

#### BDS Year 4 Regular batch Academic Year 2023-2024 Subject: Oral Medicine Topic: RED AND WHITE LESIONS- Part II

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### **Oral Leukoplakia**

The term Leukoplakia simply means a "white patch", (*leuko* = white; *plakia* = patch).

It is used to describe any white lesion in the mouth.



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## **Definition**

#### **\* WHO 1978:**

\* "A white patch or plaque that cannot be characterized clinically or pathologically as any other disease; this definition does not carry any histologic connotation"

#### **\*** Axell 1996

\* "A predominantly white lesion of the oral mucosa that cannot be characterized as any other definable lesion; some oral leukoplakias will transform into cancer."

#### Pindborg 1997

\* "A predominantly white lesion of the oral mucosa that cannot be characterized as any other definable lesion."





## Classification

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- **\* WHO 1980:** 
  - 1. Homogeneous
  - 2. Non-homogenous
- Alternatively, a more elaborate sub-division of Oral Leukoplakia is as follows:
  - 1. Homogenous
    - (a) Smooth
    - (b) Furrowed (fissured)
    - (c) Ulcerated
  - 2. Non-homogeneous
    - (a) Nodulo Speckled





- Phase I
- Phase II
- Phase III
- Phase IV

#### According to Clinical Description:

- **\*** Homogenous completely whitish lesion.
- ✤ Flat smooth surface lesion.
- **Corrugated-like** a beach at ebbing tide.







- Tobacco induced
- Non tobacco induced
- According to risk of future development of oral cancer
  - High risk sites
    - Floor of mouth
    - Lateral or Ventral surface of tongue
    - Soft palate





- **\*** According to Histology:
  - ✤ Dysplastic
  - Non dysplastic
- **\*** According to Extent :
  - Localized
  - Diffuse
- **\*** According to Banoczy:
  - ✤ Leukoplakia Simplex
  - ✤ Leukoplakia Erosiva
  - Leukoplakia Verrucosa



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# LSCP classification and staging

- L extent of the lesion
  - Lo = no evidence of lesion
  - L1 = lesion < 2 cm
  - L2 = lesion 2-4 cm
  - L3 = lesion > 4 cm
  - Lx = not specified
- S = site of lesion
  - S1= all oral sites, except for the floor of the mouth and tongue
  - S2 = floor of the mouth and/or tongue
  - **Sx** = not specified

- **C** = **clinical aspect** 
  - C1 = homogeneous
  - C2 = non-homogeneous
  - Cx -- not specified
- P = histopathological features of biopsy
  - P1 = no dysplasia
  - P2 = mild dysplasia
  - P3 = moderate dysplasia
  - P4 = severe dysplasia
  - **Px** = **not specified**







- Stage 2 any L, S1, C1, T1 of T2 • Stage 2 any L S1 C2 D1 on D2
- Stage 2 any L, S1, C2, P1, or P2
- any L, S2, C1, P1, or P2
- **\*** Stage 3 any L, S2, C2, Pl, or P2
- Stage 4 any L, any S, any C, P3, or P4







#### \* Tobacco



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- Alcohol
- Candidiasis
- Dietary deficiency
- \* Syphilis
- Viral infections
- Chronic irritation
- Actinic radiation
- \* Galvanism



PolyA Store







HPV-16





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### **Clinical Features**

- Number: Solitary or multiple
- ✤ Site: Buccal mucosa and commisural area
- ✤ Size: Small to extensive
- Surface: Smooth, wrinkled, rough
- Colour: White, greyish, yellowish, brownish
- Thickness: Faint to considerably thick
- Symptoms





## **Homogenous Leukoplakia**





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### **Ulcerated Leukoplakia**





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## Nodular leukoplakia



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### **Proliferative Verrucous Leukoplakia**



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## **Histological Features**

- Changes in kertinization pattern
  - Hyperothokeratinization
  - Hyperparakeratinization

## **\*** Thickness of epithelium

- Epithelial atrophy
- Epithelial hyperplasia
- Acanthosis



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#### **Changes in cellular layer:**

- Loss of polarity
- Abnormal orientation of epithelial cells
- Basal cell hyperplasia
- Increased cellular density
- Bulbous drop-shaped rete pegs
- Abnormal stratification of the epithelium
- Disordered maturation from basal to squamous cells
- Dyskeratosis.
- **Cellular Changes**
- Abnormal variation in nuclear size (anisonucleosis)
- Abnormal Variation in cell size (anisocytosis)
- Increased nuclear/cytoplasmic ratio
- Enlarged nuclei and cells
- Hyperchromatic nuclei
- mcreased mitotic figures
- Abnormal mitotic figures (abnormal in shape or location)
- Nuclear and cellular pleomorphism
- Increased number and size of nucleoli.





