Differential Diagnosis and Clinical Management: Episode II - PMDs and Oral Cancers

Prof. Kobkan Thongprasom

B.Sc.(Hons.), D.D.S.(Hons.), M.Sc.(Oral Medicine)

Diplomate Thai Board in General Dentistry

Oral Medicine Department, Faculty of Dentistry

Chulalongkorn University, Bangkok, Thailand
Oral mucosal diseases

Autoimmune diseases

Infections: bacterial, viral, fungals

Potentially malignant disorders (PMDs)

etc.

Oral cancer
Recommended to abandon the distinction between

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No single marker that reliably enables to predict malignant transformation in an individual patient

Use the term “Potentially malignant disorders” instead
Potentially malignant disorders (PMDs)

- Leukoplakia
- Erythroplakia
- Oral lichen planus

*The risk of malignant transformation is lower than in leukoplakia*

- Discoid lupus erythematosus, Oral submucous fibrosis, Actinic keratosis, some inherited cancer syndromes and immunodeficiency in relation to cancer should be paid attention

- *Progression of a PMDs to OSCC approximately 2.6%*
Leukoplakia

The word leukoplakia means "white patch", and is derived from the Greek words: Leuko = white" and Plakia = patch

Predominantly white plaques of questionable risk having excluded (other) known diseases or disorders that carry no increased risk for cancer

Prevalence 1%-2 % for all ages
Diagnosed after the fourth decade of life
Six times more common among smokers than among non-smokers
Alcohol may be synergistic risk factor
Association between human papillomavirus
Leukoplakia

• More common among smokers than non-smokers

• Human papilloma virus (HPV-16,18) induce dysplasia-like changes

• Alcohol

• etc.
Disorders that need exclusion to diagnose leukoplakia

- Frictional lesion (traumatic keratosis)
- Pseudomembranous candidiasis
- Leukoedema
- White sponge nevus
- Cheek biting (Morsicatio buccarum)
- Smoker keratosis
- Hairly leukoplakia
- Smokers’ palate (Nicotine stomatitis)
Chronic low-grade trauma, irritation will produce hyperkeratosis of the oral epithelium.

History of trauma, mostly along the occlusal plane, an aetiological cause apparent, mostly reversible on removing the cause.

Traumatic keratosis/ Frictional keratosis

- Chronic low-grade trauma, irritation will produce hyperkeratosis of the oral epithelium.
- History of trauma, mostly along the occlusal plane, an aetiological cause apparent, mostly reversible on removing the cause.
- Biopsy if persistent after elimination of cause, particularly in a tobacco user.
**Pseudomembranous candidiasis**

**Etiology**
- Diabetes mellitus
- AIDS
- Drugs: steroids
  - antibiotics
- Anemia
- Xerostomia
- Denture wearing
- Smoking
- Head & neck radiation

**Oral findings**
- soft, friable and creamy coloured plaques on the mucosa.
- can be easily wiped off to expose an erythematosus mucosa
- KOH 10%, Periodic Acid Schiff stained (PAS) smear, large masses of hyphae, detached epithelial cells and leukocytes
Leukoedema

By: Dr. Paswach Wiriyakijja

- Is a common oral mucosal condition of unknown cause
- Common in Blacks > Whites
- Represents a variation of normal
- A diffuse, gray-white, milky, opalescent appearance of the mucosa
- The surface frequently appears folded, resulting in wrinkles or whitish streaks
- Lesions do not rub off
- Typically occurs bilaterally on the buccal mucosa
- Biopsy not indicated
White sponge nevus

- Is a relatively rare genodermatosis that is inherited as an autosomal dominant trait
- Defect in the normal keratinization of the oral mucosa
- Mutation of keratin gene *keratin 4 and keratin 13*
- Lesions appear at birth or in early childhood
- Thickened, white, corrugated or velvety, diffuse plaques affect buccal mucosa bilaterally

By: Assist. Prof. Patnarin Kanjanabuch
Hairly leukoplakia (HL) is a white patch on the side of the tongue with a corrugated or hairy appearance. It can represent an isolated and innocuous Epstein-Barr virus infection.

