Oral Medicine

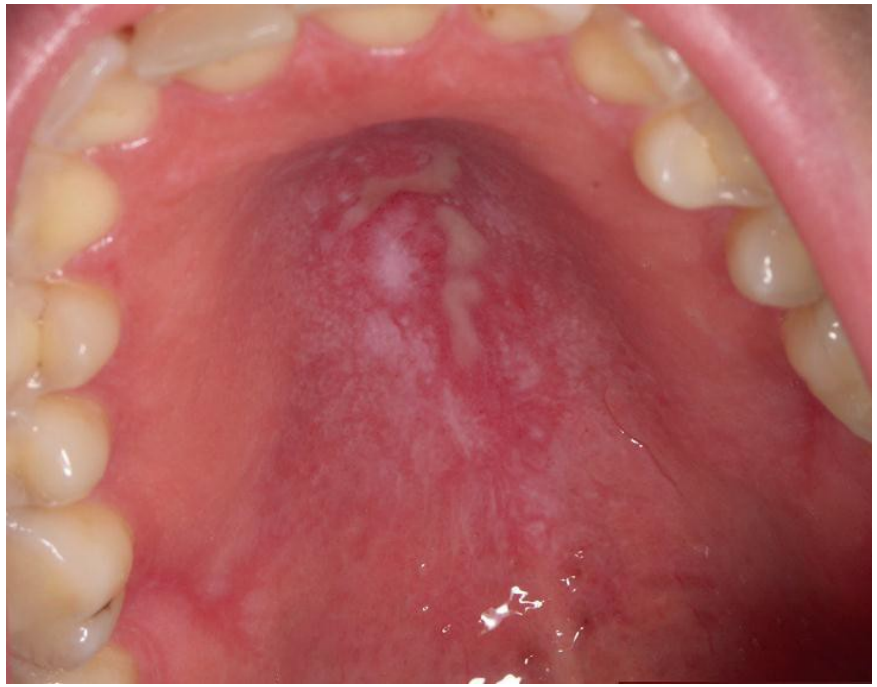
Lecture 9

Red and White Lesions of the Oral Mucosa

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Lupus Erythematosus (LE)

- Both the **natural** and the **adaptive** parts of the **immune system** are participating, involving both B and T lymphocytes.
- **Environmental factors** are of importance as **sun exposure**, **medications, chemical substance**s, and **hormones** which all have been reported to aggravate the disease.
- **A genetic predisposition** is supported by an elevated risk for siblings to develop LE
- **More than 80 different medications** have been associated with the onset of SLE, including hydralazine, methyldopa, chlorpromazine, isoniazid, quinidine, and procainamide.
- SLE predominantly affects **women** of reproductive age, and **decreases** during the menopause. In the interval of 20–40 years, as much as 80% of cases have been reported to be women.
- This predominance has lent support to an involvement of hormones in the pathogenesis of LE as well as the fact that the disease can be precipitated by **hormonal drugs**.
- There are large variations in the distribution of the disease between different ethnic groups.





Discoid lupus erythematosus lesions

Laboratory Findings

1. Antinuclear antibodies (patients with other rheumatologic diseases, such as Sjogren's syndrome and rheumatoid arthritis)
2. Moderate to high titers of **anti-DNA** and **anti-Smith antibodies** are almost **pathognomonic** of SLE.

3.Direct immunohistochemistry to reveal granular deposition of IgM, IgG, IgA, and C3 (lupus band test)

Oral mucosal lesions seen in conjunction with different types of Lupus Erythematosus are clinically and histopathologically indistinguishable. Liquefaction degeneration may also be present, which may result in diagnostic problems in relation to OLP.

Oral LE lesions would **respond less rapidly than OLP** to the usual topical steroid treatment.