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Connective tissue changes:

- Chronic inflammatory cell infiltration
- Replacement of degenerated elastic fibers by hyaline fibrous tissue



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## Investigations

#### <u>Vital Iodine Stain</u>.

- Vital iodine stain (3% Lugol solution) can be used prior to biopsy and resection and is useful in the determination of the best incision area.
- Its principle is based on the binding of iodine to glycogen granules in the cytoplasm, resulting in a black-brown tissue color.
- In cancer cells, where the glycolysis is elevated, this method results in unstained areas whereas the normal mucosa is stained.





## Comoposition

- Solution \* Iodine 2 g
- Potassium iodide 4 g
- **\* Distilled water 100 cc**









### **Toluidine Blue Staining (TBlue Staining).**

- Toluidine Blue (also known as tolonium chloride) is a vital metachromatic dye of the thiazine group effectively used in nuclear staining because of its binding to DNA nucleus acid.
- Used as an aid in epithelium dysplasia identification and appears to improve precancerous lesion visualization by showing high-risk areas (areas of high cell proliferation), therefore guiding biopsy.





Topical application of TBlue on the lesion with the aid of a swab or cotton applicator.

The more intense TBlue staining areas should be the ones elected to be biopsied.



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## Composition

- **\*** Toluidine Blue 1 g
- Acetic acid 10 cc
- Absolute alcohol 4.19 cc
- Distilled water 86 cc
- **\*** pH 4.5





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### **PICO** Question

Р	Patients with oral PMD's
ı	Toluidine Blue
С	Biopsy
0	Diagnostic Accuracy





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#### **Evidence**

Authors	KH Awan, YH Yang, PR Morgan, S Warnakulasuriya
Title	Utility of toluidine blue as a diagnostic adjunct in the detection of potentially malignant disorders of the oral cavity – a clinical and histological assessment
Aim	To determine the effectiveness of toluidine blue in detecting leukoplakia and erythroplakia and its accuracy in identifying cases with oral epithelial dysplasia.
Results	Of 64 oral leukoplakias, 34 (53.1%) were positive for toluidine blue and among nine erythroplakias seven stained positive. Of 41 oral dysplasia cases, a little more than half of the lesions (n = 23) were stain positive, an estimated sensitivity of 56.1%. TBlue test had a higher sensitivity for detecting higher-grade dysplastic lesions (5 $\checkmark$ 8 moderate dysplasia, sensitivity 62.5%; 5 $\checkmark$ 7 severe dysplasia; sensitivity 71.4%) compared with lower grades of dysplasia, but the differences were not significant (P = 0.60).
Interpretati on	We report here the utility of TBlue for the detection of oral leukoplakia and erythroplakia. The test has the potential to detect OPMDs and yielded a sensitivity of 56.1% and specificity of 56.9% to detect oral epithelial dysplasia.



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S.Lecture Dr. Akansha Budakoti Oral Diseases (2012) 18, 728–733



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Rinse twice with water (20 seconds + 20 seconds ).

Rinse mouth well with 1 % acetic acid (20 seconds).

Gently dry suspicious mucosal areas with gauze

With a cotton swab apply toluidine blue solution to the site of lesion

Rinse again with 1% acetic acid (1 minute)

Rinse with water

Repeat in two weeks if positive staining occurs



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#### **Chemiluminescence Light**

It serves the purpose of improving the identification, visualization, and monitoring of oral precancerous lesions.

\* Consists of the emission of light from a chemical reaction between hydrogen peroxide and acetylsalicylic acid inside a capsule light stick .





- The use of a 1% acetic acid solution for washing and cleaning the oral mucosa for about 1 minute before chemiluminescence light is recommended.
- The action of the stick holds good for approximately 10 minutes.
- This reaction emits a blue/white light (430–580 nm) whose principle is based on the reflective properties of tissues that present cellular alterations such as a higher nuclear/cytoplasmatic rate.
- \* The "acetowhite" lesion is more defined and sharper, whereas the normal tissue is dark.





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BEND FLEXIBLE outer light stick, breaking brittle inner vial.



