



TOBACCO-ASSOCIATED LESIONS OF THE ORAL CAVITY

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epidemiology

- Tobacco kills more than 8 million people each year.
- More than 7 million of those deaths are the result of direct tobacco use while around 1.2 million are the result of non-smokers being exposed to second-hand smoke.

- Oral mucosa reflects the general health of the body.
- The oral mucosa however strong and elastic to perform various functions may still be subjected to scores of insults.
- Insults may come in the form of multiple habits like chewing pan, tobacco, betel nut, smoking, alcohol drinking, which with the passage of years, leave their marks on the oral mucosa.
- The most unhealthy and dangerous entities associated with these habits are the clutches of oral cancer

A diagram on a light beige background. On the left, a blue circle with a drop shadow contains the word 'smoking' in white. To its right is a light blue rectangular box with a drop shadow containing the text 'Cigarette', 'Cigars', and 'pipes' stacked vertically. On the right, another blue circle with a drop shadow contains the word 'Smokeless' in white. To its right is a light blue rectangular box with a drop shadow containing the text 'Chewing tobacco' and 'snuff' stacked vertically.

smoking

Cigarette
Cigars
pipes

Smokeless

Chewing
tobacco
snuff

Smokeless tobacco

- Smokeless tobacco represents a nonhomogeneous group of compounds used with different intraoral application methods.
- Three different geographic areas are of special interest:
- South Asia, the United States, Scandinavia.
- In India, tobacco is often used in combination with betel leaf, sliced areca nut, and powdered slaked lime, which increases the toxicity of the compound

Smokeless tobacco

- When tobacco is chewed, various materials leach out of it, such as tobacco tars and resins.
- These are the extracts of tobacco, containing various chemical constituents such as nitrosonornicotine, nicotine, pyridine, and picoline and collidin.
- All these chemical constituents as well as the alkaline pH of snuff (8.2 to 9.3) act as local irritants and are related to the alterations of mucosa.
- Smokeless tobacco is believed to result in chemical damage that produces sub-lethal cell injury within the deeper layers of oral epithelium.
- This, in turn, induces concomitant epithelial hyperplasia.
- Smokeless tobacco often leads to tobacco pouch keratosis rather than true leukoplakia

Smoking tobacco

- Smoking tobacco is harmful as this smoke contains polycyclic hydrocarbons, because of increased keratinization, reduced salivary immunoglobulin-A concentration or depressed polymorphonuclear leukocyte function



ORAL MANIFESTATIONS AND COMPLICATIONS

smoking

- halitosis
- Leukoplakia
- SCC
- Periodontal disease
- Extensive dental caries
- Malignant and premalignant lesions
- Nicotinic stomatitis
- hyper melanosis

Smokeless tobacco

- Oral cancer
- Premalignant lesions
- Gingivitis and periodontist
- Dental caries
- Staining
- Halitosis
- Reduction of taste
- Reduction of smell

MALIGNANT LESIONS

LEUKOPLAKIA
ORAL SUBMUCOSAL FIBROSIS
TOBACCO PATCH

SCC
VEROUCOSE CARCINMA

NON MALIGNANT LESIONS

NICOTINIC STOMATITIS
SMOKER MELANOSIS
HAIRY TONGUE
REDUCTION IN SMELL AND TASTE

PERIODONTAL DISEASES
DENTAL CARIES
STAINING

Snuff dipper pouch

- Precancerous
- The compound N-nitroso-nor-nicotine (NNN), which is derived partly from bacterial action on nicotine during the curing process, is contributed by the action of salivary nitrites when tobacco is held in the mouth; occurs in greater concentration in snuff tobacco.
- Where snuff is held
- Dental staining and periodontal diseases

☐ ***Smokeless tobacco keratosis***

- It is white plaque present in the mucosa where chewing tobacco is kept. It is thin, gray or gray-white translucent lesion.
- Margin of the lesion blends gradually into the surrounding mucosa. The appearance of lesion depends upon hours of daily use and use of different tobacco leaves

☐ ***Snuff pouch, tobacco pouch***

- Mucosa is soft, velvety touch feel on palpation and stretching of mucosa reveal distinct 'pouch'. Stretched mucosa appears fissured and ripped in sand on a beach after an ebbing tide

☐ ***Malignant transformation***

- Verrucous carcinoma has been reported to occur from snuff dipper lesion. This is also called as snuff dipper cancer.