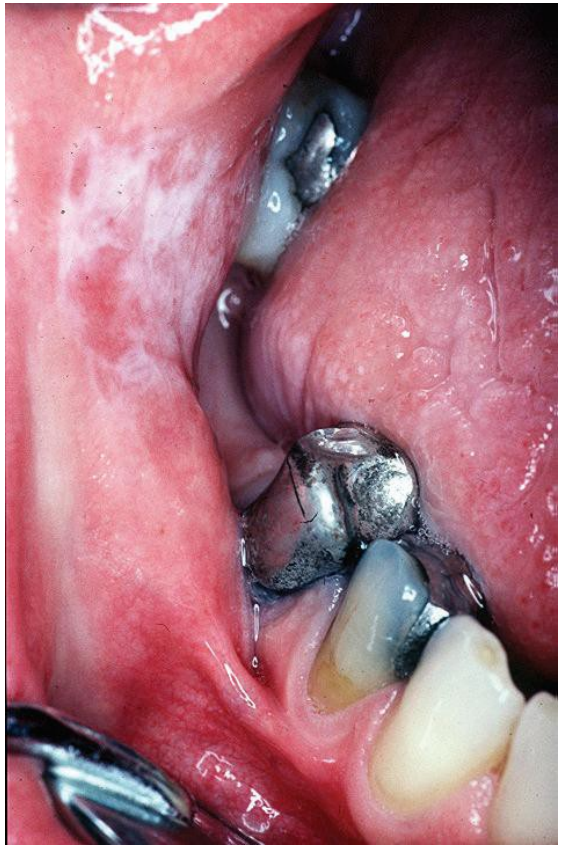
This also may be helpful in **distinguishing** between LE and OLP.

If we are having doubts about differential diagnosis between the two and if we do not get a improvement following steroid treatment, we should consider **LE.**

Allergic Reactions

Oral Lichenoid Contact Reactions

- Due to a **delayed hypersensitivity reaction** to constituents derived from dental materials.
- The majority of patients are patch test positive to mercury (Hg), which lends support to LCR being an allergic reaction.
- Although **Hg** is usually considered the primary etiologic factor, other amalgam constituents may also initiate LCR.
- Other filling materials such as gold, composites,and glass ionomers may also generate reactions



Diagnosis

The diagnosis is primarily based on the topical relationship to dental materials

The patch test is of minor clinical significance as a substantial number of patients with LCR will **test negative** to relevant test compounds, although the **lesions will resolve** following replacement of the dental material.

Histopathology will not be of any assistance in the discrimination between OLP and LCR.

Management

Replacement of dental materials in direct contact with LCR will result in cure or considerable improvement in at least **90%** of the cases

Most lesions should be expected to heal within **one to two months.**

There is no need for replacement of restorative materials that are **not** in **direct contact** with the LCR.

Healing does not seem to depend on what type of dental material is used for replacement

Reactions to Dentifrice and Chlorhexidine

- **Delayed hypersensitivity** reactions to toothpastes and mouthwashes have been reported, but such reactions are rare.

- The compounds responsible for the allergic reactions may include cinnamon or preservatives flavor additives such as **carvone** and these flavoring constituents may also be used in chewing gum and produce similar forms of gingivostomatitis.

- The clinical manifestations include **fiery red edematous gingiva,** which may include both ulcerations and white lesions.

- Similar lesions may involve other sites, such as the labial, buccal, and tongue mucosae.

- The clinical manifestation are characteristic and form the basis of the diagnosis, which is supported by healing of the lesions after withdrawal of the allergen-containing agent

- Dentifrice may also cause a disturbed desquamation, which clinically can be observed as **thin veils of scaling keratin**



Hypersensitivity reaction to dentifrice resulting in desquamation of the superficial epithelial layers



Figure (A) Widespread lichenoid reactions in the buccal mucosa and tongue in relation to extensive amalgam restorations.
(B) Removal and replacement of the amalgams resulted in almost complete remission of the lesions within three months.