SHAKE VIGOROUSLY to mix contents of light stick. Insert light stick into open end of retractor and assemble.





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EXAMINE the oral cavity using Vizilite device.



Apply the TBlue630 marking system to lesions visible under ViziLite illumination

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# **Differential Diagnosis**

- Lichen planus
- Leukoedema
- Cheek biting lesion
- Smokeless tobacco lesion
- Hyperplastic and hypertrophic candidiasis
- Hairy leukoplakia
- Verruca vulgaris
- White sponge nevus





### Management

- The main objective of treating oral leukoplakia is to detect and prevent malignant change.
- ✤ A biopsy should be taken before starting the treatment.
- Several management regimens have been suggested:
  - Wait and watch,
  - Medical therapies (including antioxidants, anti-inflammatory agents and vitamins) and
  - Surgical removal (scalpel, laser cryoprobe, electro surgery)





#### Removal of risk factors





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#### **Conservative treatment**

#### Vitamin A

- Mulay and urbach (1958) was the first to use the vitamin A therapy for leukoplakia.
- \* It has a protective effect on the epithelium.
- **\* Daily requirement is 4000 IU.**
- ✤ It is given orally, parentally or topically.
- Vitamin A may be used topically after painting the lesion with podophyllin solution (it inhibit mitosis).
- \* Vitamin A + vitamin E therapy is given to inhibit metabolic degradation.




### Antioxidant therapy

- Antioxidants are substances that are capable of counteracting the damaging, but normal, effects of the physiological process of oxidation in animal tissue.
- Antioxidants are nutrients (vitamins and minerals) as well as enzymes (proteins in the body that assist in chemical reactions).



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#### Beta-carotene

- \* Carotenes have an excellent property of free radical trapping, especially peroxyl and hydroxyl radicals, which are involved in the genesis of cancers and aging.
- \* Beta carotene also increases cell mediated immune responses due to increased monocyte expression and increased activity of the tumor necrosis factor alpha.
- Serum beta carotene levels have been shown to decrease in various oral premalignant lesions and conditions and its supplementation (30 mg/day) have led to the regression of the lesions.





### **PICO** Question

Ρ	Patients with oral leukoplakia
1	Vitamine A
с	Lycopene
0	Prevention of malignant transformation





### **Evidence**

Authors	Sankarnarayanan R, Mathew B, Sudhakaran PR
Title	Chemoprevention of oral leukoplakia with vitamin A and beta carotene: an assessment.
Aim	to evaluate the chemopreventive potential of either vitamin A alone or beta carotene alone in subjects with oral leukoplakia
Results	The results are based on 43 complaint subjects on placebo, 42 on vitamin A and 46 on beta carotene. The complete regression rates were: 10% in the placebo arm, 52% with vitamin A and 33% with beta carotene (P < 0.0001). Homogeneous leukoplakias and smaller lesions responded better than non-homogeneous and larger lesions. No major toxicities were observed. Half of the responders with beta carotene and two thirds with vitamin A relapsed after stopping supplementation.
Interpreta tion	The results of this study, as well as those from previous studies, appear to provide strong supporting evidence to justify long term trials with vitamin A in subjects with high-risk leukoplakias with oral cancer as an endpoint.

Oral Oncol.1997 Jul;33(4):231-6



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### Lycopene

- There is a positive relationship between lycopene consumption and a reduction in the risk of the development of degenerative diseases caused by free radicals.
- \* Lycopene has the uncommon feature of becoming bound to chemical species that react to oxygen, thus being the most efficient biological antioxidizing agent.
- In addition to its antioxidizing property, lycopene also has the capacity to modify intercellular exchange junctions, and this is considered to be an anticancer mechanism.







### **PICO** Question

Ρ	Patients with oral leukoplakia
ı	Lycopene
С	Placebo
0	Prevention of malignant transformation





### **Evidence**

Authors	Sankarnarayanan R, Mathew B, Sudhakaran PR
Title	Efficacy of oral lycopene in the treatment of oral leukoplakia.
Aim	To evaluate the efficacy of lycopene in the treatment of oral leukoplakia
Results	Fifty-eight clinically and histologically diagnosed patients of oral leukoplakia were selected for the study. They were randomly divided into three groups. Group A: (n = 20; 8 mg lycopene/day), Group B: (n = 20; 4 mg lycopene/day) and Group C: (n = 18; placebo). The duration of the therapy was three months. Outcome was assessed clinically as well as histologically. Post-treatment patients were on follow-up for two months. Clinically the patients in Groups A, B, C had a mean response of 80%, 66.25% and 12.5% respectively. Histological evaluation too had similar results. Patients receiving lycopene in both regimes show highly significant difference in response as compared to placebo.
Interpretat ion	The observed effect of lycopene suggests that it can be effectively and safely used for the management of oral leukoplakia.