**Clinical features**
- Vertically corrugated or shaggy surface
- The plaque is soft
- Painless
- Most effects – the lateral borders of the tongue

**Management**
- Biopsy
- Antiherpetic drugs - valaciclovir
- *HL is not premalignant but it indicates advanced immunodeficiency, a more rapid progression to AIDS and a poor prognosis*
Smokers’ palate, Nicotine stomatitis
Stomatitis nicotina, nicotinic stomatitis, nicotine palatinus, stomatitis palatini, leukokeratosis nicotina palate, palatal leukokeratosis, smoker's keratosis, and smoker's patches

is a diffuse **white patch** on the hard palate, usually caused by tobacco smoking, usually pipe or cigar smoking.

The palate may appear gray or white and contain many papules or nodules that are slightly elevated with red dots in their center.

These red dots represent the ducts of minor salivary glands which have become inflamed by heat.
Leukoplakia

- **Homogeneous**
  
The risk of malignant transformation in homogenous leukoplakia is relatively low.

- **Non Homogenous**
  - **nodular**: small polypoid outgrowths
  - **verrucous**: wrinkled or corrugated
  - **speckled**: mixed white & red (erythroleukoplakia)
Homogeneous leukoplakia

Uniformly flat, thin and exhibit shallow cracks of the surface keratin.

The risk of malignant transformation in homogenous leukoplakia is relatively low

Courtesy of Prof. Issac van der Waal
Leukoplakia

Ebbing tide pattern

High malignancy change!
Phase of Leukoplakia

Moderate epithelial dysplasia
Dysplastic changes extend to the mid point of epithelium

Severe epithelial dysplasia
Basal above mid point of epithelial
Entire thickness of epithelial is involved

Carcinoma in situ
The histopathologic alterations of dysplastic epithelial cells may include the following:

- Enlarged nuclei and cells
- Large and prominent nucleoli
- Increased nuclear-to-cytoplasmic ration
- Hyperchromatic (excessively dark-staining) nuclei
- Pleomorphic (abnormally shaped) nuclei and cells
- Dyskeratosis (premature keratinization of individual cells)
- Increased mitotic activity (excessive numbers of mitoses)
- Abnormal mitotic figures (tripolar or star-shaped mitoses or mitotic figures above the basal layer)

**In addition**

- Bulbous or teardrop-shaped rete ridges
- Loss of polarity (lack of progressive maturation toward the surface)
- Keratin or epithelial pearls
- Loss of typical epithelial cell cohesiveness
Non Homogenous leukoplakia

Nodular type
Verrucous type
Speckled (erythroleukoplakia)

The most important indicator of malignant potential
Non-homogeneous leukoplakia are often symptomatic, in general regarded the most important indicator of malignant potential.

Non-homogenous leukoplakia, **Nodular type**, at the right commissure

**Verrucous or exophytic:** wrinkled or corrugated surface appearance at the border of the tongue

*Courtesy of Prof. Issac van der Waal*
Non-homogeneous leukoplakia

*Speckled:* mixed, white and red, but retaining predominantly white character

In general regarded the most important indicator of malignant potential

**Erythroleukoplakia** at the ventral aspect of the tongue

*Courtesy of Prof. Issac van der Waal*
Differential diagnosis of erythroleukoplakia
Geographic tongue
(Erythema migrans linguae)

- Recurrent appearance and disappearance of red areas on the tongue
- Unknown cause
- Sometimes, family history related
- Common in middle-aged patients

Clinical

- An irregular, smooth, red area appears
- Sharply defined edge
- Filiform papillae stop short
- It extends for a few days, then heals, only to appear again in another area
Candida leukoplakia
(Chronic hyperplastic candidiasis)

- May be a white patch that cannot be removed by scraping chronic, firm, white, leathery plaque
- Candidal organism alone may be capable of inducing a hyperkeratotic lesion

- *Candida* may present secondary colonization
  Some biotypes (051, 101, 147) may transform carcinogenic nitrosamines from precursors

- Diagnosis is confirmed by the presence of candidal hyphae associated with the lesion
- Complete resolution of the lesion after antifungal therapy
  Epithelial dysplasia ~ 4-5 times > leukoplakia

~

10% oral leukoplakia ~ clinical & histological chronic hyperplastic candidiasis
Diagnosis and management of leukoplakia

LEUKOPLAKIA
(Provisional clinical diagnosis)

Elimination of possible cause(s), including tobacco habits, *C. albicans* (maximum six weeks to observe the result)

- No or only partial response (Definitive clinical diagnosis)
- Biopsy

No possible cause(s)
(Definitive clinical diagnosis)

- Biopsy

Definitive clinico-pathological diagnosis

- Non-dysplastic leukoplakia
  - Treatment (if feasible, e.g. <2-3 cm)
  - Follow-up in both treated and untreated patients at intervals of 6 months; lifelong (?)