TOXIC REACTIONS

Reactions to Smokeless Tobacco

- Smokeless tobacco (ST)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, and Scandinavia

In India,

Tobacco is often used in combination with betel leaf, sliced areca nut, which increases the toxicity of the compound. There is a definitive association between this form of smokeless tobacco and oral cancer

In the US and Scandinavia

ST can be divided into three different groups: **chewing tobacco**, ***moist snuff, and dry snuff***.

All three are different regarding composition, manufacturing procedures, and type of consumers

The clinical picture varies in relation to the type, brand, frequency, and duration of use of moist snuff

- **The mildest form. of the lesion wrinkles at the site of application**
  - Whereas **high consumers** may display a white and leathery lesion with ulcerations.
  - Hyperkeratinization, acanthosis, and epithelial vacuolizations together with different degrees of subepithelial inflammation.

- **Gingival retractions** are the most common adverse reaction with a smokeless tobacco habit.
- These retractions are irreversible, whereas the mucosal lesion usually regresses within a couple of months.
- Oral mucosal lesions are less frequently observed in association with chewing tobacco compared with moist snuff.

- There is A difference between lesions caused by smokeless tobacco and oral leukoplakia with respect to the presence of **epithelial dysplasia.** which is more frequently found in the latter.

The carcinogenic potential of smokeless tobacco has been a subject of considerable debate, however, no doubt that smokeless tobacco products contain nitrosamines,polycyclic hydrocarbons, aldehydes heavy metals which all have a potential to cause harm.



Chewing Tobacco Recession.



Fig. 3. Lower labial sulcus of a patient showing tobacco pouch

The World Health Organization International Agency for Research on Cancer established in its report from 2004 that "overall, there is sufficient evidence that smokeless tobacco causes oral cancer and pancreatic cancer in humans, and sufficient evidence of carcinogenicity from **animal studies**."

In a recent comprehensive review, it is concluded that the use of moist snuff and chewing tobacco imposes **minimal risks for cancers** of the oral cavity and other upper respiratory sites, with relative risks ranging from **0.6 to 1.7**

Smoker's Keratosis

- Moderate to heavy tobacco smoking, especially cigarettes but also cannabis, can give rise to **reactive keratosis** anywhere in the oral cavity, but especially in the palate and sublingually

- Persistence of the lesion after cessation of smoking confirms a sublingual leucoplakia, which must be biopsied due to the high risk of malignant transformation.

Smoker's Palate

The most common effects of smoking are presented clinically as

- **Dark brown pigmentations (smoker's melanosis)** and as
- **White leathered lesions (nicotine stomatitis)** or **smoker's palate**,

In smoker's palate, an erythematous irritation is initially ---followed by a whitish palatal mucosa reflecting a **hyperkeratosis** ---As part of this lesion**, red dots** can be observed representing orifices of accessory salivary glands, which can be enlarged and display **metaplasia**.

The prevalence of smoker's palate has been reported in the range of **0.1%–2.5%.**

- ❑ Smoker's palate is more prevalent in men
- ❑ is a common clinical feature in high consumers of pipe tobacco and cigarettes and among individuals who practice inverse smoking.

The etiology is probably more related **to the high temperature** rather that the chemical composition of the smoke, although there is a synergistic effect of the two