- Stoppage of habit
- Biopsy (after 6 months)

leukoplakia

- A precancerous lesion in the oral cavity has also been strongly associated with smokeless tobacco use both among young adults and adolescents
- The term leukoplakia originates from two Greek words: *Leuko*, i.e. white and *plakia*, i.e. patch.
- It is defined as any white patch on mucosa, which cannot be rubbed or scraped off and which cannot be attributed to any other diagnosable disease.
- The white color of mucosa results from thickened surface of keratin layer.

Etiology of leukoplakia

Local factors

Tobacco

Alcohol

Chronic irritation

Candidiasis

Electromagnetic reaction and galvanism

Regional and systemic factors

Syphilis

Vitamin deficiency

Virus

Hormones

Actinic radiation

Conditions causing xerostomia

Nutritional deficiency

Drugs

Idiopathic leukoplakia

Clinical appearance

- flat
- Wrinkle
- Nodular
- ulcerated

etiology

- Tobacco-induce
- Non tobacco-induce

risk

- Floor of mouth
- Lateral or ventral surface of tongue
- Soft palate

Wrinkled



Wrinkled



Management of Oral Leukoplakia

Provisional Clinical Diagnosis of Leukoplakia

Elimination of possible causes

Observe response after 2–4 weeks

Good response

Non-leukoplakia
Manage according
to diagnosis

No response

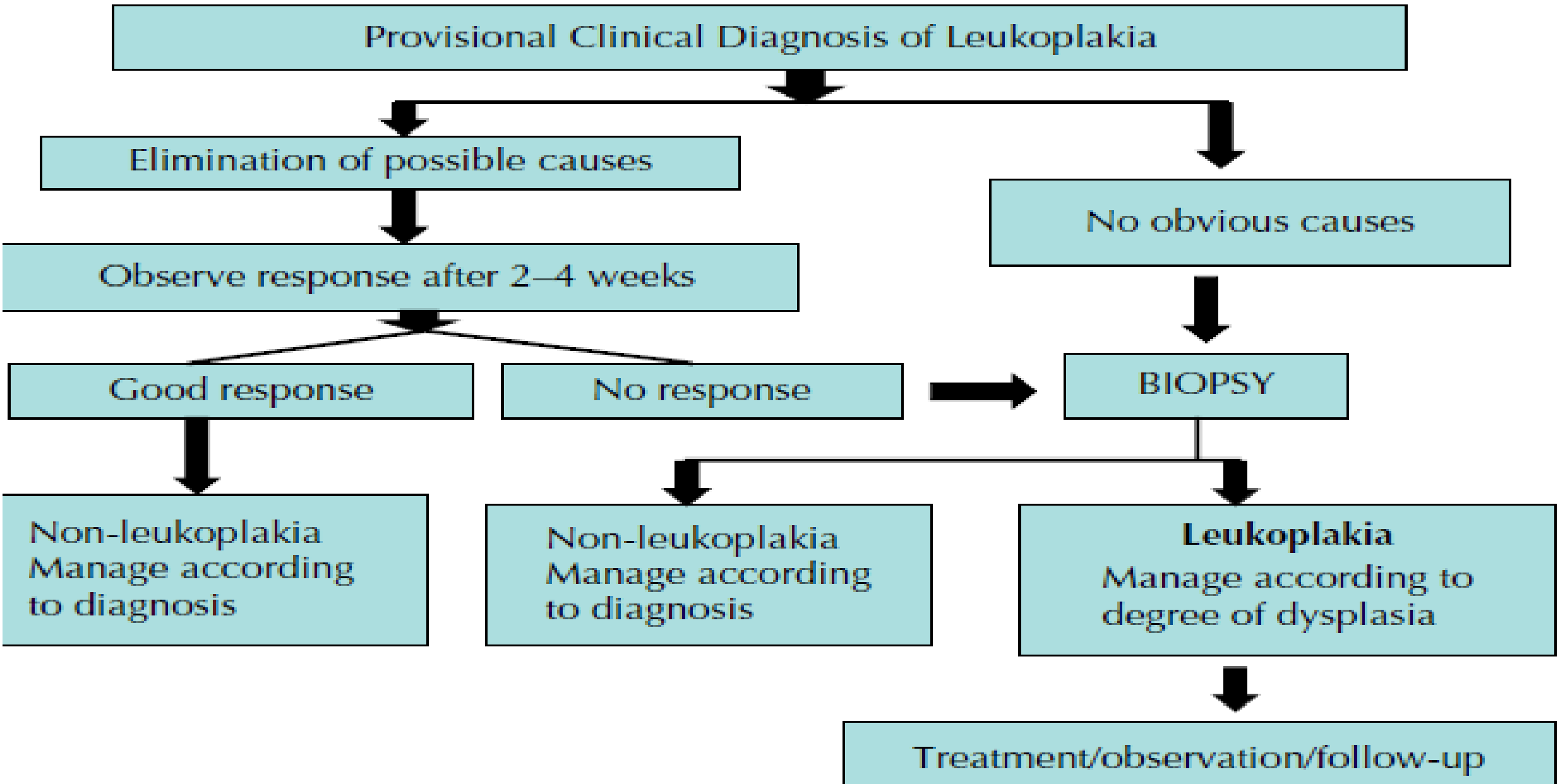
Non-leukoplakia
Manage according
to diagnosis

