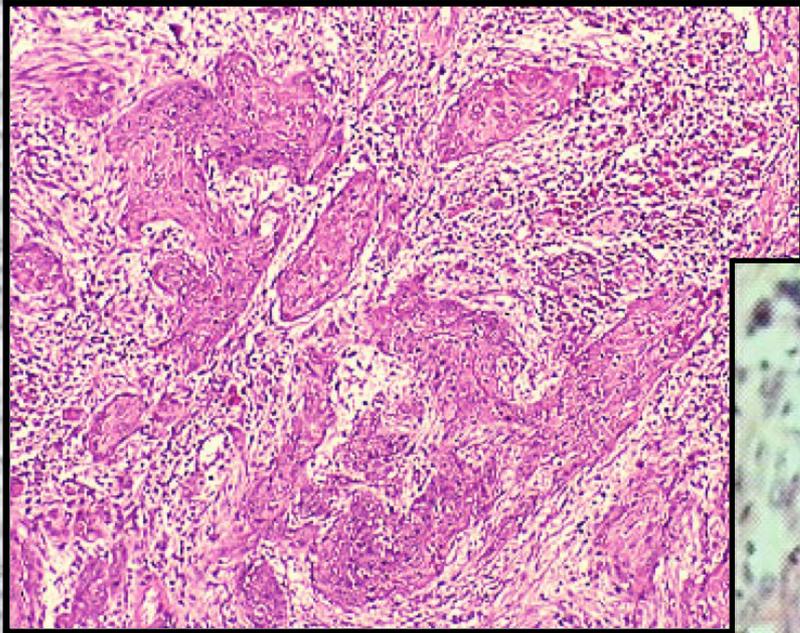
Leukoplakia Histology

- Dysplasia



Leukoplakia Histology

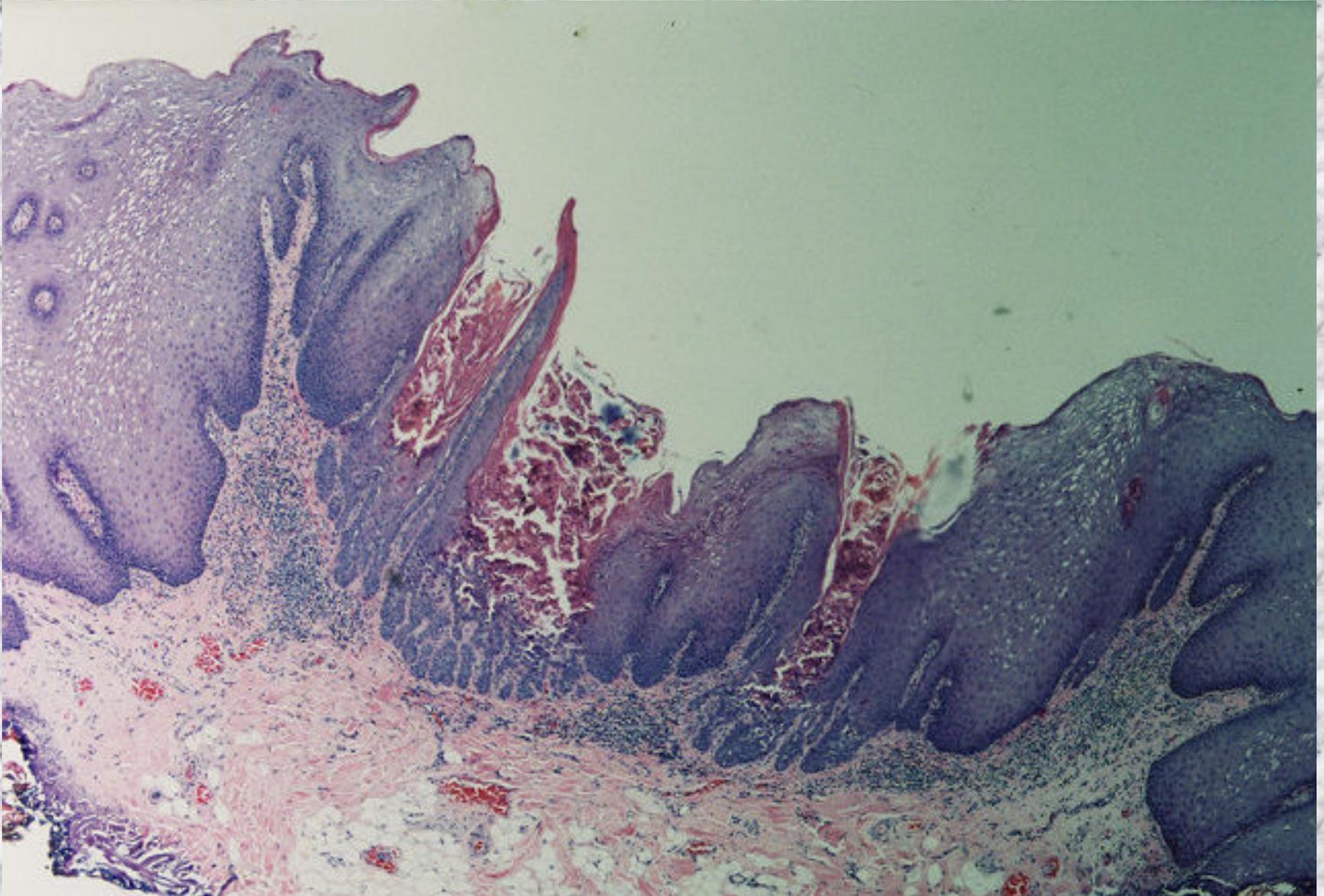
- Squamous Cell Carcinoma, invasive islands of tumor



WARTY DYSKERATOMA

- Rare white lesion, often with an irregular, pebbly surface
- A benign keratosis with specific histologic features:
 - Keratosis
 - Individual cell keratinization
 - Villous rete pegs
 - Suprabasilar acantholysis (desmosome defect)
- Multiple lesions are termed Grover's disease (focal acantholytic dyskeratosis)

WARTY DYSKERATOMA



Lichen Planus

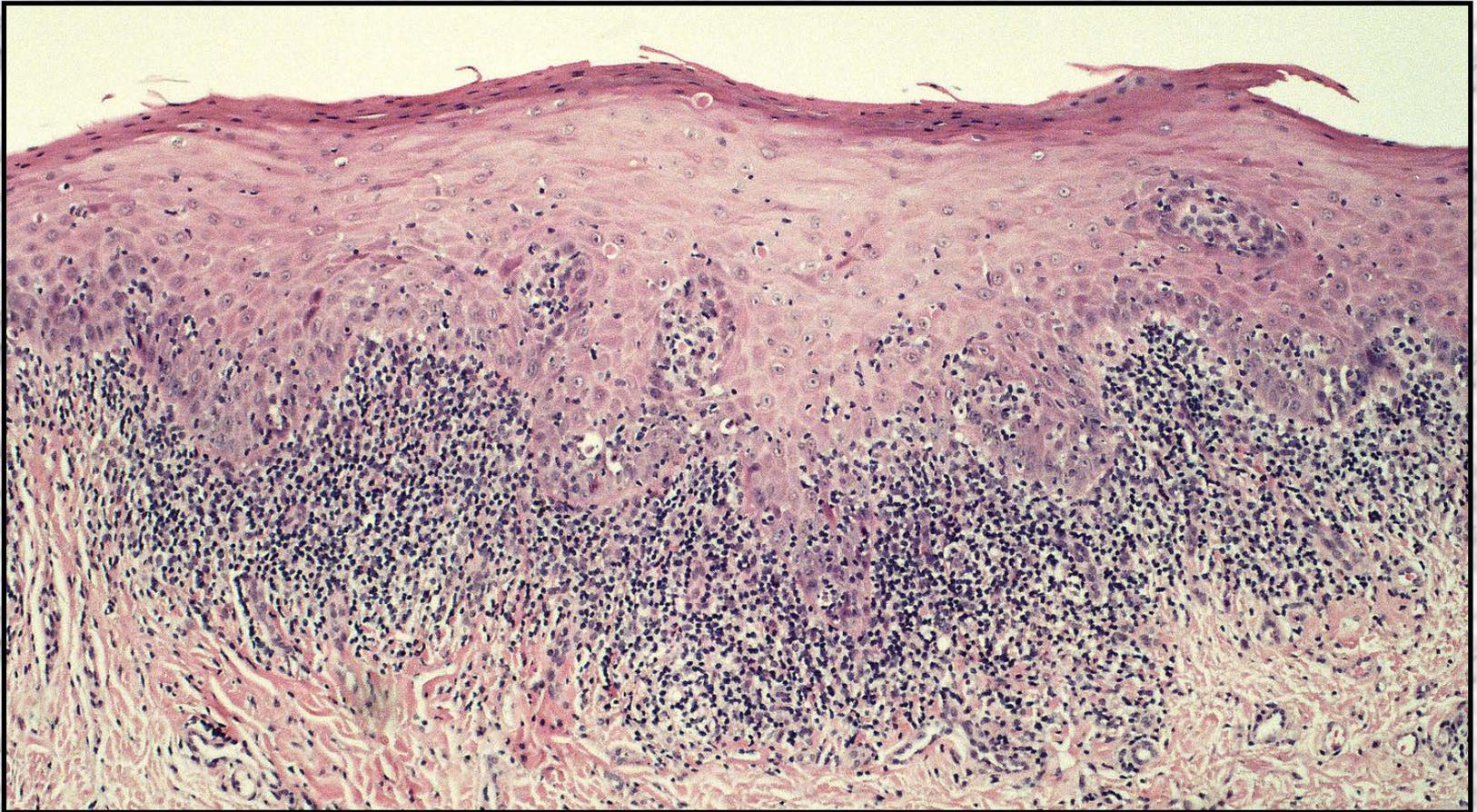
- Reticular, Erosive, Hyperplastic
- The Hyperplastic or Hypertrophic form resembles leukopakia clinically
- Tongue and Buccal Mucosa
- There may be marginal or adjacent stria
- Histology: marked hyperkeratosis, lichenoid mucositis