- Dysplastic leukoplakia
  - Treatment (if feasible, e.g. <2-3 cm)
  - Follow-up in both treated and untreated patients at intervals of 3 months; lifelong (?)

Known lesion
Management accordingly
Treatment of leukoplakia

Surgical Treatment

May prevent the development of oral squamous cell carcinoma, provided by assuring that the resection margins are adequately thick and free of epithelial abnormality.
It does not appear to prevent form developing recurrence.

CO$_2$ laser, Nd:YAG
Conservative and site-specific, minimally invasive surgery with sterilization of the surgical area and minimal intraoperative hemorrhage.
Less swelling and pain and healing with minimal scarring.

Non Surgical treatment

Choose in cases where the lesions involve a large area of the oral mucosa, when patients with high-risk medical problems for surgery, or when patients refuse surgical intervention and after follow-up without surgery.

- Beta-Carotene -anti oxidant action
- Retinoic acid (Vitamin A)
- Fenretinide
- Bleomycin
A fiery red patch that cannot be characterized clinically or pathologically as any other definable disease

Courtesy of Prof. Issac van der Waal
Erythroplakia is seen mainly in elderly males (50-70 years), in the buccal mucosa, tongue, or palate.
Differential diagnosis of erythroplakia

- Denture induced stomatitis
- Severe glossitis
- Radiation mucositis
- etc.
Denture-induced stomatitis

Most prevalent site is the denture-bearing palatal mucosa. The erythema is sharply limited to the area of mucosa occluded by a well-fitting upper denture or even orthodontic plate.

Classified in 3 different types

Type I: localized to minor erythematous sites caused by trauma from denture

Type II: affects a major part of the denture-covered mucosa

Type III: has a granular mucosa in the central part of the palate

Treatment

1. Adjust Ill-fitting denture
2. Soak denture with Sodium hypochlorite 0.1% or chlorhexidine gluconate 0.12% overnight
3. Apply antifungal gel on the inner surface of denture before insertion
Radiation mucositis

Mucositis occurs when cancer treatments break down the rapidly divided epithelial cells lining the gastro-intestinal tract, leaving the mucosal tissue open to ulceration and infection.

Oral mucositis is probably the most common, debilitating complication of cancer treatments.

Management

- **Gelclair® and Zilactin®**, are mucosal protectants that work by coating the mucosa.

- **Amifostine (Ethylol®)**, a drug that offers some protection against the damage to the mucosa caused by radiation, is approved by the FDA for patients receiving radiation therapy for cancers of the head and neck.

From: The Oral Cancer Foundation

**Palifermin**, a recombinant keratinocyte growth factor (KGF) is a substance produced naturally in the body that stimulates the growth, repair, and survival of cells.
Report risk factors of statistical significance for malignant transformation of leukoplakia

- Female gender
- Long duration of leukoplakia
- Leukoplakia in non-smokers (idiopathic leukoplakia)
- Location on the tongue and/or floor of the mouth
- Size > 200 mm²
- Non-homogeneous type
- Presence of invasive *C. albicans*
- Presence of epithelial dysplasia
- DNA aneuploidy
- History of previous head-and-neck carcinoma
A clinicopathologic study of oral leukoplakia and erythroplakia in a Thai population

- 7,177 specimens
- Leukoplakia = 123 (1.7%)
- Erythroplakia = 9 (0.13%)
- Epithelial dysplasia & SCC = 6 (66.7%)

frequently seen during the seventh decade of life

Lichen planus

- was first described by Sir Erasmus Wilson in 1869
- Greek: “Leichen” means “tree moss”

Characterized by keratotic white striae with or without atrophic/erosive area

Latin: planus means “flat”
Oral Lichen Planus (OLP)

a common chronic inflammatory disease of current etiopathogenesis associated with cell-mediated immunological dysfunction

Thai patients, F:M = 4:1, age 50-59 years

Symptomatic OLP affected the quality-of-life

Malignant transformation is approximately 0-12.5%
Malignant transformation of OLP

- Longstanding erosive/atrophic OLP
- Lichenoid dysplasia
- Low risk: range 0-12.5%

Cancer prone area

- Lateral-ventral tongue
- Floor of the mouth
- Retromolar trigone – soft palate - tonsillar pillar complex
Management of symptomatic OLP

• Steroids: topical, systemic

• Retinoids

• Calcineurin inhibitors
  Cyclosporin, Tacrolimus, Pimecrolimus, etc.