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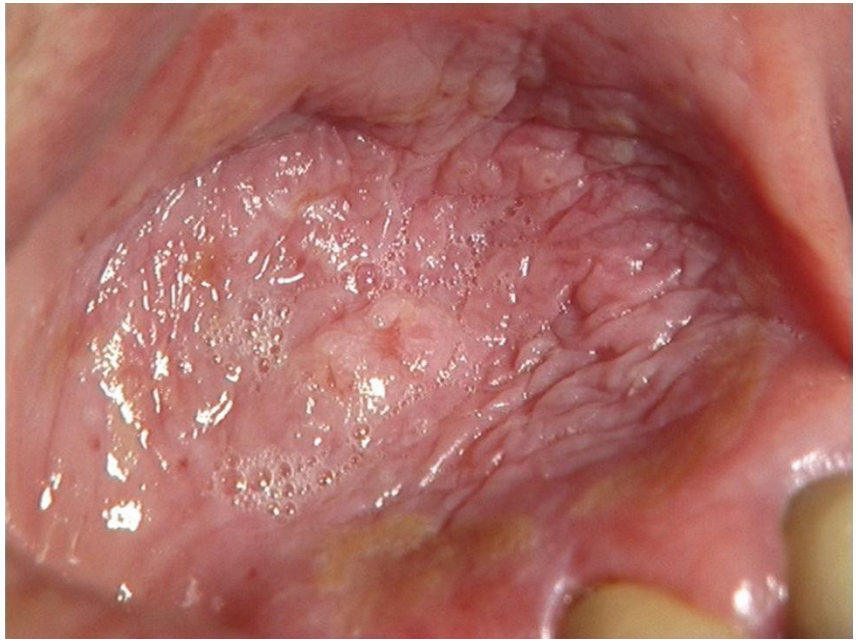
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Lesion(wrinkles) associated with the use of Swedish snuff.



Smoker's palate with pronounced orifices of the
accessory salivary glands

Morsicatio (Mucosal Nibbling)

- **Parafunctional behavior** (habitual chewing) is done unconsciously and is therefore difficult to bring to an end.
- Morsicatio is most frequently seen in the **buccal and lip mucosa** and **NEVER** encountered in areas that are not possible to traumatize by habitual chewing.

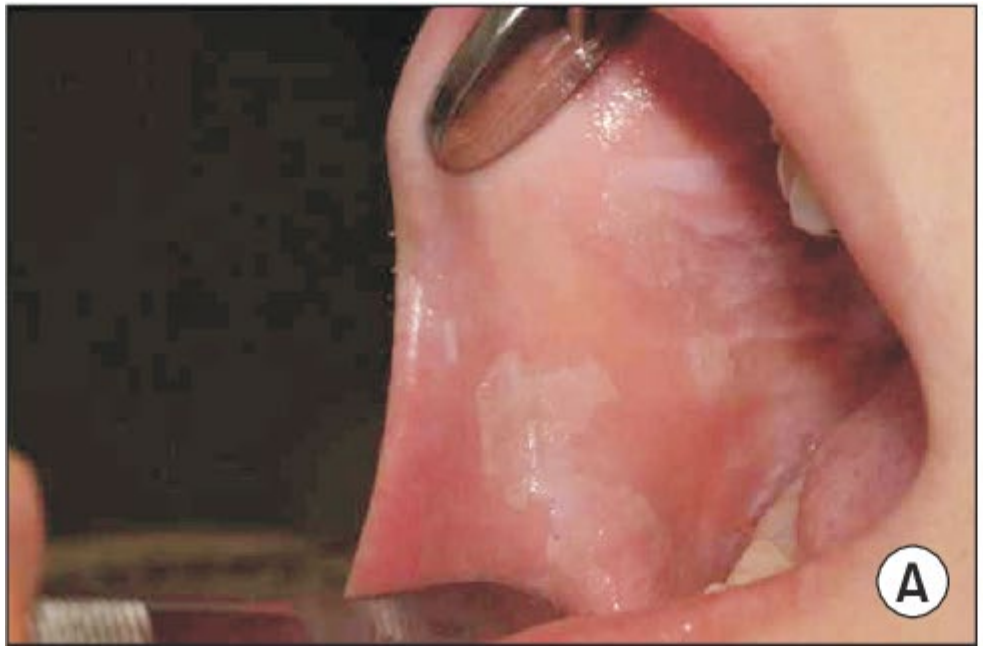
- Typically, morsicatio does not entail ulcerations but encompasses an asymptomatic **shredded area**.

- In cases of more extensive destruction of oral tissues by habitual chewing, a **psychiatric disorder should be suspected.**

- The prevalence has been reported to be in the range of 0.5%- 1%
- Morsicatio is three times more common among **women**

Management

Is limited to **assurance**, and the patient should be informed about the **parafunctional behavior**.
The condition does not involve **malignant potential**







Morsicatio

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Frictional Hyperkeratosis

Oral frictional hyperkeratosis is typically clinically characterized by a white lesion without any red elements.