LICHEN PLANUS, Reticular

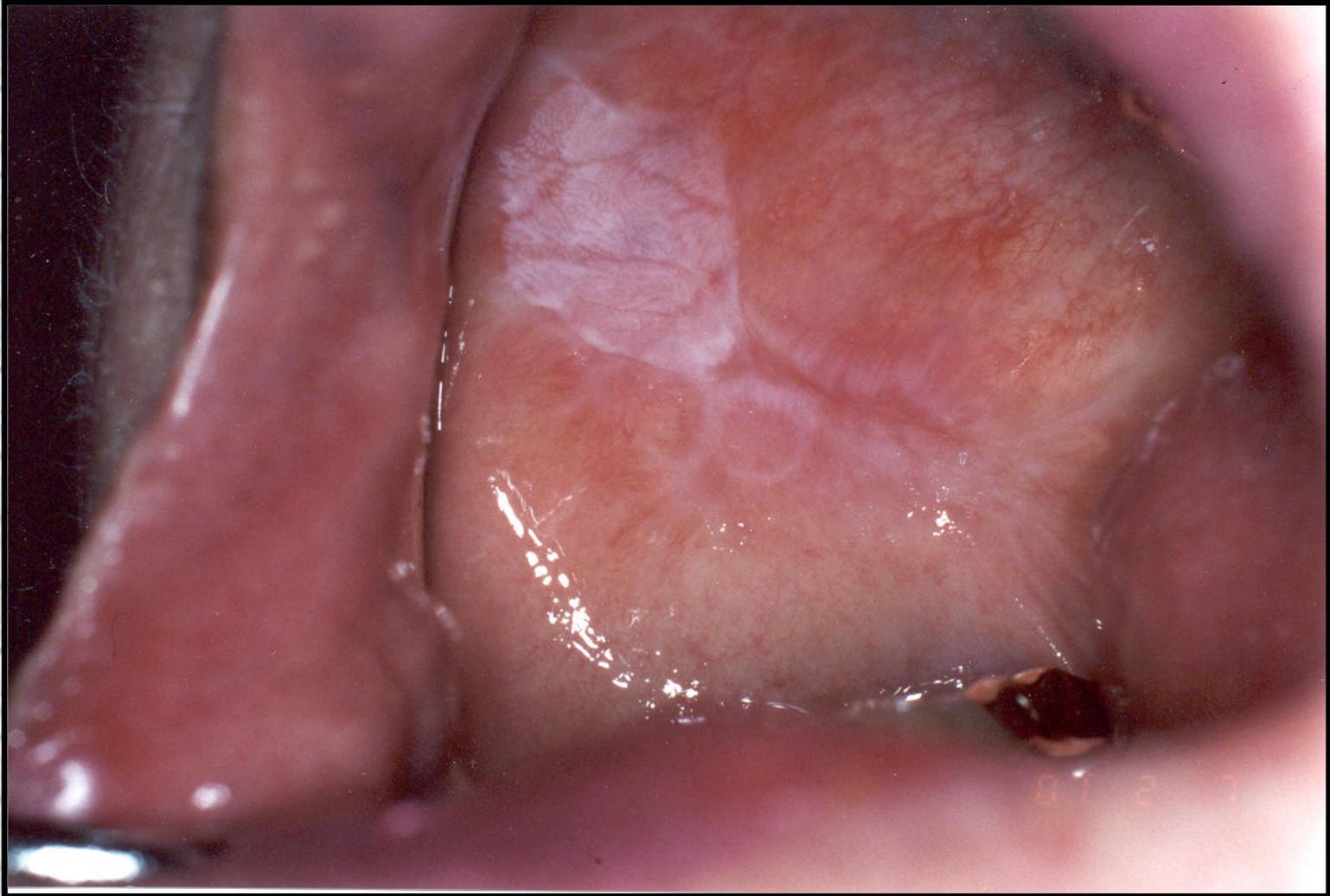


Lichen Planus Histology

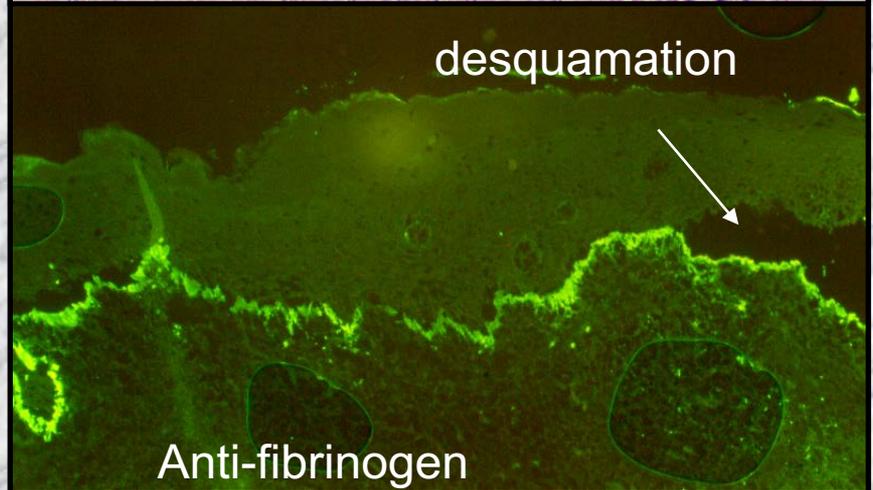
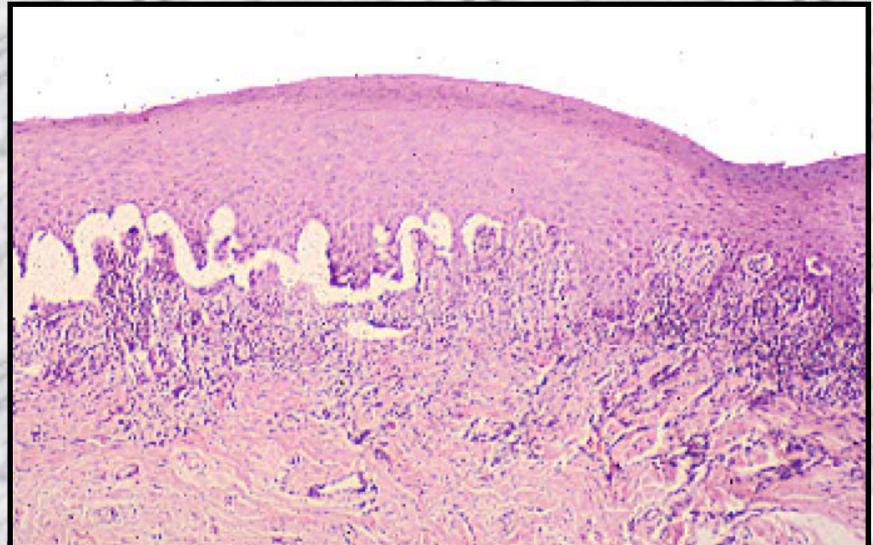
- Keratosis, basal cell damage, thickening of the basement membrane, T lymphocyte infiltrate (chronic interface mucositis)



LICHEN PLANUS, HYPERPLASTIC



EROSIVE LICHEN PLANUS



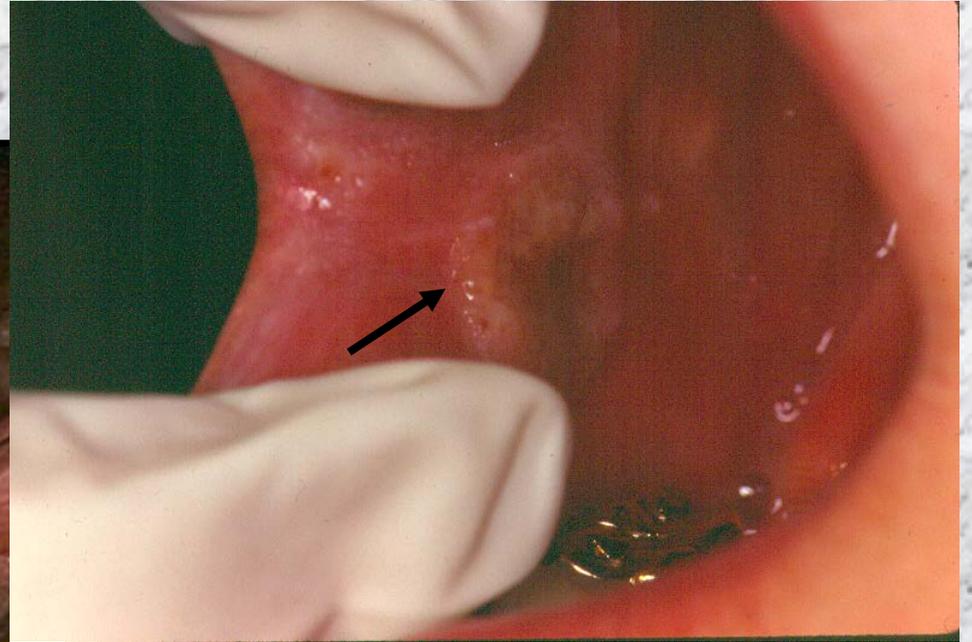
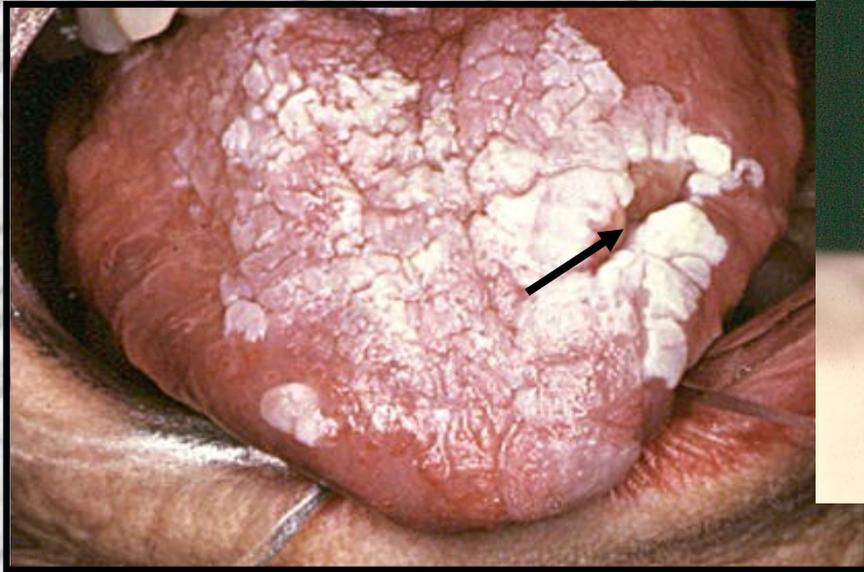
Lichen Planus



IS LICHEN PLANUS PRECANCEROUS?

- Lichen planus occurs in .5% of the population (1/200) and is therefore common. So CA could be coincidental
- 1-2% of patients with LP end up with an oral cancer (1/2000)
- Conclusion: LP is a risk factor for oral cancer in a subpopulation of patients
- Tumors reported to arise in an LP lesion as well as on nonlesional mucosa among LP patients