No obvious causes

BIOPSY

Leukoplakia
Manage according to
degree of dysplasia

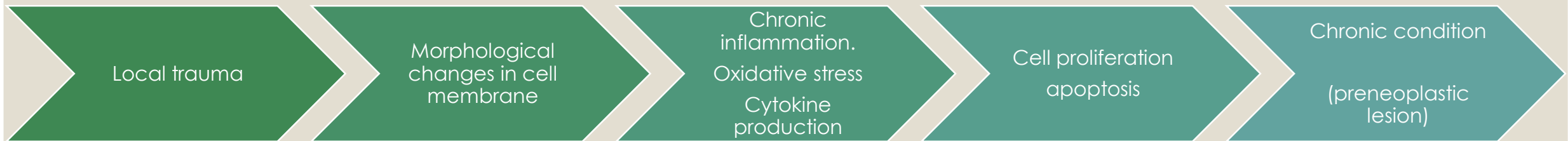
Treatment/observation/follow-up



ORAL SUBMUCOUS FIBROSIS

- precancerous condition, debilitating , progressive disease.
- areca nut
- stiffening of the oral mucosa and development of fibrous bands,
- loss of elasticity of the mucosa results in a progressive restriction of mouth opening.
- Affected users experience a burning sensation of the oral mucosa, occasional mucosal ulceration, a peculiar marble-like blanching of the mucosa and palpable fibrous bands of the buccal mucosa, soft palate.
- Oesophageal subepithelial fibrosis, an extension of oral submucosal fibrosis, was seen more frequently in patients who had consumed pan masala, gutka, areca nut, tobacco or a combination of some or all of these, with or without betel leaf.

- multifactorial pathogenesis
- Areca nut, chilies, nutritional deficiencies, immunologic processes