➢The lesion is observed in areas of the oral mucosa subjected to **increased friction** caused by, for example, food intake

- ➢ Observed in areas subjected to increased abrasion, which stimulates the epithelium to respond with an increased production of keratin
- ➢ The reaction can be regarded as a **physiologic response** to minor trauma.

➢ Smoking and alcohol consumption have been reported as predisposing factors.

- Prevalence has been reported to be in the range of 2 –7%.

❑ Frictional hyperkeratosis is often seen in edentulous areas of the alveolar ridge.

➢ Asymptomatic but can cause anxiety to the patient (supposed as a malignant or premalignant lesion)



Frictional keratosis of the edentulous alveolar ridge.

The diagnosis

Based on clinical features, frictional hyperkeratosis does not carry any symptoms
f the diagnosis is doubtful, **biopsy** is mandatory to exclude premalignant
The ultimate way to differentiate between **frictional keratosis** and **Leukoplakia**
IS TO reduce or eliminate predisposing factors and await remedy

Management

- ❖ No surgical intervention is indicated.
- ❖ No malignant nature of the lesions
- ❖ attempts to reduce predisposing factors are sufficient

Other Red And White Lesions

Benign Migratory Glossitis (Geographic Tongue) (erythema migrans)**, Leukoedema**

White Sponge Nevus,Hairy Tongue,

Benign Migratory Glossitis

- Is an annular lesion affecting the dorsum and margin of the tongue.
- The typical clinical presentation comprises a white, yellow, or gray slightly peripheral zone
- **ONE of the most prevalent oral mucosal lesions**,
- **Heredity** has been reported, suggesting the involvement of genetic factors in the etiology.
- The most frequently reported **prevalence** is in the range of 1–2.5%.

Varies considerably between different investigations, which may reflect not .only **geographic differences** but also **patient selection** procedures and **diagnostic criteria**

- The gender distribution equal.

✓ Circumferentially migrating and leaves an erythematous area behind, reflecting atrophy of the filiform papillae.

- The peripheral zone disappears after some time, and healing of the depapillated and erythematous area starts.

❑ The lesion may commence at different starting points, the peripheral zones fuse, and the typical clinical features of a geographic tongue emerge.

❑ Depending on the **activity** of the lesion, the clinical appearance may vary from **single to multiple** lesions occupying the entire dorsum of the tongue.

❑ Disappearance of the peripheral zone may indicate that the mucosa is recovering.

IT is characterized by periods of **exacerbation and remission** with different durations over time. The disorder is usually non-symptomatic, but some patients are experiencing sensation

A **parafunctional habit**, revealed by indentations at the lateral border of the tongue, may be a contributing factor to the symptoms.

Patients often report that their lesions are aggravating during periods of stress.

Geographic tongue and fissured tongue may be observed simultaneously. Most likely, **fissured tongue** should be interpreted as an end stage of geographic tongue in some patients

A similar clinical presentation as for geographic stomatitis may be seen as part of **Reiter's disease**.
This disease is characterized by arthritis, uveitis or conjunctivitis, and urethritis.
Reiter's disease is considered to be a reaction that originates from a gastroenteral or urogenital infection.

An increased prevalence of geographic tongue has been observed in patients with generalized pustular psoriasis.

A negative relationship with smoking was revealed.

- No special treatment is required, although many approaches have been tried.
- If symptoms are reported, **topical anesthetics** may be used to obtain temporary relief.
- Other suggested treatment strategies include **antihistamines**, **anxiolytic** drugs, or **steroids**, but none of these has been systematically evaluated.

- Geographic tongue may regress, but it is not possible to predict when and to which patient this may happen.

- The **prevalence** of the disease seems to decrease with age.