LICHEN PLANUS, CARCINOMA



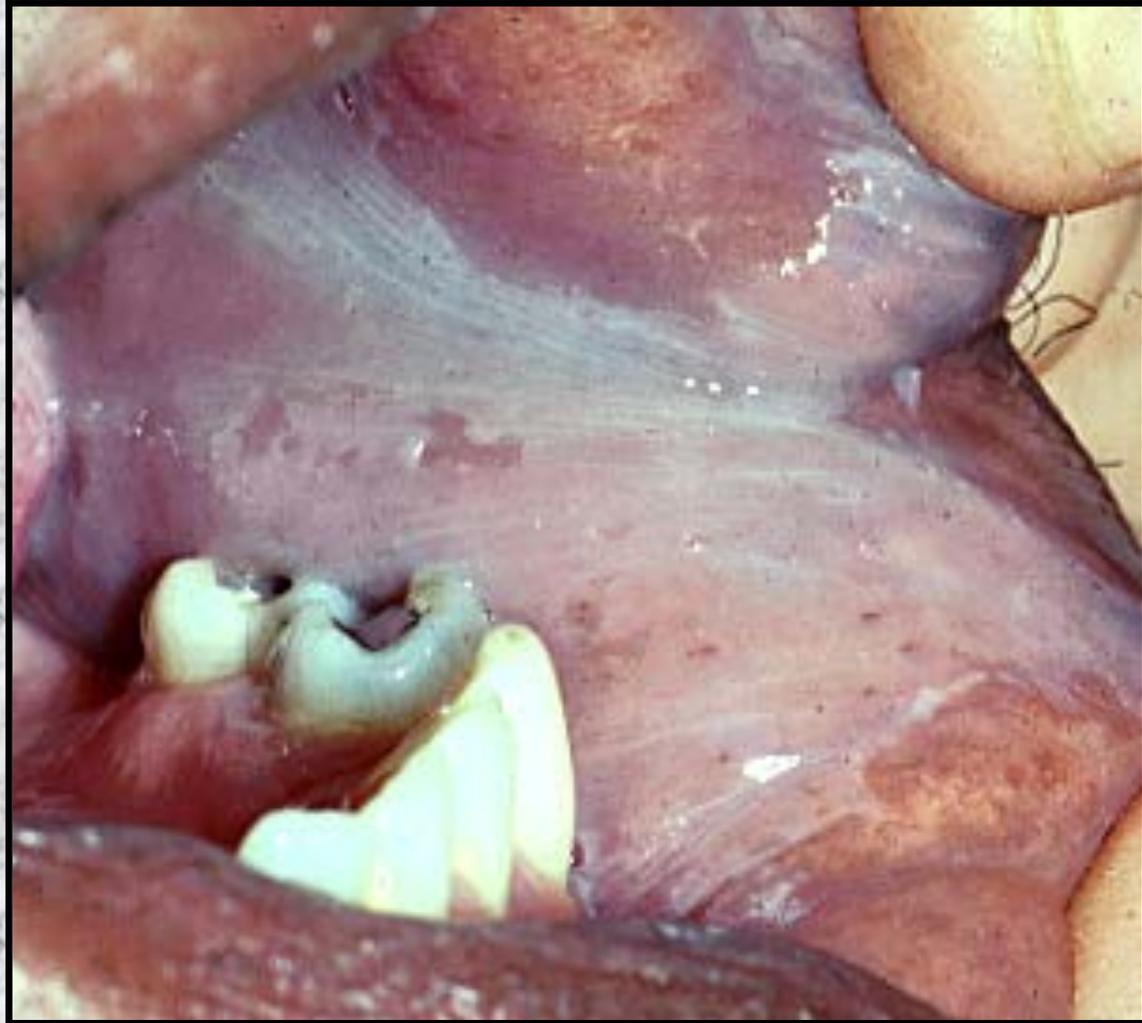
DIFFUSE BILATERAL BUCCAL MUCOSAL WHITE LESIONS

- LEUKOEDEMA
- WHITE SPONGE NEVUS
- RARE GENOKERATOSES
- CHEEK BITE KERATOSIS

Leukoedema

- Normal variation
- Diffuse sheetlike silky white sheen of buccal mucosa
- Dark skin populations
- Whiteness disappears or minimizes when the tissue is stretched
- It is not precancerous

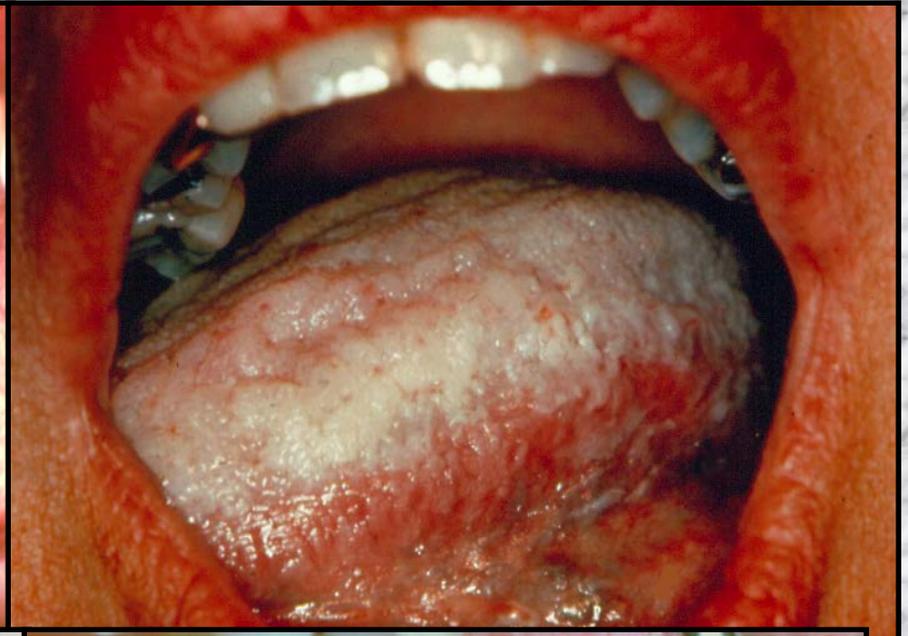
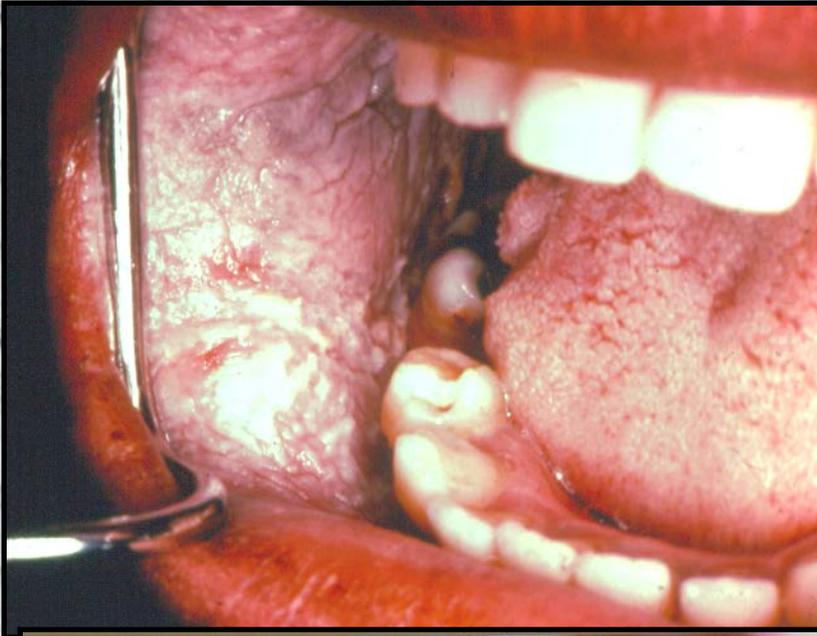
Leukoedema



WHITE SPONGE NEVUS

- Thick curtain like folded white lesions, entire buccal mucosa bilaterally
- Similar lesions involve the genitourinary tract
- Hereditary: Autosomal dominant
- Parakeratosis with parakeratin chevrons and individual cell keratinization
- Tx: none

White Sponge Nevus



WSN Histology

- Parakeratosis, individual cell keratinization



Pachonychia Congenita

- Patchy diffuse white lesions of buccal mucosa bilaterally
- Lesions may occur on other mucosal areas
- Massive thickening of toenails and fingernails
- Hereditary: Autosomal Dominant defect in keratinization
- Hyperparakeratosis, acanthosis
- Tx: none

Pachonychia Congenita



Hereditary Benign Intraepithelial Dyskeratosis (HBID, Red Eye)

- Hereditary defect in keratinization
- Racial isolate group in North Carolina
- Bilateral patchy lesions of buccal mucosa
- Scleral erythema
- Seasonal fluctuation in lesional severity
- Parakeratosis, acanthosis, individual cell keratinization
- Tx: none

Incontinentia Pigmenti

- Heritable disease
- Manifestations evolve during infancy
 - Slate grey or brown diffuse cutaneous macular pigmentations
 - Verrucoid crusty cutaneous lesions
 - Oral white lesions

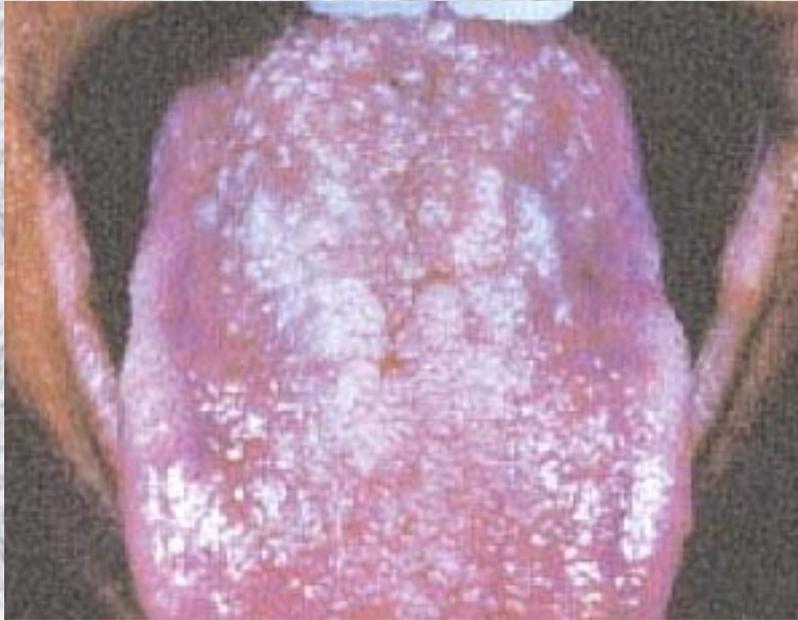
Incontinentia Pigmenti



Dyskeratosis Congenita

- Heritable disease
- Clinical manifestations evolve during infancy
 - Oral white lesions, dysplastic, progress to carcinoma
 - Multiple other anomalies
- Progression to carcinoma may occur during childhood

Dyskeratosis Congenita



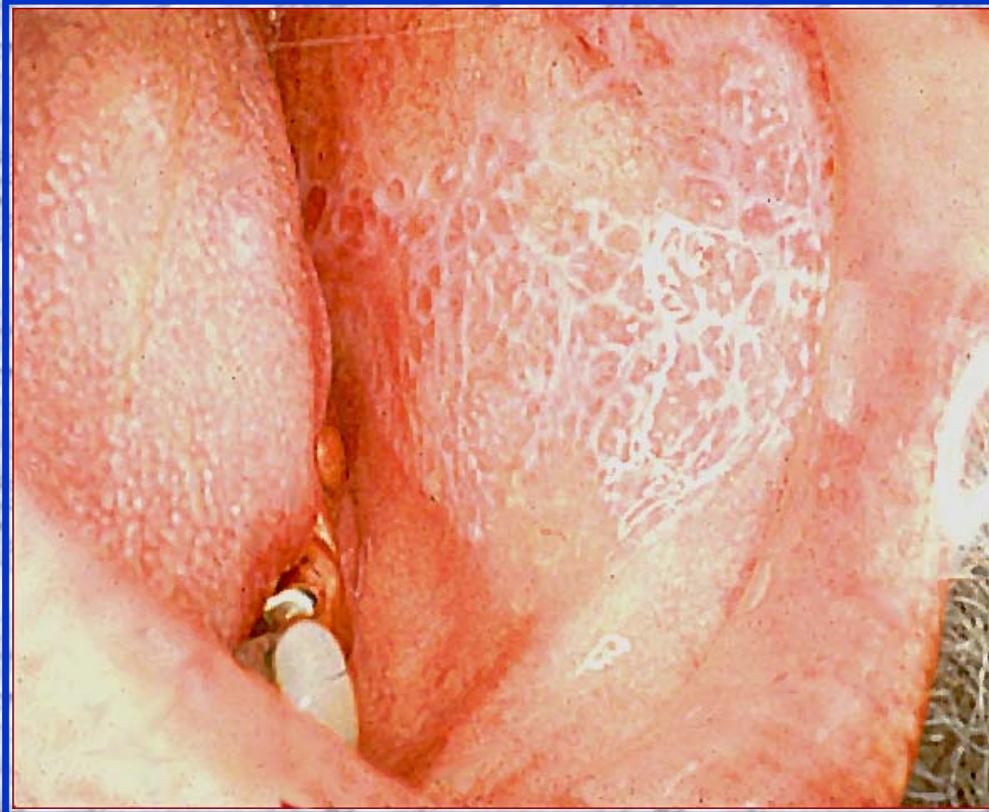
LACEY/FRINGE BORDERS

- LICHEN PLANUS
- LICHENOID MUCOSITIS
- LUPUS ERYTHEMATOSUS
- ORAL HAIRY LEUKOPLAKIA

Reticular Lichen Planus

- Stria of Wickham, lacey, spiderweb, fringe borders
- Asymptomatic
- May progress to erosive form over time
- Adult onset
- Buccal mucosa, vestibule, gingiva
- Chronic lymphocytic interface mucositis