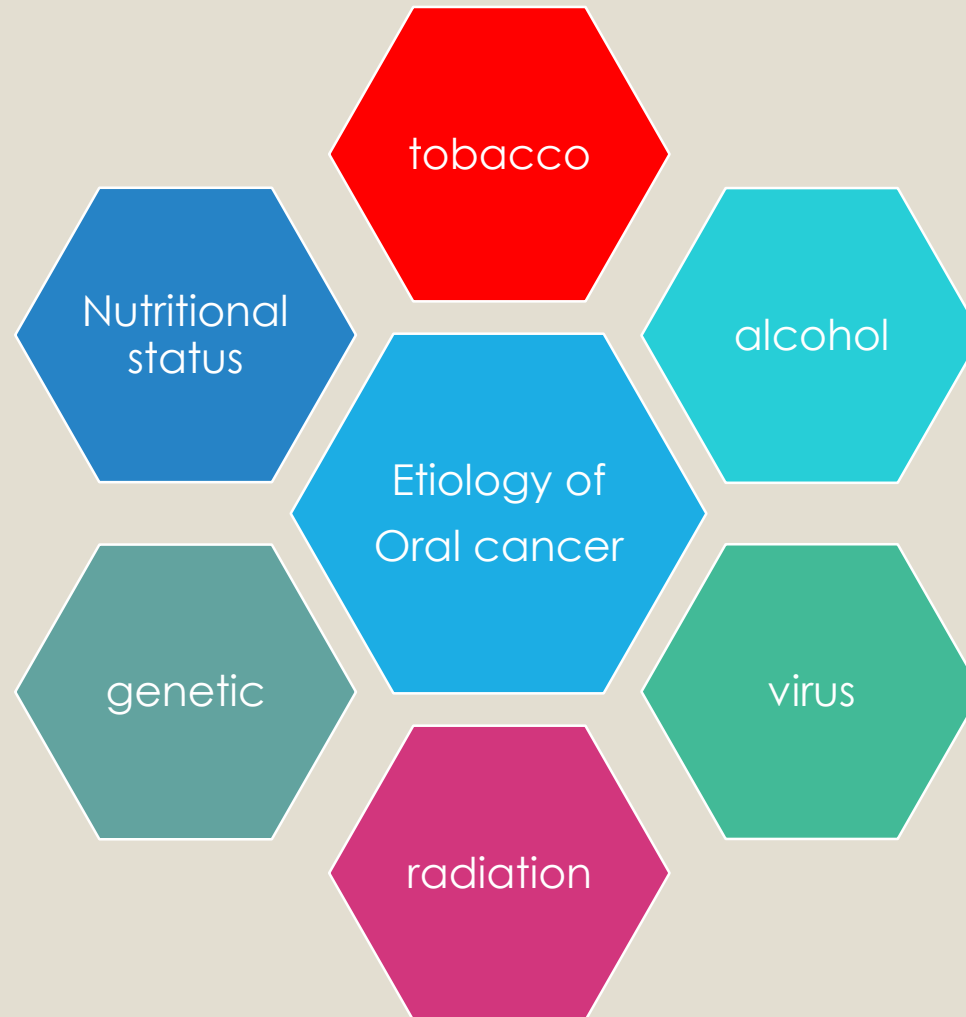






ORAL CANCER

Etiology of oral cancer

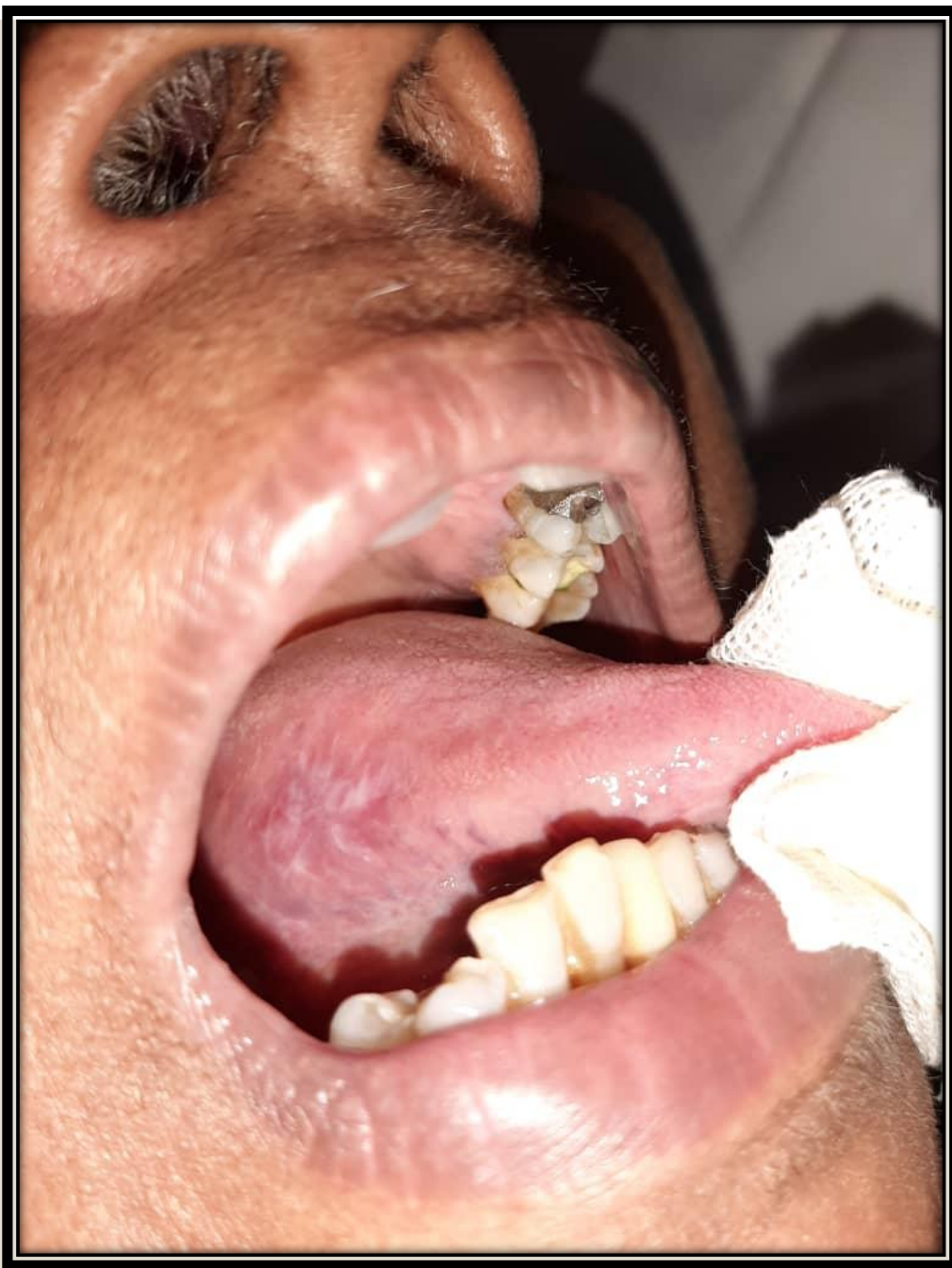




ORAL SQUAMOUS CARCINOMA

- 90% of all oral cancers
- Men/women(2 to 1)
- 4th cause of death worldwide
- the overall survival rate of all patients with oral cancers is about 50%.
- Top ten causes of death in IRAN
- Reduce in age of patient
- Tobacco is the main risk factor of oral cancer

- Early carcinoma may appear as an asymptomatic erythematous or white lesion, or both: it may mimic an erosion, small ulcer, or exophytic mass, periodontal lesion, or even crust formation, as in lip carcinoma Early squamous cell carcinoma of the lateral border of the tongue.
- In advanced stages oral carcinoma may present as a deep ulcer with irregular vegetating surface, elevated borders, and hard base; a large exophytic mass with or without ulceration; and an infiltrating hardness of the oral tissues.