Geographic tongue

Leukoedema

Leukoedema is defined as edematous mucosa with a whitish, often apparently translucent appearance

The etiology of leukoedema is not clear

- Leukoedema is a white and veil-like alteration of the oral mucosa that is merely **considered a normal variant**.
- The condition is often bilaterally in the buccal mucosa and sometimes at the borders of the tongue.
- Leukoedema **is less clinically** evident after stretching the mucosa but reappears after this manipulation is discontinued.

The prevalence in Caucasians has been estimated at 50%.

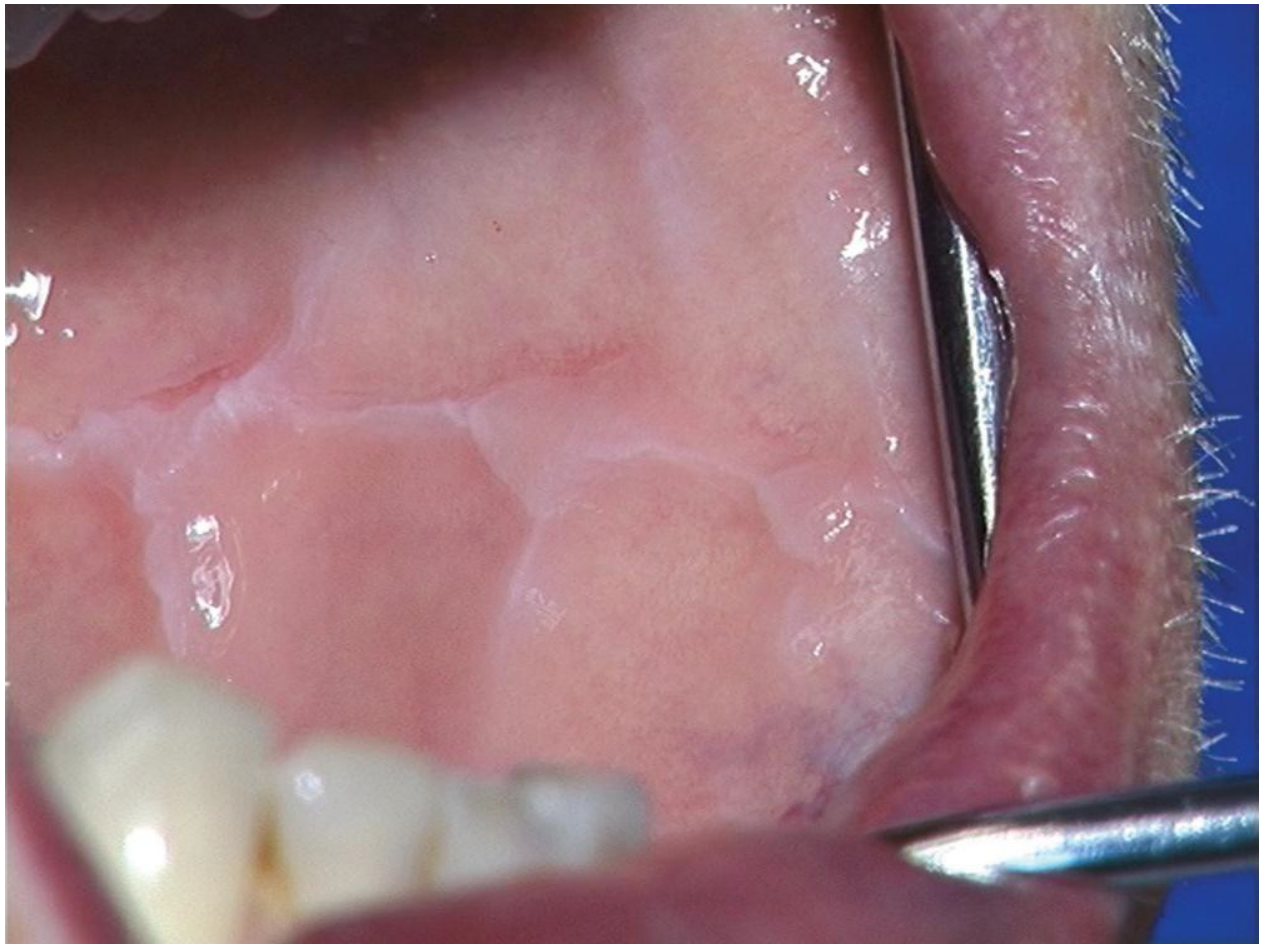
The lesion is even more prevalent in the black population.