Oral Oncol. 2004 Jul;40(6):591-6.



# Fenretinide (n- 4- hydroxyl phenyl retinamide) Synthetic retinoid

- 200 mg / day for 1 year
- Reduces relapses and appearance of new lesions
- **\* Vit C**
- **♦ Vit E**
- Green Tea





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#### **Newer treatments**

- Polyamine inhibitors
- Glutathione S-transferase stimulators
- Immunotherapy
- **\*** Gene therapy
- Antifungal therapy





### Surgical treatment

- Conventional
- Cryosurgery
- **\*** Fulguration
- **\*** Laser



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# **Erythroplakia**

- Definition:
- **\* Burket 10<sup>th</sup> edition:** 
  - \* "Bright red velvety plaque or patch which cannot be characterized clinically or pathologically as being due to any other condition."

### **\* WHO 1983**

\* "Any lesion of the oral mucosa that presents as bright red velvety plaques which cannot be characterized clinically or pathologically as any other recognizable condition"





# Classification

### **Shear 1972:**

### (A) Clinical variations

- (1) Homogeneous Erythroplakia
- (2) Erythroplakia interspersed with patches of leukoplakia
- (3) Granular or speckled erythroplakia (embracing the lesion described as speckled leukoplakia)





#### **(B) Microscopic variations**

- (1) Neoplastic
  - (a) Squamous carcinoma
  - (b) Carcinoma in situ (intra-epithelial carcinoma) and less severe forms of epithelial atypia
- (2) Inflammatory

(a) Candida albicans infections (including denture stomatitis)

**(b)** Tuberculosis

(c) Histoplasmosis

(d) Miscellaneous - specific, non-specific and nondiagnosable lesions





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# **Etiology / Pathogenesis**

### Poorly understood

- Predisposing factors are widely unknown
- It was suggested that tobacco and alcohol use are probably involved in most cases.





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### **Clinical features**

Age: middle age and elderly

#### **♦ M=F**

#### Location:

- Buccal mucosa, soft palate and floor of mouth are most common
- Tongue least common
- Size:
  - The typical lesion of OE is less than 1.5 cm in diameter and half are less than 1 cm, but lesions larger than 4 cm have been observed.





### Homogenous





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### Granular







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# **Erythroleukoplakia**



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# **Histopathologic Features**

- \* It exhibits epithelial changes ranging from mild dysplasia to carcinoma in situ and even invasive carcinoma
- \* The epithelium shows a lack of keratin production and often is atrophic, but it may be hyperplastic.
- \* The spinous layer contains cells displaying atypia, hyper chromatism, pleomorphism and increase in number of mitotic figures.
- \* The underlying connective tissue often demonstrates chronic inflammation.





### Treatment

- \* The treatment of erythroplakia should follow the same principles outlined for that of leukoplakia following the elimination of suspected irritants is acceptable, but prompt biopsy at that time is mandatory for lesions that persist.
- \* Epithelial dysplasia or carcinoma in situ warrants complete removal of the lesion.
- Actual invasive carcinoma must be treated promptly according to guidelines for the treatment of cancer.
- \* Since recurrence and multifocal involvement is common, long term follow-up is mandatory.
- Surgical excision gives excellent results and a recurrences rate of less than 5% is reported.





# **Malignant transformation**

- Erythroplakias are considered most sevre because microscopically 91% of them show either squamous cell carcinomas or moderate to serve epithelial dysplasia.
- Information on malignant transformation is available from reverse smoking associated red areas.
- \* These demonstrated a malignant transformation rate of 118 per 1000 red areas.
- \* Among all palatal components red areas are nearly 10 times more dangerous than white patches.





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### **Oral Submucous Fibrosis**

**Synonyms:** 

- Diffuse Oral Submucous Fibrosis
- Idiopathic Scleroderma of Mouth
- Idiopathic Palatal Fibrosis
- Sclerosing Stomatitis



### **Definition**

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Mehta FS & Hamner JE (1993) defined the condition as- "Submucous fibrosis is a chronic mucosal condition affecting any part of the oral mucosa, characterized by mucosal rigidity of varying intensity due to fibroelastic transformation of the juxtaepithelial connective tissue layer."