- Squamous-cell carcinoma presenting as exophytic ulcerated tumor of the lateral border of the tongue





Non malignant lesions

- Nicotinic stomatitis
- reverse smoker's stomatitis
- Black hairy tongue
- Periodontal diseases
- Extensive dental caries
- Dental staining

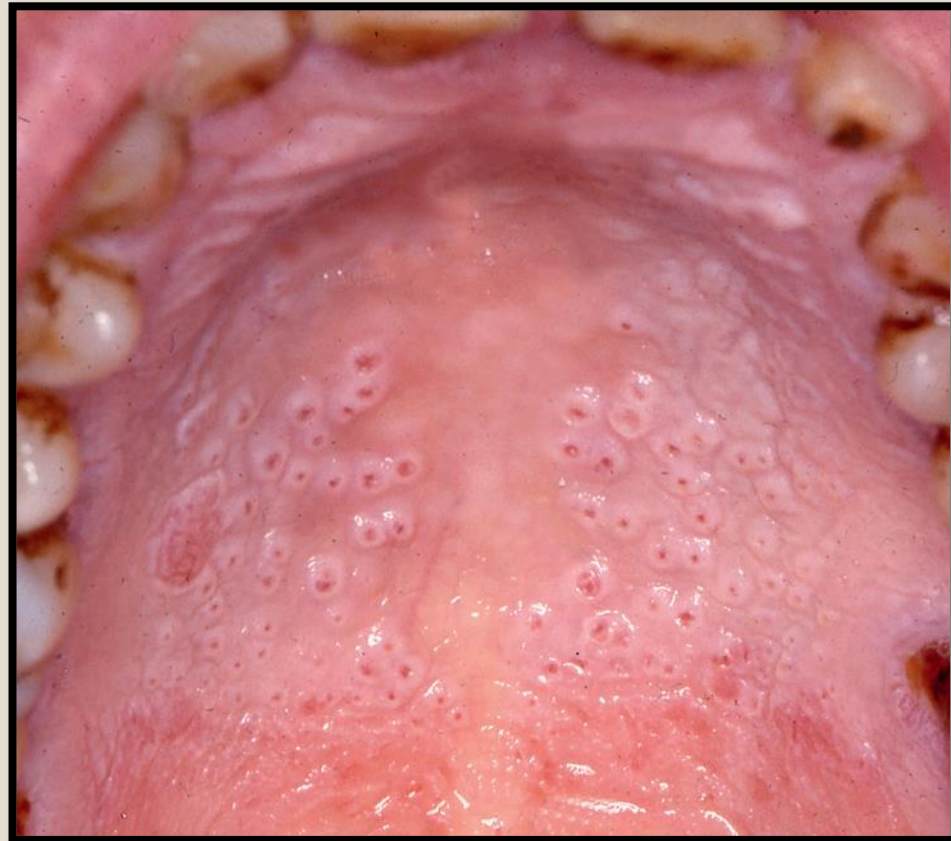
Nicotinic stomatitis

- is a diffuse white patch on the hard palate, usually caused by tobacco smoking , usually pipe or cigar smoking.
- It is painless, and it is caused by a response of the palatal oral mucosa to chronic heat.(misnomeros)
- The palate may appear gray or white and contain many papule or nodules that are slightly elevated with red dots in their center.
- These red dots represent the ducts of minor salivary gland which have become inflamed by heat