Reticular Lichen Planus



Lupus Erythematosus

- Females>Males
- Systemic and cutaneous (discoid) forms
- Oral lesions usually do not exist in the absence of skin lesions (classic discoid lesions and butterfly rash)
- White, lacey, finge borders
- Hyperkeratosis, acanthosis, chronic lymphocytic interface mucositis
- DIF: basement membrane IgM
- Serologic: ANA, anti-DNA antibodies
- Tx: topical and systemic steroids

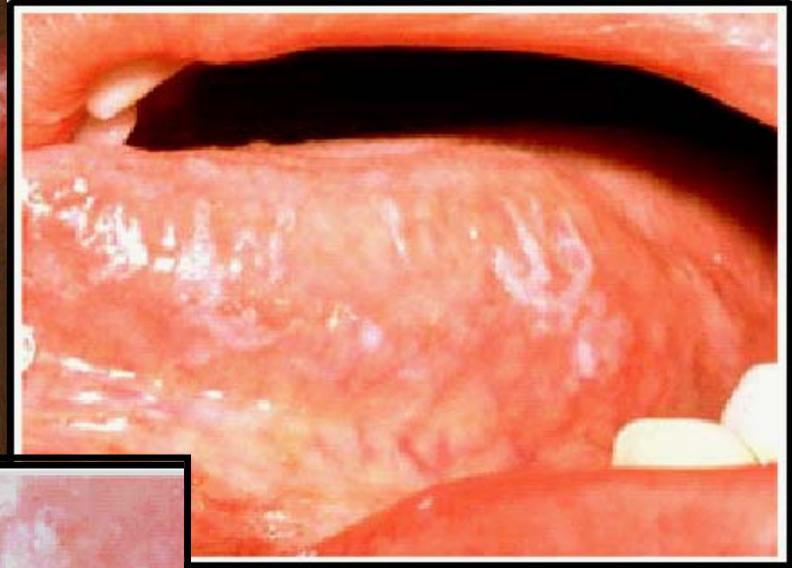
LUPUS ERYTHEMATOSUS



Oral Hairy Leukoplakia

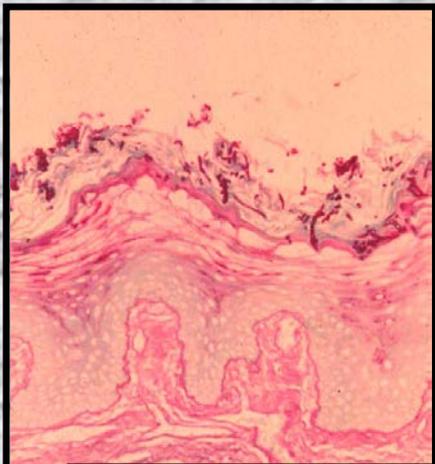
- Epstein Barr virus etiology
- EBV receptors present on oropharyngeal keratinocytes
- HIV infected patients, appears when CD4 count is less than 500
- Males
- Lateral tongue lesions with fringe (hairy) borders
- Often with superimposed Candida
- Tx: Acyclovir related drugs

ORAL HAIRY LEUKOPLAKIA

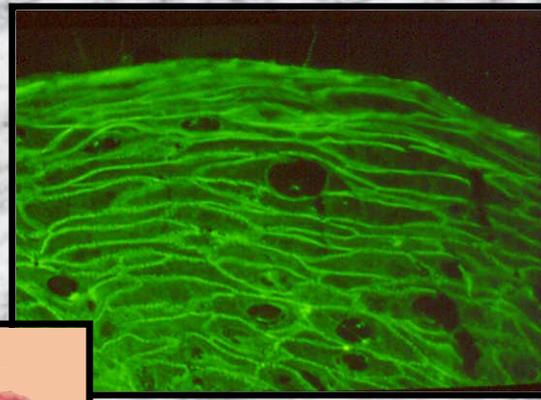


ORAL HAIRY LEUKOPLAKIA

Candida



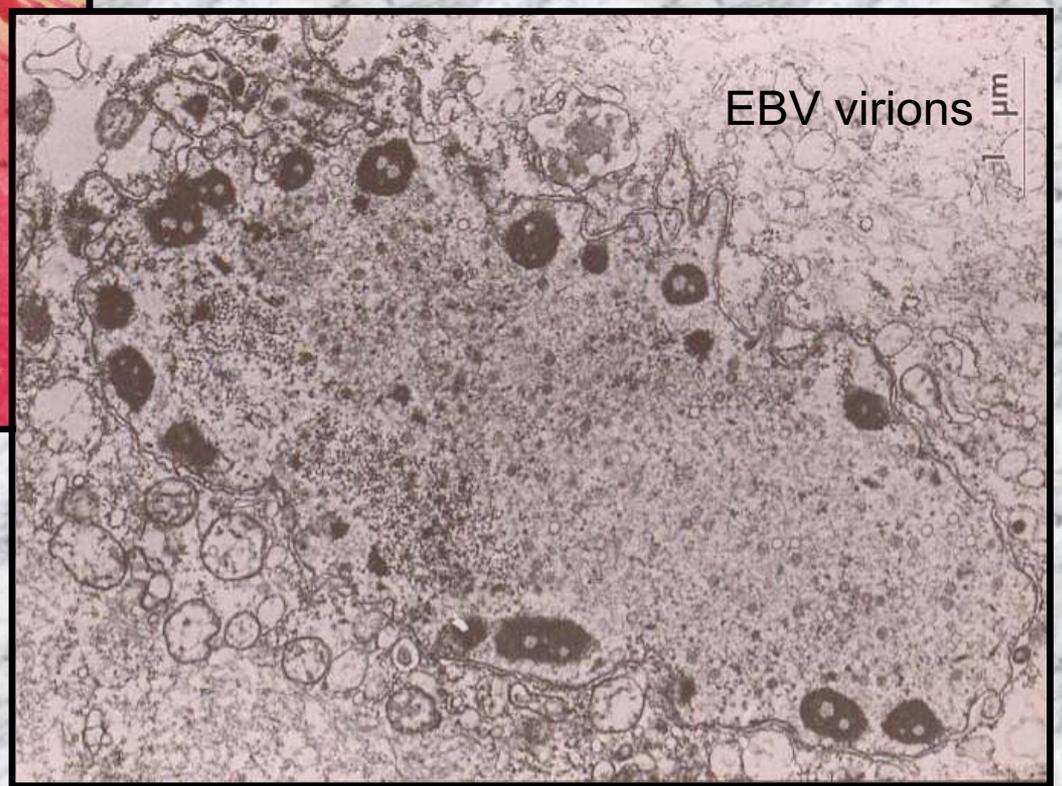
EBV receptors



EBV DNA



EBV virions



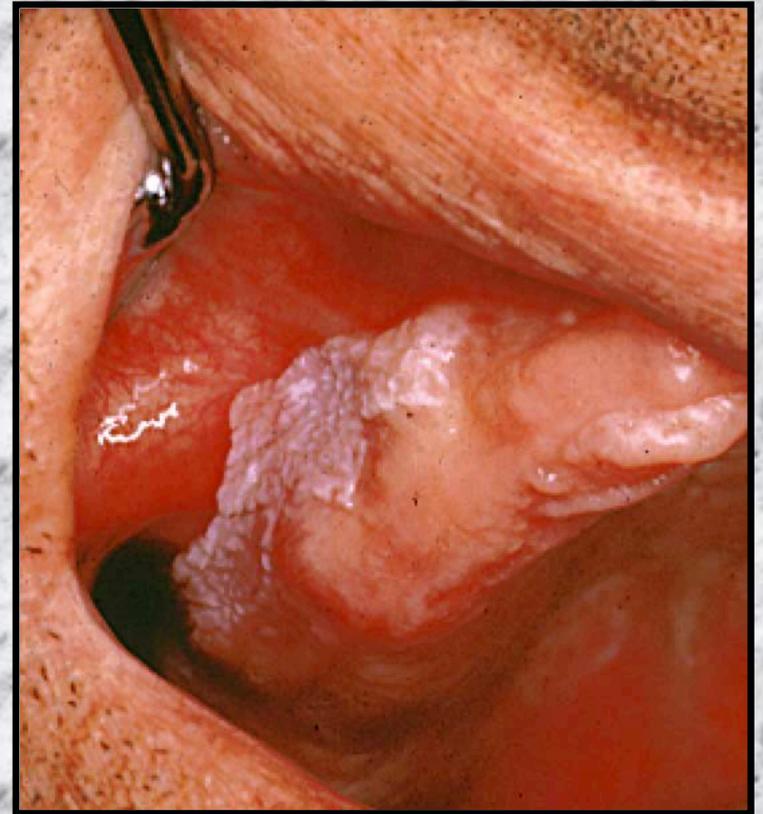
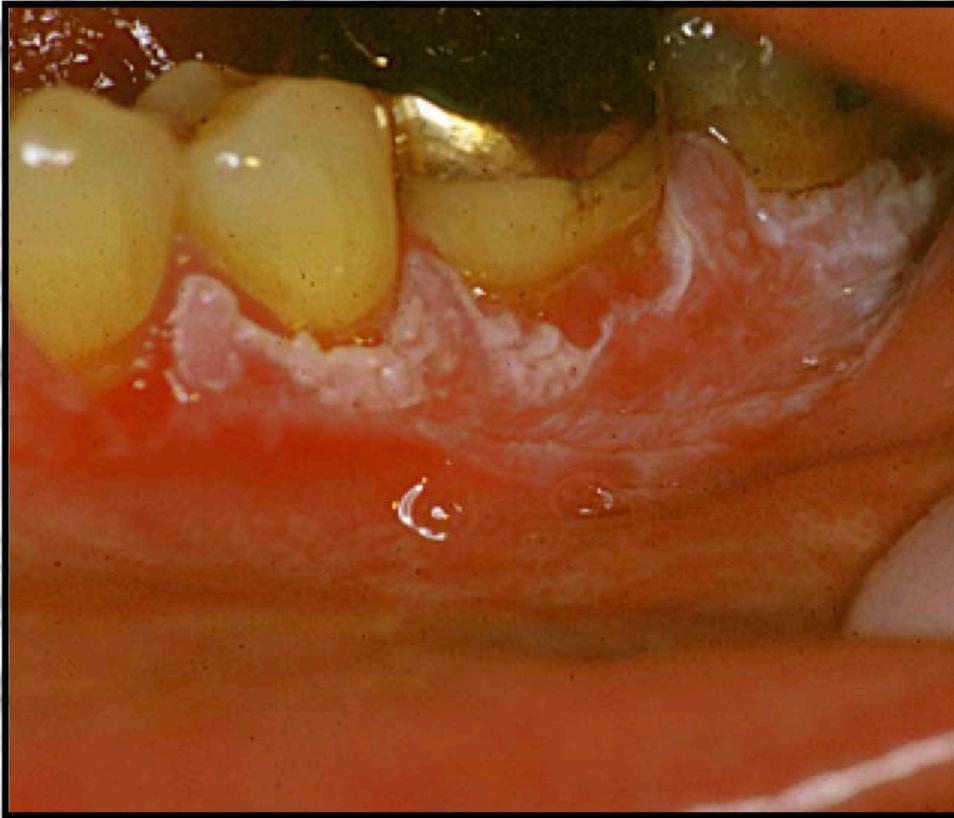
VERRUCOUS/CORRUGATED/RIPPLED