- In more pronounced cases, leukoedema is accompanied by mucosal folds. The condition is asymptomatic and has no malignant potential.

The clinical features of leukoedema are quite different from oral keratosis, such as leukoplakia, as the demarcation is diffuse and **gentle stretching** results in a **temporary disappearance**

Treatment

There is no demand for TT as the condition is non-symptomatic and has no complications, including premalignant features



Leukoedema

The distribution between sexes has been found to be equal.

White Sponge Nevus

- It is initiated following mutations in those genes that are coding for **epithelial keratin** of the **types K4 and K13.**
- It has been listed as an **autosomal dominant disorder(rare disorder)** by the National Institutes of Health, a prevalence below 1 in 200,000
- The clinical appearance usually commences during **adolescence**
- gender distribution, **equa**l.

The typical clinical appearance is a white lesion with an elevated and irregular surface comprising fissures or plaque formations

The most affected sites are the **buccal mucosa**, but the lesion may also be encountered in other areas of the oral cavity covered by **parakeratinized or non-keratinized** epithelium.

The disorder may also involve **extraoral sites**, esophagus and anogenital mucosa. Although the **lesion does not** entail **any symptoms**, it may cause **dysphagia** when the **esophagus** is involved

Diagnosis

A differential diagnostic problem for other oral dyskeratoses, such as **oral leukoplakia** and **plaque-type candidiasis**

The hallmark microscopic feature of this disorder is pronounced

Management

White sponge nevus does not entail any symptoms, and no treatment is therefore required.

Systemic antibiotics have been used in an attempt to resolve the disorder, but with non-consistent results.

When a positive effect is obtained, the recurrence rate is considerable.

White sponge nevus is a totally benign condition.



Hairy Tongue

The etiology of hairy tongue is unknown in most cases.

A number of **predisposing factors** have been related to this disorder,

- Neglected oral hygiene, in hospitalized patients
- A shift in the microflora,
- Antibiotics and
- Immunosuppressive drugs,
- Oral candidiasis,
- Excessive alcohol consumption,
- Oral inactivity, (including decreased tongue motility and subsequent lack of physiologic exfoliation of filiform papillae
- And therapeutic radiation.
- Also associated with smoking habits
- prolonged use of chlorhexidine.

The **reported prevalence** varies between different geographic areas, diagnostic criteria, and the frequencies of predisposing factors.

Diagnosis

The diagnosis is based on the clinical appearance

Clinically

- Hairy tongue is characterized by an **impaired desquamation of the filiform papilla**, which leads to the hairy-like
- The elongated papillae have to reach lengths in **excess** of 3 mm to be classified as "hairy," although lengths of more **than just 15 mm** have been reported in hairy tongue.
- The lesion is commonly found in the **posterior one-third of the tongue** but may involve the entire dorsum.
- Hairy tongue may adopt colors from **white to black** depending on food constituents and the composition of the oral microflora.
- Patients experience both **physical discomfort and esthetic embarrassment** related to the lengths of the filiform papillae



Hairy Tongue

Management

- The treatment of hairy tongue is focused on reduction or elimination of predisposing factors and removal of the elongated filiform papillae.
- The patients should be instructed on how to use **devices developed to scrape the tongue**.
- The use of **food** constituents with an ***abrasive effect*** may also be used to prevent recurrences.
- Attempts have been made with **tretinoin (retinin acid- vitamin A**, but this treatment has not reached any widespread acceptance.
- Patients should be informed about the benign and noncontagious nature of hairy tongue.