# Etiology

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- Areca nut + slacked lime
- Tobbaco + lime
- Consumption of chillis
- Nutritional deficiency
- Collagen disorders
- Immunological disorders







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### **Pathogenesis**



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# Classification

- A. Classifications based on clinical features of OSMF are as follows:
  - JV Desa (1957)
  - Pindborg JJ (1989)
  - SK Katharia et al (1992)
  - Lai DR et al (1995)
  - R Maher et al (1996)
  - Ranganathan K et al (2001)
  - Rajendran R (2003)
  - Nagesh and Bailoor (2005)
  - Tinky Bose and Anita Balan (2007)
  - Kiran Kumar et al (2007)
  - Chandramani More et al (2011)



### B. Classifications based on histopathological features:

- Pindborg JJ and Sirsat SM (1966)
- Utsunomiya H et al (2005)
- Kiran Kumar et al (2007)
- C. Classification based on clinical and histopathological features:
  - Khanna JN et al (1995)



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- Chandramani More et al (2011):<sup>7</sup>
  - Clinical staging:

    - Stage 2 (S2): Presence of palpable fibrous bands in buccal mucosa and/or oropharynx, with /without stomatitis.
    - Stage 3 (S3): Presence of palpable fibrous
      bands in buccal mucosa and/or oropharynx,
      and in any other parts of oral cavity, with/
      without stomatitis.
    - Stage 4 (S4) as follows:
      - Any one of the above stage along with other potentially malignant disorders, e.g. oral leukoplakia, oral erythroplakia, etc.
      - b. Any one of the above stage along with oral carcinoma.

Functional staging:

- M1: Interincisal mouth opening up to or greater than 35 mm.
- *M2*: Interincisal mouth opening between 25 and 35 mm.
- M3: Interincisal mouth opening between 15 and 25 mm.
- M4: Interincisal mouth opening less than 15 mm.



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### **Clinical Features**

DESA J. V. (1957) categorised clinical features of the disease in following 3 stages:

- Stage I Stage of Stomatitis & Vesiculation
- Stage II Stage of Fibrosis
- Stage III Stage of Sequelae





- Sudden onset of inflammation of oral mucosa.
- Small vesicles develop on these erythematous areas.
- Vesicles are painful & soon ruptures leaving small superficial ulcerations.



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- As the disease progresses oral mucosa becomes blanched, slightly opaque & marble like white.
- ✤ The fibrous tissue is seen arching from Pterygo-mandibular raphe or Anterior Faucial Pillars into the soft palate.
- **\*** The Buccal mucosa, appear mottled-marble like.
- \* The Fibrous bands in buccal mucosa runs in verticular direction.
- ✤ The Floor of mouth becomes Pale & Thickened.
- \* In late stages, Uvula shrinks & appears like Bud or Hockey stick shape.
- \* The movements of Soft palate & Tongue is markedly reduced.
- **\*** The Tongue becomes bald & Atrophic.
- The Lower Lip is commonly affected with thick circular bands around the entire rima oris.
- ✤ If the fibrosis extends into Oesophagus, the patient may experience Progressive Dysphagia.







Due to this, the fibrosed buccal mucosa is traumatized by the sharp edges of teeth or restorations causing Ulcerations.



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## **Histologic Features**

- Pindborg JJ and Sirsat SM (1966) were the first to divide OSMF depending only on histopathological features alone are as follows:<sup>16</sup>
  - Very early stage: Finely fibrillar collagen dispersed with marked edema. Plump young fibroblast containing abundant cytoplasm. Blood vessels are dilated and congested. Inflammatory cells, mainly polymorphonuclear leukocytes with occasional eosinophils are found.
  - *Early stage:* Juxta-epithelial area shows early hyalinization. Collagen still in separate thick bundles. Moderate number of plump young fibroblasts is present. Dilated and congested blood vessels. Inflammatory cells are primarily lymphocytes, eosinophils and occasional plasma cells.



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- Moderately advanced stage: Collagen is moderately hyalinized. Thickened collagen bundles are separated by slight residual edema. Fibroblastic response is less marked. Blood vessels are either normal or compressed. Inflammatory exudate consists of lymphocytes and plasma cells.
- Advanced stage: Collagen is completely hyalinized. Smooth sheets with no separate bundles of collagen is seen. Edema is absent. Hyalinized area is devoid of fibroblasts. Blood vessels are completely obliterated or narrowed. Inflammatory cells are lymphocytes and plasma cells.