- VERRUCIFORM BENIGN KERATOSIS
 - RETROMOLAR FRICTIONAL KERATOSIS
 - IDIOPATHIC
- VERRUCIFORM XANTHOMA
- SMOKELESS TOBACCO KERATOSIS
- FLAT WARTS (SESSILE PAPILOMA)
- PROLIFERATIVE VERRUCOUS LEUKOPLAKIA
 - ATYPICAL VERRUCOUS HYPERPLASIA
 - VERRUCOUS CARCINOMA
 - EXOPHYTIC, PAPILLARY SQUAMOUS CELL CARCINOMA

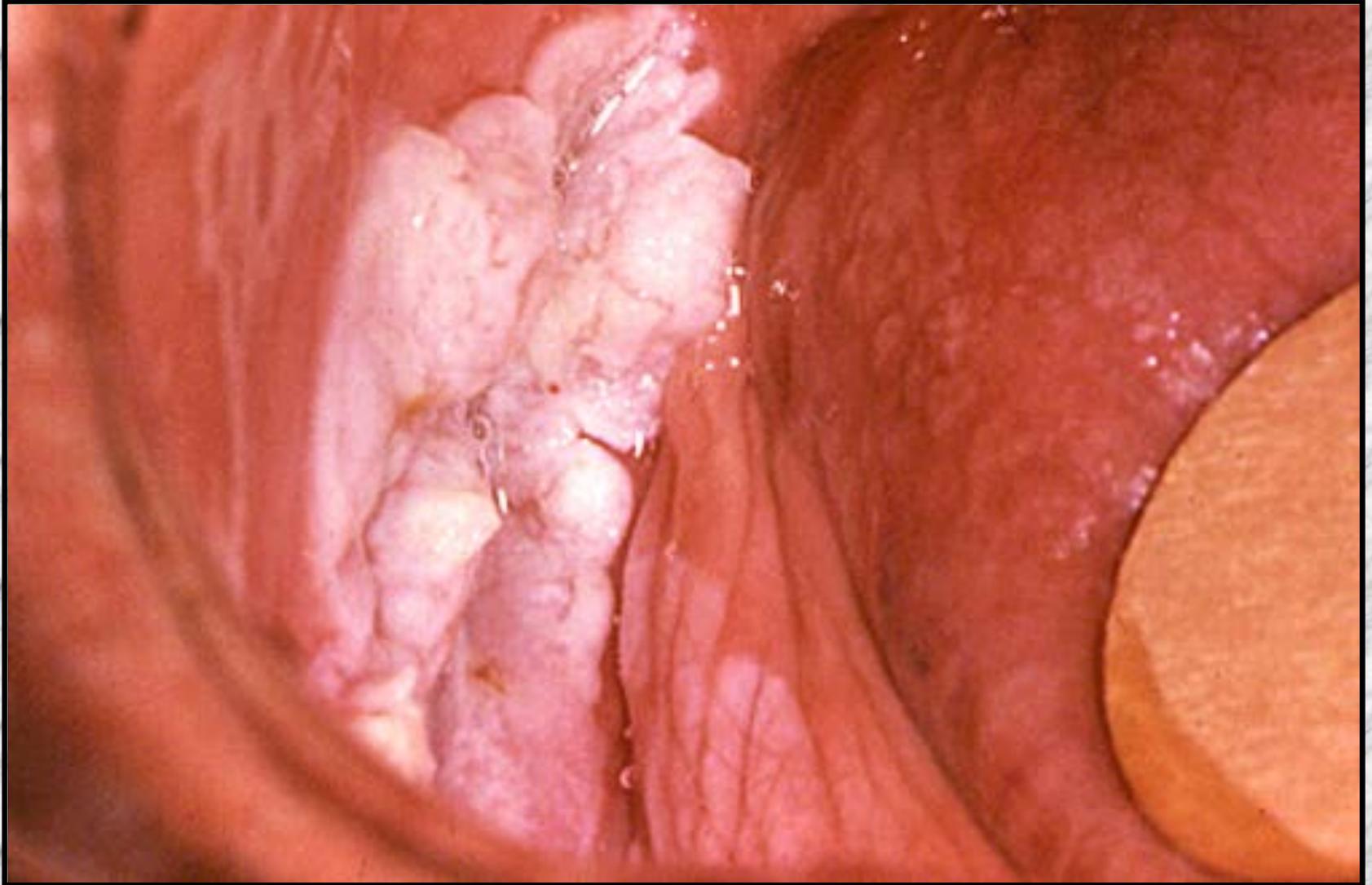
PROLIFERATIVE VERRUCOUS LEUKOPLAKIA

- A clinical term that defines a group of histologically distinct diagnoses ranging from atypical verrucous hyperplasia to verrucous carcinoma to invasive squamous cell carcinoma
- Thick white lesions with a rough, cauliflower, verrucous surface
- Females > Males
- Typically over age 50
- < 50% with a history of tobacco use
- Gingival/Sulcus predilection
- Progressive lateral proliferation, increasing the area of involvement
- High recurrence after excision
- HPV association
- Tx: wide local excision with margin assessment, three month followup

PROLIFERATIVE VERRUCOUS LEUKOPLAKIA (PVL)