• Anti-fungals

• Others
  – Phototherapy
  – Low intensity laser
  – Aloe vera mucilage
  – Chinese traditional medicine
  – Hyaluronic acid
  – Ignatia- homeopathic medicine
  – Curcuminoids
  – Purslane
  – *Bacillus Calmette-Guerin* polysaccharide nucleic acid
Triamcinolone acetonide 0.1% in orabase
(TAO)

Fluocinolone acetonide 0.1% in solution
(FAS) since 1985

Fluocinolone acetonide 0.1% in orabase
(FAO) since 1988

various forms of topical steroids
Female, 62-year-old
Duration of OLP > 5 years
Before treatment

2 weeks after treatment with FAO

Female, 42-year-old
Duration 1 month
Before treatment

After treatment with FAS, 8 years follow-up
Ulcerative OLP on the left buccal mucosa before and after treatment with fluocinolone acetonide 0.1% orabase, the lesion showed complete remission within 3 years.

Oral lichenoid lesions (OLLs)

There are various lesions that resemble lichen planus both clinically and histopathologically. Usually, these lesions are referred to as “lichenoid” lesions.

- **Oral lichenoid contact lesions (OLCL)**
  They are seen in direct topographic relationship to dental restorative materials, most commonly amalgam, or other contacted agents.

- **Oral lichenoid drug reactions (OLDR)**
  Oral and/or cutaneous lesions arise in temporal association with the taking of certain medications.

- **Oral lichenoid lesions of graft-versus-host disease (OLL-GVHD)**
  In patients with acute, or more commonly, chronic graft-versus-host disease (cGVHD).
Oral lichenoid contact lesions (OLCL)
Oral lichenoid drug reaction (OLDR)

oral lesions arise in temporal association with the taking of certain medications eg,

- Antihypertensive
- Hypolipidemic
- Hypoglycemic
- NSAIDs
- etc.
The possible premalignant character of oral lichen planus and oral lichenoid lesions

• A study group of 192 patients, 67 patients diagnosed with OLP and 125 patients with OLL, according to revised World Health Organization diagnostic criteria, was followed for periods ranging from 7.6 to 96.9 months (mean, 55.9 months).

• Four out of 192 patients, two men and two women, developed a squamous cell carcinoma of the oral mucosa during follow-up. All malignant transformations occurred in the OLL group.

• Hypothesis that patients with OLL have an increased risk of development of oral cancer

Carcinoma *In situ* arising in the Oral Lichenoid Lesion-An Unusual Case Report

Ekarat Phattarataratip¹, Kittipong Dhanuthai¹ and Kobkan Thongprasom²

¹Oral Pathology Department, Faculty of Dentistry, Chulalongkom University, Thailand

²Oral Medicine Department, Faculty of Dentistry, Chulalongkom University, Thailand

*Corresponding author: Kobkan Thongprasom, Oral Medicine Department, Faculty of Dentistry, Chulalongkom University, Bangkok, Thailand, Tel: +66-2-2188942; Fax: +66-2-2188941; E-mail: kobkan.t@chula.ac.th*

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**Abstract**

Drug-induced lichenoid reaction is quite common in the oral cavity. Patients with oral lichenoid lesions (OLL) may increase risk of developing epithelial dysplasia and squamous cell carcinoma. Although this subject remains controversial, several studies suggested that the overall rate of malignant transformation of OLL was greater than that of general population or patients with oral lichen planus (OLP). In the present article, we report a 66-year-old female Thai patient with OLL associated with many medications including simvastatin. She also had a history of hypertension, osteoarthritis and hepatitis B virus infection. Her physician treated her with amlodipine, etoricoxib, glucosamine and chondroitin sulfate for more than 20 years. Simvastatin had been prescribed for the treatment of dyslipidemia for 2 years. Notably, the patient reported that oral symptoms and lesions arose after taking this medication. This patient later developed epithelial dysplasia and carcinoma *in situ* within areas of OLL approximately 7 and 8 years, respectively after its initial presentation. This case report will be useful for clinicians to become aware of the possible adverse outcome of long-standing drug-induced OLL.
The left buccal mucosa revealed atrophic stratified squamous epithelium with atypical keratinocytes showing varying nuclear size, shape and staining characteristic.