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### **Treatment**

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The main concern in the condition is the management of trismus and burning sensation of the oral mucosa.

A large number of treatment modalities have been tried by both non surgical and surgical approach.




### **Discontinuation of Habit & Counseling**

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- The preventive measures should be in the form of discontinuation of habit, which can be encouraged through education & advocacy.
- Affected patients should be explained about the disease and its possible malignant potential.
- Thorough counseling should be given for deaddiction.





## **Supportive Care**

- Vitamins, iron and mineral rich diet should be advised to patients with OSMF.
- Intake of red tomatoes, fresh fruits and green leafy vegetables should be included in the regular diet.
- Intake of green tea should be included in the diet chart.
- \* Various studies have implicated deficiency of iron both as a cause and effect in etiopathogenesis of OSMF.
- Thus routine hemoglobin levels followed by iron supplements should be included in treatment plan.





## **PICO** Question







#### **Evidence**

Authors	Tapasya Vaibhav Karemore, Mukta Motwani
Title	Evaluation Of The Effect Of Newer Antioxidant Lycopene in The Treatment Of Oral Submucous Fibrosis
Aim	is to compare the effect of newer antioxidant lycopene with a placebo in conjunction with the cessation of causative habit in the treatment of OSMF
Results	Lycopene was found to be significantly efficacious in the amelioration of signs and symptoms of OSMF. It was effective in reducing the objective signs of OSMF as demonstrated by the improved maximal mouth opening, percentage of which was 69.56%( <i>P</i> <0.05).
Interpretation	that lycopene, a newer antioxidant, appears to be a very promising drug in the management of OSMF
	Indian Journal of Dental Research, 23(4), 2012





## **Medical Managment**

**\*** Steroids:

- Glucocorticoids inhibit the proliferation of fibroblasts and thus cause a reduction in the number of collagen fibres.
- They also act to release cellular proteases in the connective tissue extracellular compartment which in turn activate the collagenase and zymogen that ingest insoluble collagen, stimulating the rate of collagen breakdown.
- They also act by inhibiting the inflammatory response.





## Hyaluronidase

- The combination of steroids and hyaluronidase shows better long-term results than either agent used alone (Kakar, 1985).
- It reduces burning sensation & trismus.
- It acts by breaking down hyaluronic acid, lowers the viscosity of intracellular substances and decreases collagen formation.





## **Placental Extracts**

- \* Placentrix is an aqueous extract of human placenta that contains nucleotides, enzymes, vitamins, aminoacids and steroids.
- \* It acts by "biogenic stimulation".
- ✤ Its use is based on the method of "tissue therapy" introduced by Filatov in 1933 and later in 1953.
- ✤ His theory states, "animal and vegetable tissues, when severed from the parent body and exposed to conditions unfavorable but not mortal to their existence, undergo biological readjustment leading to development of substances in state of their survival to ensure their vitality.
- Such tissues or their extracts, implanted or injected into the body after resistance to pathogenic factors, stimulate the metabolic or regenerative processes, thereby favoring recovery.
- It has no contraindications and the results obtained are found to be lasting."





## **PICO** Question





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#### **Evidence**

Authors	Tapasya Vaibhav Karemore, Mukta Motwani
Title	Effiacy of betamethasone, placental extract and hyaluronidase in the treatment of osmf: a comparative study
Aim	To evaluate the efficacy of betamethasone, placental extract and hyaluronidase therapy in the treatment of oral submcous fibrosis.
Results	Improvement in mouth opening was observed the maximum with intra lesional injection of hyaluronidase with 9.38mm in average (t= 27.61; p= 0.0000) and improvement in burning sensation was observed maximum with intra lesional injection of betamethasone (t= 12.35; p= 0.0002).
Interpretation	intralesional injection of betamethasone, placentrex and hyaluronidase may provide relief from restricted mouth opening and burning sensation thereby improving the quality of life of the affected individual.

e-Journal of Dentistry Jan - Mar 2012 Vol 2 Issue 1



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## **Interferon-Gamma**

- \* This plays a role in the treatment of patients with OSMF because of its immuno-regulatory effect.
- **\* IFN-gamma is a known anti-fibrotic cytokine.**
- \* Patients treated with an intra-lesional injection of IFNgamma experienced improvement of symptoms.
- ✤ IFN-gamma, through its effect of altering collagen synthesis, appears to be a key factor to the treatment of patients with OSMF, and intra-lesional injections of the cytokine may have a significant therapeutic effect on OSMF.