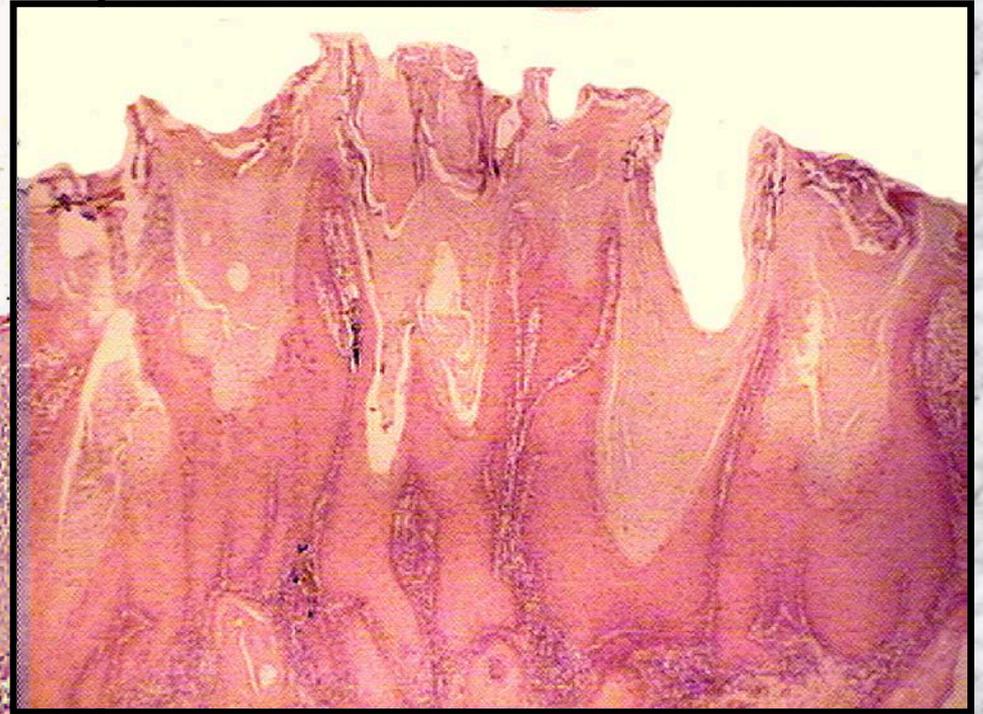
VERRUCOUS CARCINOMA



PVL HISTOLOGY

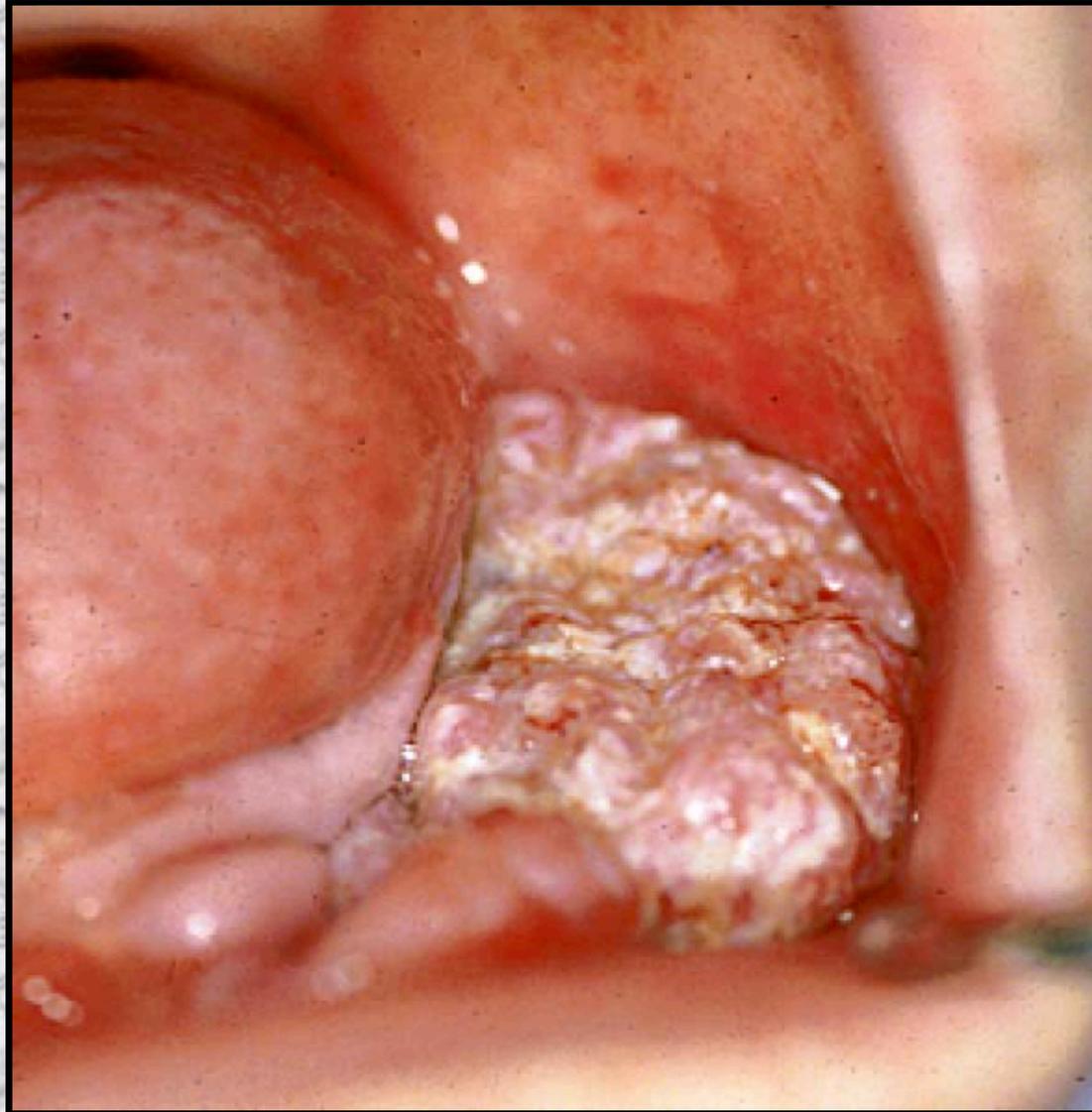


ATYPICAL VERRUCOUS HYPERPLASIA



VERRUCOUS CARCINOMA

VERRUCOUS CARCINOMA



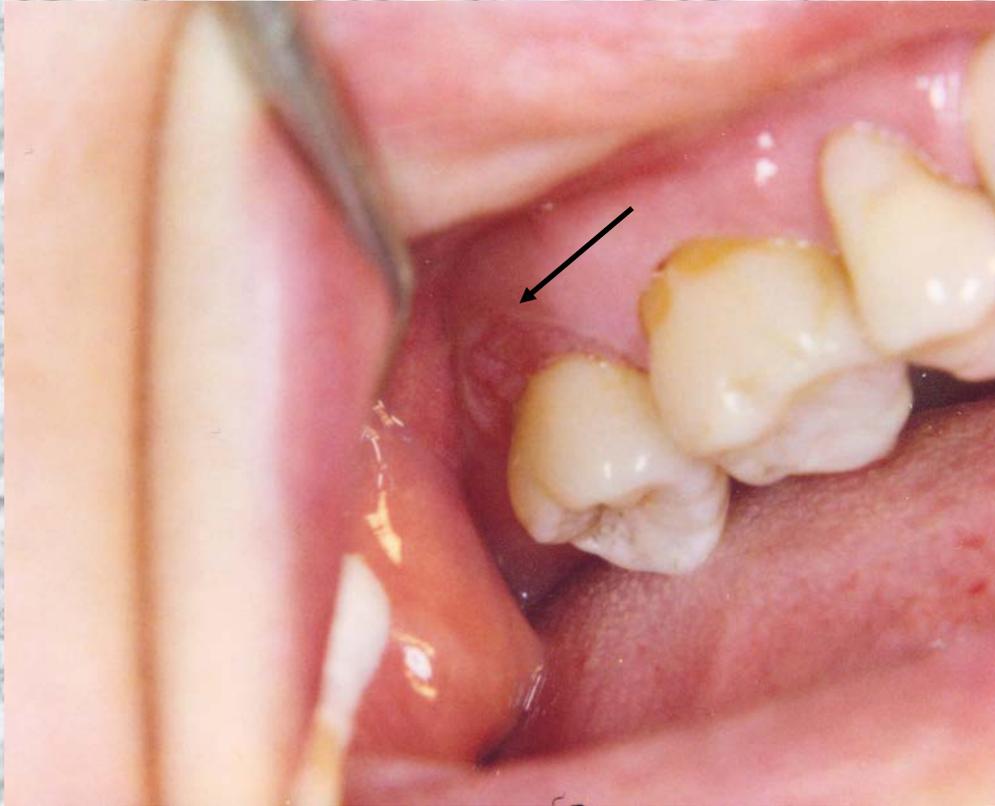
Smokeless Tobacco Keratosis

- White lesions in mandibular vestibule
- Contact lesion: occurs at site of tobacco or snuff placement
- Subtle to overt white appearance with a wrinkled, corrugated appearance
- Reversible if habit is curtailed
- Gingival recession
- Cancer progression is extremely low

SMOKELESS TOBACCO KERATOSIS



Flat Warts



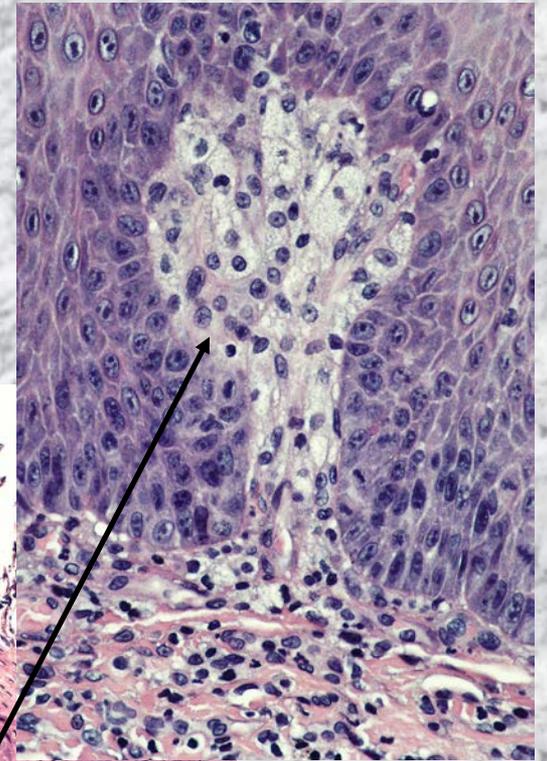
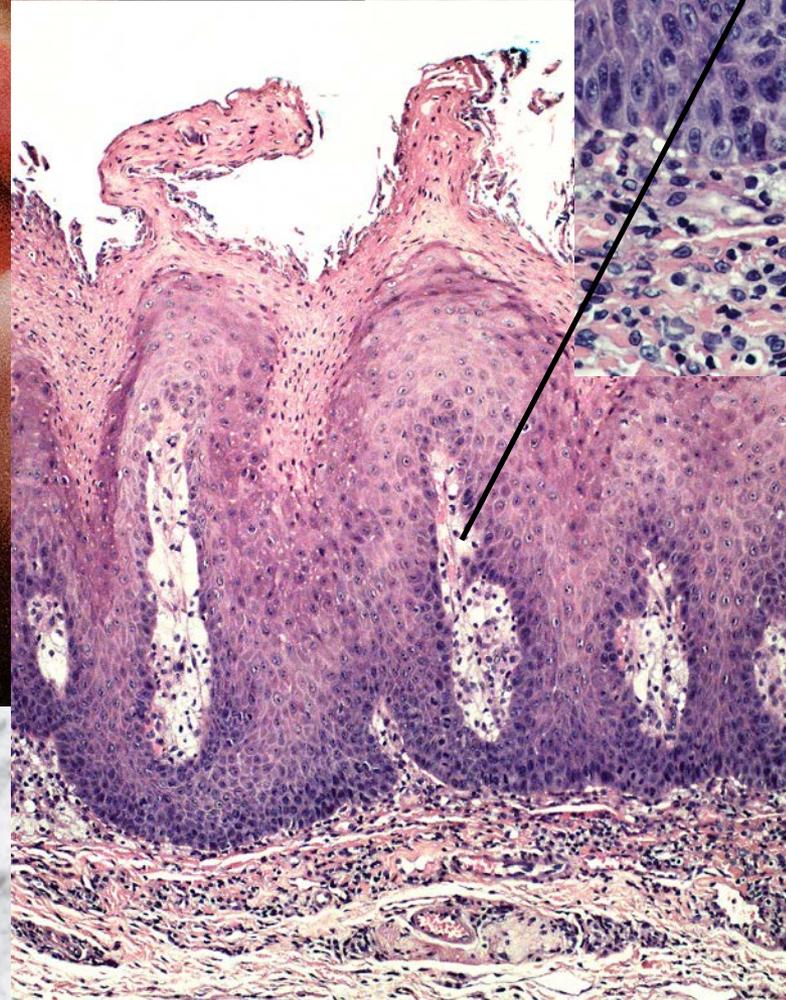
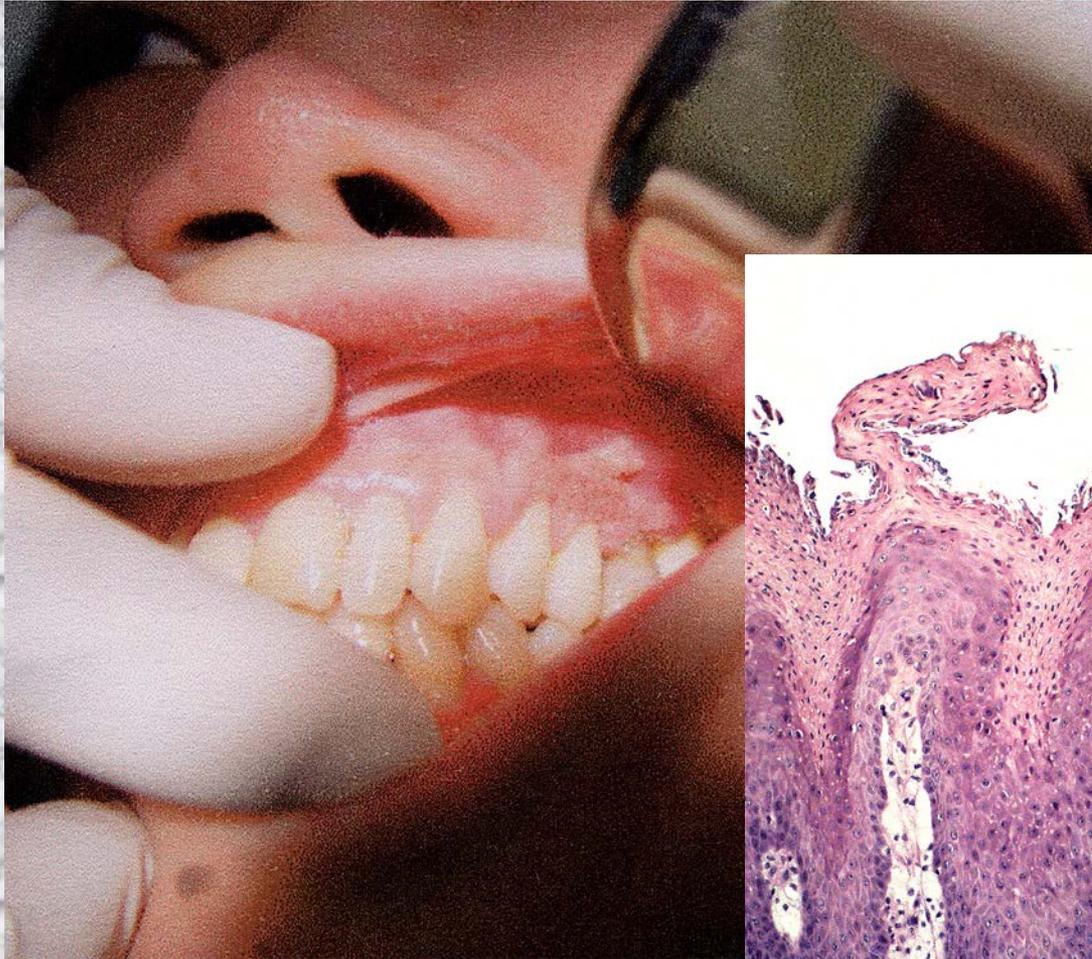
Inked to show excisional margins



Verruciform Xanthoma

- White to yellow plaque with a rough surface
- Usually on the gingiva, yet can occur anywhere
- Skin counterpart is xanthelasma of the eyelids
- Benign keratosis with elongated rete ridges between which are found submucosal papilla with foam “xanthoma” cell infiltration
- Not known to be associated with hyperlipoproteinemia
- Tx: local excision