The right buccal mucosa revealed the epithelium with pleomorphism, hyperchromatism and mitoses for the whole thickness of the epithelial layer.

Treatment:
Excision biopsy

Treatment:
Palatal mucosal graft

Carcinoma in situ

Moderately dysplasia

3 June 2013
Learning points

- Red or white lesions in the mouth should never be ignored.

- In the absence of known etiological factors, the taking of a biopsy should be considered, particularly in case of a non-reticular lesion, in order to exclude the possibility of epithelial dysplasia or even carcinoma in situ or invasive squamous cell carcinoma

van der Waal I. Med Oral Patol Oral Cir Bucal. 2009; 14: E310-4
Summary

• The issue of premalignant potential of OLL and OLP remains debatable.
• The erosive/ulcerative form of lesions is more prone to transform into malignancy and a predilection for older patients is noted.
• We advocate that drug-induced OLL in patients should be closely monitored in a long-term.
• Any persistent red and white lesions in the oral cavity particularly in elders have to be biopsied albeit mild or no other symptoms
A 64-year-old female patient presented at the Oral Medicine clinic, Faculty of Dentistry, Chulalongkorn University in 2008 with bilateral lesions on the buccal mucosa and gingiva. The patient’s history revealed no significant medical problems. Moreover, this patient reported no history of allergy, alcohol consumption, or tobacco smoking; and was not taking any medications.
Discoid Lupus Erythematosus

Central red atrophic area surrounded by circumscribed, slightly elevated, white patches. A radiating pattern of very delicate white lines is usually observed.
Discoid Lupus Erythematosus (DLE)

- Keratotic or mixed **red and white** lesions are possibly common in DLE

- Oral ulcerative discoid lesions have been considered to be potentially malignant transformation

- About 50% of the lesions are Candida-infected
Oral manifestations of DLE in Thai patients

- central **atrophy**, small white keratinized plaques with elevated borders, radiating white striae, and telangiectasia

- alternating **red (atrophic)**, **white (keratotic)**, and **red (telangiectatic)** zones

- early lesions – irregular red patches **without** keratosis
Development of squamous cell carcinoma (SCC)

Can occur in DLE about 20 cases reported in the world literature

6/87 cases DLE –malignant transformation

Chinese male: female = 1:1.8

Average age was 51.7 years

Lower lip was the most common (71.3%)

- DLE (lips) sun exposure, UV 20 years developed
  Squamous Cell Carcinoma

SCC and DLE involving upper lip

- SCC is a rare complication of long-standing DLE
- Overall incidence of SCC in DLE – 3.3%
- The upper lip has been affected in 2.3% of DLE related SCC
- DLE related SCC have been observed to be more aggressive than conventional SCC
- The recurrence, metastasis, and mortality rate -10 -20 %

Treatment of DLE

Prevention

Photoprotection (UVA, UVB): sun screen
Sun protection factor (SPF 60 or greater)
Physical protection
Smoking cessation

Topical treatment

topical & intralesional corticosteroids

topical calcineurin inhibitors:
tacrolimus 0.03%/0.1%
pimecrolimus 1% cream

Physical modalities

Light, laser, and cryotherapies
Photodynamic therapy: methyl aminolaevulinic acid (MAL) cream
Followed by exposure to red light (630-633 nm, 7.5-10 min, 37-80 J/cm²

Systemic therapies of DLE

- Antimalarials: hydroxychloroquine and chloroquine
  (retinal damage)
- Methotrexate 7.5-25 mg/week
- Systemic and topical retinoids
- Thalidomide and lenalidomide
- Dapsone
- Mycophenolate mofetil
- Azathioprine
- IVlg
- Other agents: cyclophosphamide, cyclosporine, rituximab (monoclonal antibody to CD20)

Oral submucous fibrosis (OSF)

Blanching and stiffening of the oral mucosa limitation in opening of the mouth. The presence of fibrous bands in lips, buccal mucosa and soft palate is a hallmark of the disease.