### **Turmeric**

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Administration of turmeric powder offers protection against benzopyrene induced increase in micronuclei in circulating lymphocytes and it is an excellent scavenger of free radical in vitro.

Turmeric oil & turmeric oleoresin both act synergistically in vivo to offer protection against DNA damage.





## **PICO** Question





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#### **Evidence**

Authors	Agarwal N, Singh D, Sinha A, Srivastava S, Prasad RK, Singh G.	
Title	Evaluation of efficacy of turmeric in management of oral submucous fibrosis	
Aim	to evaluate the efficacy of turmeric in oral submucous fibrosis (OSMF) patients.	
Results	The improvement in mouth opening was not significant; however, the change in burning sensation on VAS was significant.	
Interpretation	Treatment of OSMF with turmeric is an affordable and effective treatment methodology; however, further research needs to be done.	
J Indian Acad Oral Med Radiol 2014;26:260-3		

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## **Oral Physiotherapy**

- \* Muscle stretching exercises for the mouth may be helpful to prevent further limitation of mouth movements.
- \* This includes forceful mouth opening with the help of sticks, ballooning of mouth, hot water gargling.
- **\*** This is thought to put pressure on fibrous bands.
- Solution Forceful mouth opening have been tried with mouth gag & acrylic surgical screw.





# Surgical therapy

- \* Surgical treatment is indicated in patients with severe trismus and/or biopsy results revealing dysplastic or neoplastic changes.
- Surgical modalities that have been used include simple excision of the fibrous bands, with major limitation being contracture of the tissue and exacerbation of the condition.
- Split-thickness skin grafting following bilateral temporalis myotomy or coronoidectomy.
- LASER CO2 laser surgery offers advantage in alleviating the functional restriction.





- Synonym : Nicotine stomatitis, stomatitis nicotina palati
- Introduction : specific white lesion that develops on the hard and soft palate in heavy cigarette, pipe, cigar smokers.
- Etiopathology : Heat is the primary cause



Age/Sex : elderly males











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### **Site : Hard and soft palate**

#### Clinical Stages :

- 1) Redness and inflammation of the palate
- 2) Diffuse, grayish white, thickened, multinodular or papular appearance with a small red spot in the center of each tiny nodule, representing the dilated and sometimes partially occluded orifice of an accessory palatal salivary gland duct around which inflammatory cell infiltration is prominent.
- ♦ 3) Fissures and cracks may appear, producing a wrinkled,

irregular surface

## Treatment :

- Discontinuation of habit
- Biopsy if any lesion persists after 1 month of discontinuation of habit





HOSPITA

- Synonym : snuff dipper's keratosis, Tobacco pouch keratosis
- Introduction : Precancerous but much lower risk than leukoplakia
- Etiopathology : N- nitrosonornicotine (NNN)
- Site : Seen at the place where usually the snuff is placed





HOSPITA

### Clinical features :

- **Site- ant. Mand. Vestibule, followed by post. Vestibule.**
- White, granular or wrinkled surface of the mucosa
- Pouch or folded character Leathery or nodular consistency
- Gingival recession with periodontal tissue destruction in the immediate area of contact
- Stains on root surface & Root caries
- Treatment :
  - Discontinuation of habit
  - Biopsy and follow up



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## **Credit Based Evaluation**





- **1.** Which of these vitamins is not used in the treatment of oral leukoplakia?
  - A. Vit A
  - **B.** Vit **E**
  - C. Vit K
  - **D.** None of the above
- 2. The following lesion has the highest malignant potential:
  - A. Leukoplakia
  - **B.** Erythroplakia
  - C. OSMF
  - **D.** Tobacco pouch keratosis
- **3.** Reduced mouth opening in OSMF is due to
  - A. Fibrosis
  - **B.** Burning mouth
  - **C.** Blanching of mucosa
  - **D.** None of the above



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- 4. Dexamethsome acts as
  - A. Immunosuppressive
  - **B.** Anti-inflammatory
  - **C.** Anti-fibrotic
  - **D.** All of the above

#### 5. The alkaloid involved in the pathogenesis of OSMF is

- A. Arecoline
- **B.** Nicotine
- C. Both
- **D.** None





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