- The cause of nicotine stomatitis is thought to be chemical or thermally induced keratosis. The chemicals in tobacco may act as irritants in this condition. Chronic heat exposure is also responsible. Pipe smoking produces more heat on the palate than any other forms of smoking.
- Long-term drinking of very hot beverage can also cause a similar condition.
- The severity of the changes correlates with the frequency of the habit.
- The prevalence depends on a society's use of consuming hot beverages and of smoking in its various forms

- Some reports show that there is an increased risk of tonsillar cancer, lung cancer and tumors of the posterior oral cavity in people who develop stomatitis nicotina.
- The diagnosis is normally made based upon the clinical appearance and history

Nicotinic stomatitis



Treatment of nicotinic stomatitis

- When the appearance is caused by heat, the lesion is usually completely reversible within a few weeks if the smoking habit is stopped
- This is the case even if the condition has been present for decades
- Without stopping smoking, spontaneous remission of the lesion is unlikely
- If the lesion persists despite stopping smoking, this is usually then considered to be a true leukoplakia rather than a reactionary keratitis,
- and may trigger the decision to carry out a biopsy to confirm the diagnosis.
- Since this condition almost always develops in the setting of long term heavy smoking, it usually indicates the need for regular observation for cancers associated with smoking, e.g. lung cancer.

reverse smoker's stomatitis

- This habit's characteristic is putting the fired extreme of the cigarette, the heat lies inside the mouth, while the cigarette is being hold by the teeth and lips, the seal provided by the lips allows to the slow inhaling of the cigarette
- The highest intern temperature of the cigarette can reach Reverse smokers's and changes in oral mucosa 760°C , and the intraoral air can be heated to 120°C . This temperature and the products of combustion increase the frequency of lesions inside the mouth compared with conventional smokers.

Black hairy tongue

- It designates an overgrowth of the filiform papillae on the dorsum of the tongue, giving the tongue a superficial resemblance as that of hairiness. There is marked accumulation of keratin on the filiform papillae of the dorsal tongue. There may be delayed shedding of the horny layer of the filiform papillae or there may be an increase in the rate of formation of keratin.



Water pipe

- Waterpipe tobacco smoking (WPS) is a common practice in Eastern Mediterranean countries, the Middle East and parts of Asia, bound by cultural tradition of some populations
- Increasing in western community
- Collage age and younger adolescents
- safe way of using tobacco
- 70% of current waterpipe users believed that a hookah is less harmful than cigarettes

- respiratory diseases
- oesophageal
- gastric carcinoma
- **oral cancer**
- bladder cancer
- **nasopharyngeal cancer**
- lung cancer
- prostate cancer

- colorectal cancer
- pregnancy outcomes
- **periodontal disease**
- hepatitis C infection
- metabolic syndrome
- gastro-oesophageal reflux disease (GERD)
- cardiovascular diseases
- mental health
- mortality outcomes

Passive smoking



Oral health of passive smokers

- Passive smoking, also known as involuntary smoking, second hand smoking or exposure to environmental tobacco smoke (ETS), is defined as inhalation of the cigarette smoke of another individual or the exhale of a smoker.
- Passive smoking can adversely affect the health of non-smokers of all age groups
- About 400 of the reported annual deaths are infants and children.
- Victims of secondhand smoke are exposed to about one-third of the nicotine from active smokers

Oral manifestation

- upper airway infection
- decrease alveolar bone density
- cause severe periodontitis
- implant failure
- gingival pigmentation in children and adults
- primary and permanent tooth decay
- tooth loss
- delay tooth development
- facial clefts
- Oral cancer
- Oral pigmentation



CONCLUSION

A decorative graphic featuring a central rectangular box with a light orange-to-white gradient. Inside the box, the words "Thank you!" are written in a black, cursive script. The box is surrounded by a variety of stylized flowers and green leaves. To the left is a large yellow flower. To the right is a large pink flower. Below the box are several other flowers in shades of pink, orange, and purple, along with scattered green leaves. The entire composition is set against a plain white background.

Thank you!