Rare in Thai patients
Criteria for diagnosis of OSF

- Presence of palable fibrous bands
- Leathery mucosal texture
- Blanching of mucosa
- Loss of tongue papillae
- Burning sensation on eating spicy food
- Rigidity of the tongue

Progressive limitation of mouth opening is a hallmark feature of this disease
Malignant transformation

- Long-term follow-up studies indicated premalignant nature of this disorder

**Management**

*no effective medical management of OSF*

- Habit intervention (advice to quit areca nut use) is an essential step to control the disease
- Zinc mouth rinse - reduce mucositis
- Physical exercise with the help of mouth openers
- Surgical excision of fibrous bands
A current management of OSF

1. Habit Intervention
   **Rationale:**
   Areca nut is the major cause of OSF, so that cessation of Areca nut use remains the most vital step in management of OSF

2. Surgical Treatment
   **Rationale:**
   For advanced cases with severe limitation in opening to release fibrous banding

3. Physical Exercise
   **Rationale:**
   Modification of tissue remodeling though promotion of physical movement and localized heat

The management options for oral submucous fibrosis remains unclear:

- Limit reported of randomized control trial

Cessation of Areca nut use remains pivotal

No recommendation can be made for any specific intervention

Often, a combination of treatment strategies is used
Actinic keratosis/Actinic cheilitis/Solar cheilosis

- Common premalignant alteration of the lower lip vermillion
- Results from chronic UV light exposure
- Middle-aged to elderly, male
- Outdoor occupations are associated with this condition
- Farmer’s lip and sailor’s lip

**Clinical features**

- Male:female = 10:1
- Lesion develop slowly
- Atrophy, dryness, and fissures of the lower lip vermillion
- Blurring of the margin between the vermillion and the adjacent skin
- Rough, scaly areas develop on the drier portions of the vermillion
- May thicken to form leukoplakic lesions
Treatment and prognosis of Actinic keratosis

- Reduce sun exposure
- Use sun screen
- **10% undergo malignant transformation**
- Obvious malignant transformation, a lip shave procedure (vermillionectomy) may be performed
- Alternative treatment – CO₂ or erbium : YAG (ER:YAG) laser ablation
- Cryotherapy
- 5-fluorouracil
- Photodynamic therapy etc.
Oral Potentially Malignant Disorders (OPMDs)

- 1,357 cases in UK (Guy’s hospital), biopsy confirmed
- Majority of patients were women (60.9%)
- 30% under 47 years of age
- **The most common OPMDs**
  - *Lichen planus/lichenoid reaction*
- 204 cases (15.1%) had oral epithelial dysplasia
  - 30 severe, 70 moderate, 104 mild
- **35 cases (2.6%) developed oral cancer,**
  - *leukoplakia (6.9%)*
  - *OLP/OLL (1-1.7%)*
- The severity of dysplasia is a significant predictor for malignant transformation

Management of oral epithelial dysplasia

A systematic review (WWOM IV)

– Medical (Non surgical): promising results in short term resolution of dysplasia
  Topical: Bleomycin (75%)
  Systemic: Lycopene 8 mg (85%)
    : Cis-retinoic acid (53%)

– Lack of randomized controlled trials that have shown effectiveness in prevention of malignant transformation

– No recommendations can be provided for specific surgical interventions of dysplastic oral lesions
Diagnosis and Management of Oral Cancer
How to diagnose OSCC?

- **Age:** OSCC is seen predominantly in the elderly
- **History taking**
  - Smoking, alcohol, betal quid, low socio-economic groups
- **Physical**
- **Oral examination:** poor oral hygiene, poor dental prosthesis
- **Biopsy**
- **Panoramic/ MRI (Magnetic resonance image)/Computed tomography(CT)**
- **Toluidine blue/ acetic acid - oral cancer screening?**
- etc.
Early detection of potentially malignant disorders and cancer of the oral mucosa

- Noninvasive brush biopsy
  - Exfoliative epithelial cells have the same genetic changes associated with dysplasia and cancer as did paired biopsy specimens
- Biopsy
- **Toluidine blue**
  - Choosing biopsy sites, may guide surgical treatment
  - Facilitates the decision to perform a biopsy
  - Determining the margins of a lesion for treatment purposes
- **Tissue fluorescence visualization**
- **1% Acetic acid rinse & chemiluminescent light**
- etc.
Figure 20-20  Toluidine blue staining technique: A, squamous cell carcinoma and leukoplakia, buccal mucosa; B, applying 1% aqueous toluidine blue stain; C, after water rinse, decolorize with 1% acetic acid; and D, dye retention in area of carcinoma and surrounding dysplasia.