VERRUCIFORM XANTHOMA



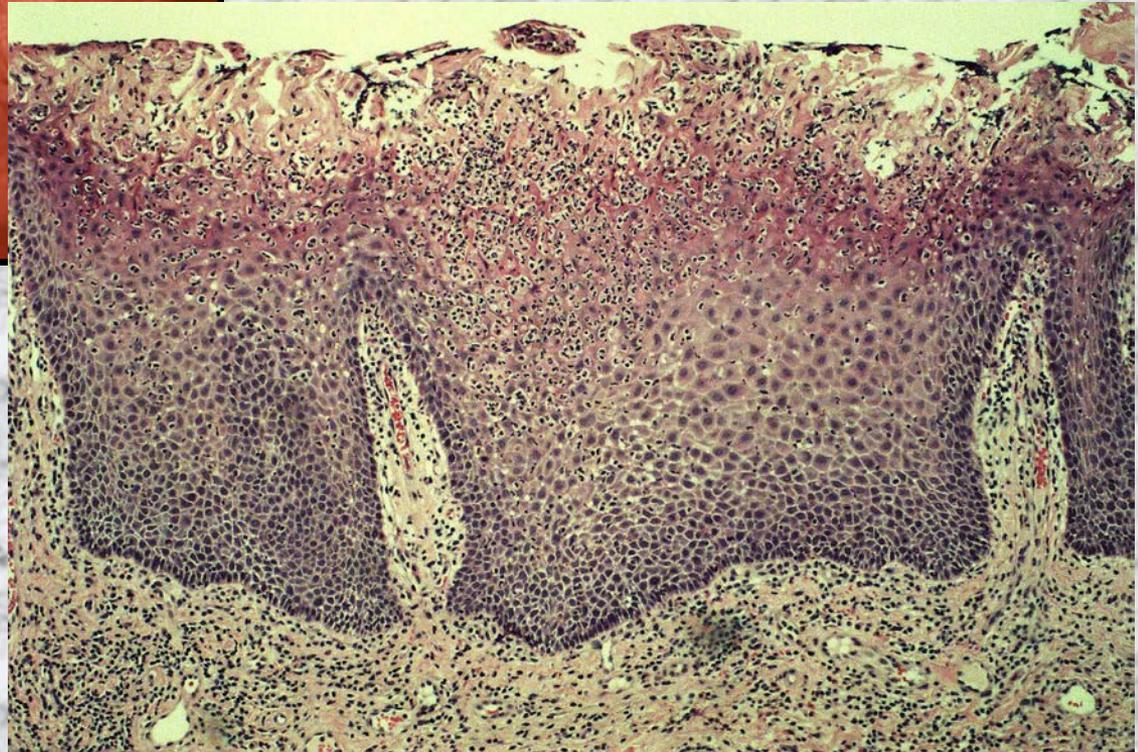
MIXED RED AND WHITE LESIONS

- BENIGN MIGRATORY GLOSSITIS
- IRRITATIONAL KERATOSIS
- CANDIDIASIS
- LEUKOERYTHROPLAKIA (SPECKLED LEUKOPLAKIA)
- EROSIIVE LICHEN PLANUS

Benign Migratory Glossitis

- Geographic tongue
- Circinate white lesions with a red denuded surface (depapillation)
- Lesions spontaneous resolve then reappear at other tongue sites
- Primarily on dorsum, yet can have lesions on ventral aspect or even lips and buccal mucosa (Erythema migrans)
- Parakeratosis with subacute mucositis
- Tx: none, brush tongue

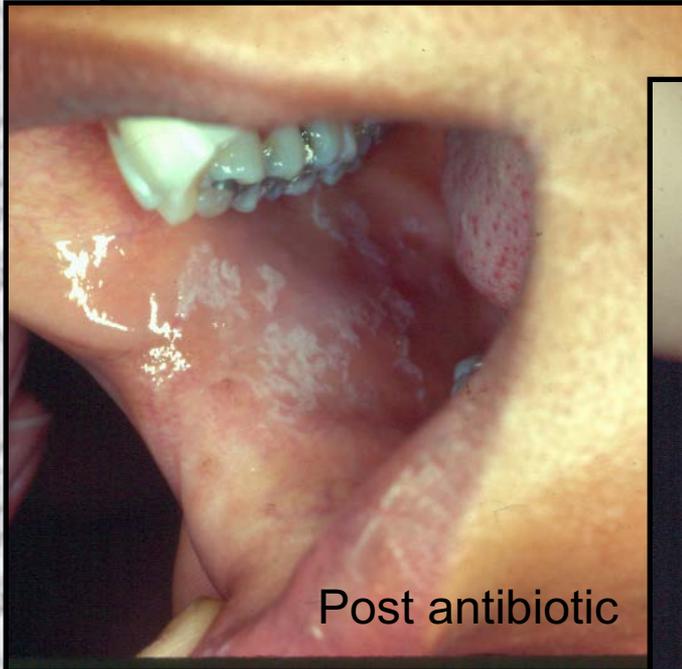
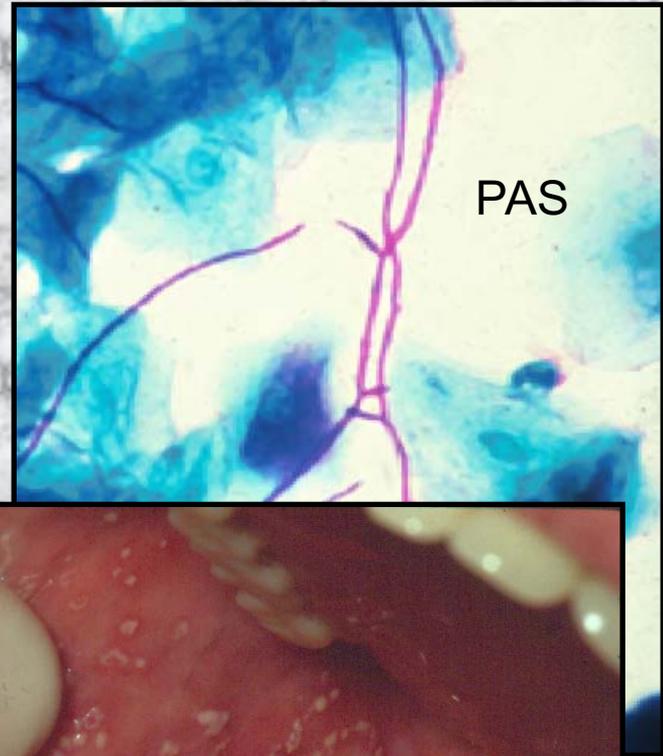
Benign Migratory Glossitis



Candidiasis

- Infection with various *Candida* species
- Usually asymptomatic yet can experience mild burning
- Red appearance with white speckling
- White lesions can be rubbed away
- Denture sore mouth of the palate, angular cheilitis, other mucosal sites
- Smear positive for PAS mycelia
- Tx: topical or systemic specific antifungals

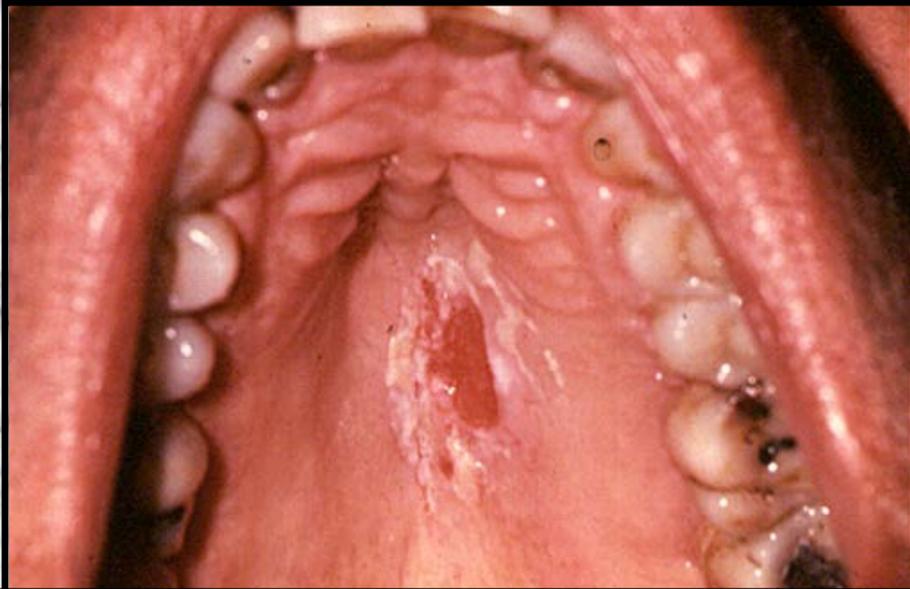
Candidiasis



Leukoerythroplakia

- Speckled leukoplakia
- Mixed red and white foci in which the white component cannot be rubbed away
- Soft palate, ventral tongue, floor of mouth
- Toluidine blue positivity in red areas: suspect dysplasia, biopsy should include a red focus
- Over 60% show dysplasia or carcinoma
- Wide excision evaluation of margins

LEUKOERYTHROPLAKIA



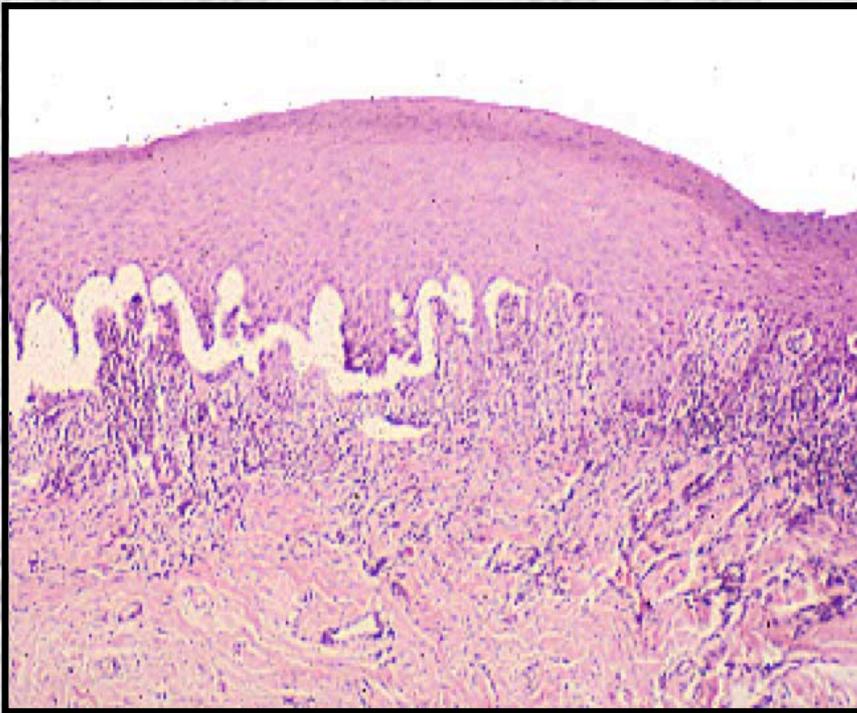
EROSIVE LICHEN PLANUS

- White stria often seen
- White lesions overlaid on an erythematous background
- Desquamation without bulla formation
- Painful, burning aggravated by acidic foods
- Emotional upset, stress
- Tx: Topical and systemic steroids