Biopsy using a 5 mm punch showed severe dysplasia.

Asymptomatic erythroleukoplakia

Staining with 1% aqueous toluidine blue

Toluidine blue retention after application of 1% acetic acid destaining

Biopsy using a 5 mm punch showed severe dysplasia
Adding VELscope to our diagnostic protocol... has resulted in detection of dangerous lesions that would have otherwise been undetected.

Dr. E Truelove, Seattle, WA

VELscope®
The Oral Cancer Screening System
Emits a safe blue light into the oral cavity, causing tissue fluorescence from the surface of the epithelium through the basement membrane.
Tissue fluorescence visualization

Abnormal tissue, such as dysplasia or cancerous lesions, typically appears as irregular, dark areas that stand out against the otherwise normal, green fluorescence pattern of surrounding healthy tissue.
Normal

Severe dysplasia

Carcinoma in situ
Warning features of OSCC

- Red lesions (erythroplakia)
- Mixed red/white lesion; irregular white lesion
- Lump
- Ulcer with fissuring or raised exophytic margins
- Pain or numbness
- Abnormal blood vessels supplying a lump
- Loose tooth
- Extraction socket not healing
- Induration beneath a lesion, a firm infiltration beneath the mucosa
- Lymph node enlargement
- Dysphagia
- Weight loss
Signs of SCC

Early changes

Leukoplakia

Erythroplakia

Erythroleukoplakia

if any such lesion does not heal within 3 weeks, a malignancy or some other serious disorder must be excluded and a biopsy may be indicated
Later changes of SCC

Granular ulcer with raised borders

Spread to submandibular & cervical lymph nodes
Symptoms of SCC

- Halitosis
- Dysphagia
- Weight loss
- Painless/Pain oral ulcer
- Trismus may be present with deep invasion
Squamous cell carcinoma

Epidemiology ~ 95% of oral cavity

Risk factors:

- Tobacco, alcohol or combined
- Viral infection (HSV, HPV)
- Genetics
- Low socio-economic groups
- Nutritional deficiency
- Poor oral hygiene
- Poor dentition,
- Impaired ability to metabolize carcinogens, etc.
Systemic diseases and Medications Related Cancers?
Immunomodulating agents and malignancy

9.6% of patients on combinations of immunomodulating agents, such as azathioprine, cyclophosphamide, cyclosporine, mycophenolate mofetil may develop a secondary malignancy.

Tacrolimus

- Tacrolimus is a macrolide calcineurin inhibitor

- Tacrolimus was discovered in 1987; it was among the first macrolide immunosuppressants discovered

- It is produced by a soil bacterium, *Streptomyces tsukubaensis*. The name tacrolimus is derived from Tsukuba macrolide immunosuppressant

- Carcinogenicity of tacrolimus may go beyond mere immune suppression

- Tacrolimus has been shown to have an impact on cancer signalling pathways such as the MAPK and the p53 pathway
Oral lichen planus (OLP) was diagnosed in a 56-year-old woman in February 1999.

After several ineffective local and systemic therapeutic measures, an off-label treatment of this recalcitrant condition using Tacrolimus 0.1% ointment was initiated in May 2002.

After a few weeks of treatment, most of the lesions ameliorated, with the exception of the plaques on the sides of the tongue.

In April 2005, the plaques on the left side of the tongue appeared increasingly compact and a biopsy specimen confirmed the suspected diagnosis of an oral squamous cell carcinoma.
Site of OSCC in Thai patients

- Intraoral cancer
  - Tongue:
    - Posterolateral border
    - Ventral surface
  - Buccal
  - Gingiva, Alveolar ridge: KhonKaen 80%
  - Floor of the mouth
  - Palate
- Lip – uncommon
- Other unspecified
Management oral cancer consideration

- Medical care: surgeons, oncologists and supporting staff
- Radiotherapy
- Prevention and treatment planning before cancer therapy
  - Psychosocial counseling
- Oral health and diseases in cancer therapy
  - Mucositis (3-15 days after treatment)
  - Oral infections
  - Hyposalivation (5 weeks after radiotherapy)
  - Loss of taste sensation
  - Osteoradionecrosis
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Oral Medicine & Oral Pathology staff
Our patients
Anonymous physicians
Research Unit in Oral Diseases

Thank you for your kind attention