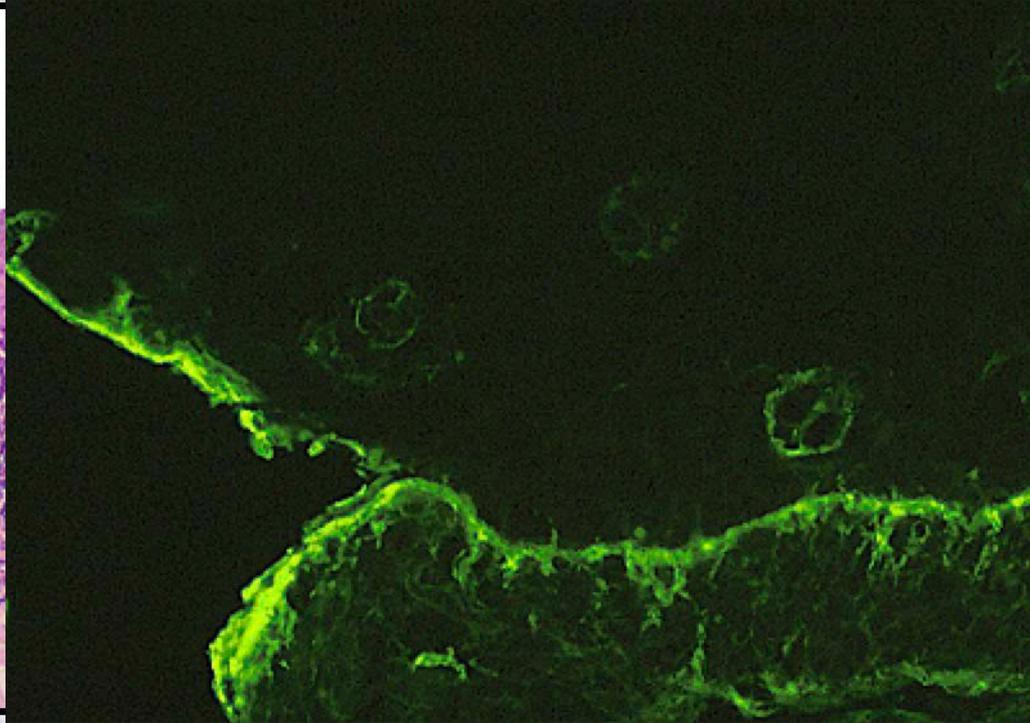
EROSIVE LICHEN PLANUS



Erosive Lichen Planus



Sub-basilar desquamation,
Lymphocytic infiltration



Direct Immunofluorescence positive
For basement membrane fibrinogen

PAPULAR

- CANDIDIASIS
- DARIER WHITE DISEASE
- LICHEN PLANUS

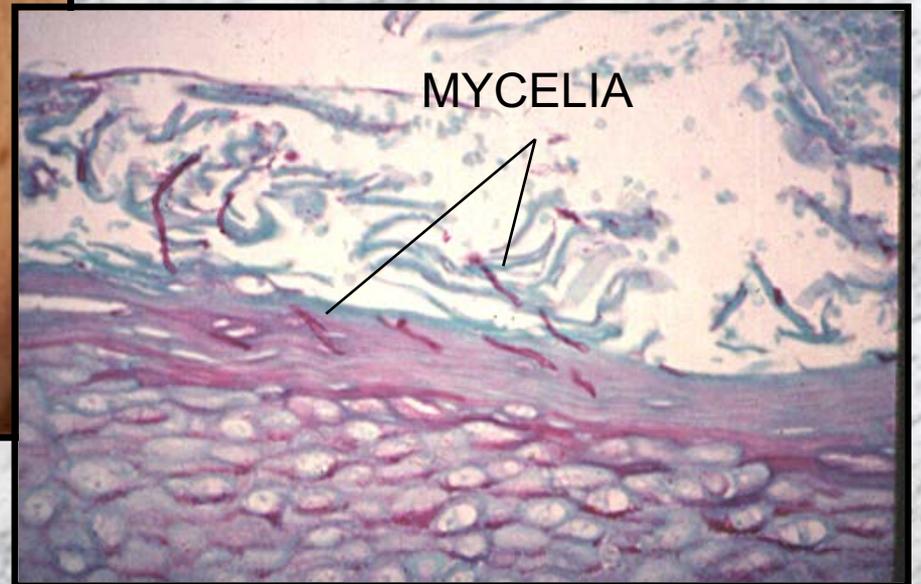
CANDIDIASIS



CANDIDIASIS



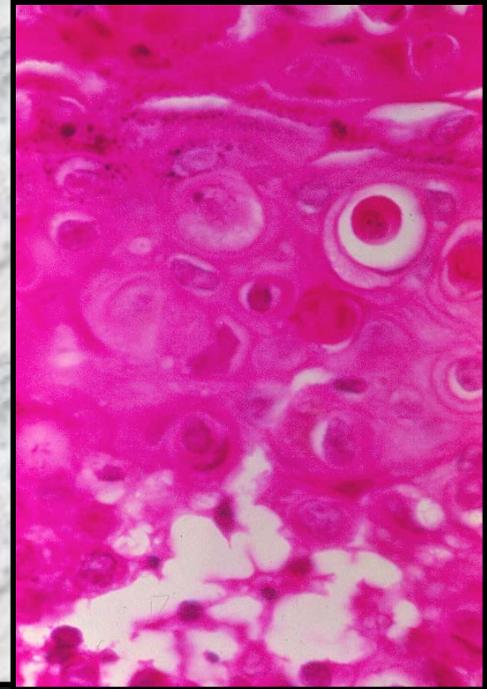
PAS STAINING



Keratosis Follicularis (Darier-White Disease)

- Autosomal dominant defect in keratinization
- Multiple orange papules and verrucoid keratoses of the skin
- Multiple white lesions, bilateral buccal mucosa and other mucosal sites
- Same histology as warty dyskeratoma with villous rete pegs, individual cell keratinization and suprabasilar clefting
- Tx: Vitamin A and retinoids

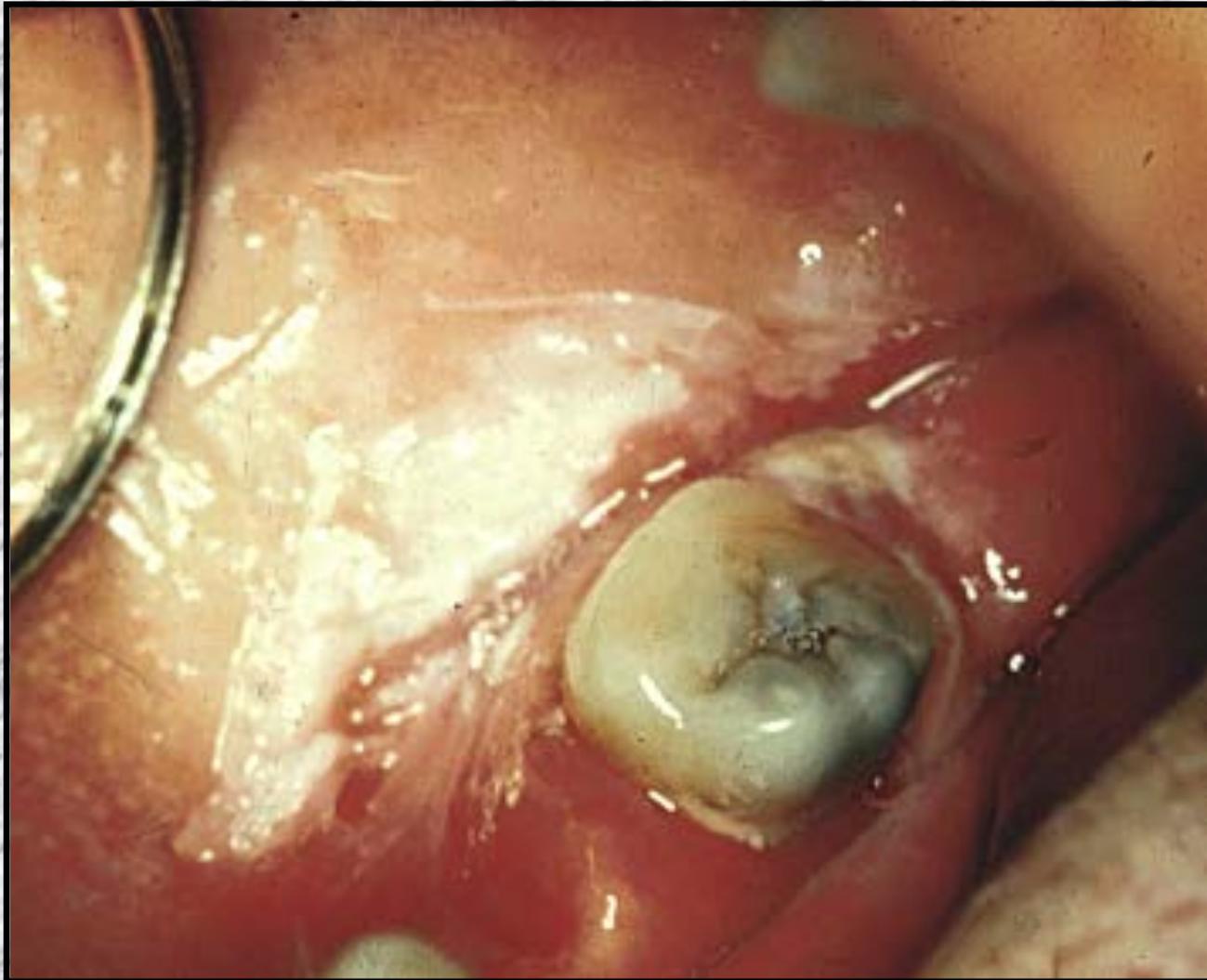
Keratosis Follicularis



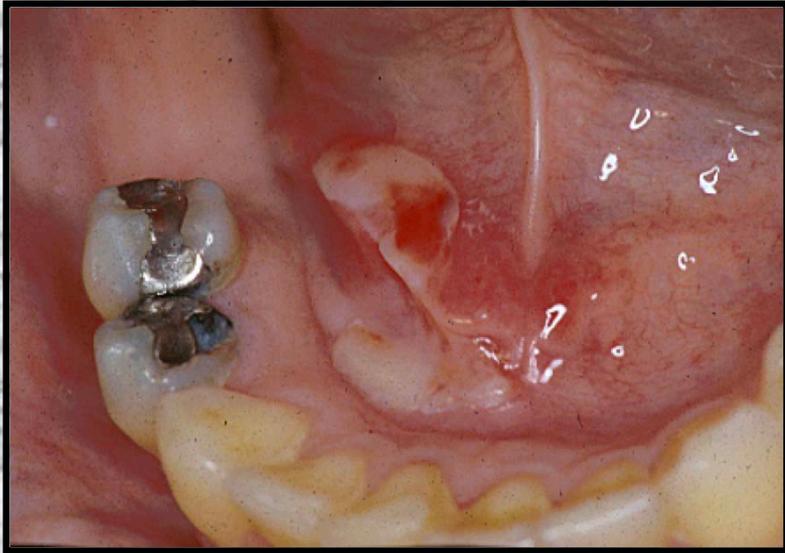
PSEUDOMEMBRANOUS

- CANDIDIASIS
- ASPIRIN BURN
- BULLOUS DISEASES
- ULCERATIVE DISEASES
- VESICULAR DISEASES

ASPIRIN BURN



PSEUDOMEMBRANOUS VESICULO-BULLOUS



PEMPHIGUS



APHTHOUS STOMATITIS



PYOSTOMATITIS VEGETANS



PRIMARY HERPES