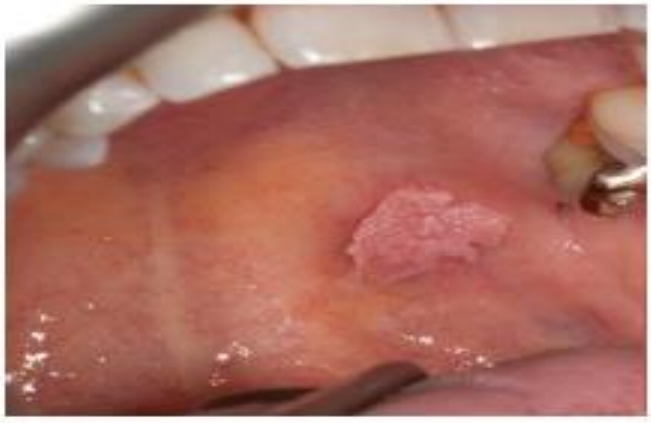
BENIGN, PREMALIGNANT, AND MALIGNANT LESIONS OF THE ORAL CAVITY

BENIGN SOFT TISSUE LESIONS

Epithelial Tumors:

-HPV–induced growths is called viral papilloma (also called squamous papilloma).

- It usually occurs in the 3rd to 5th decades. As an isolated small growth (<1 cm diameter) on the palate.



- Human papillomavirus (HPV) can affect the inside of the mouth, the tongue, and the lips.
- Symptoms of HPV in the mouth can include **small, hard, bumps or growths. They may be slightly raised or flat, and they may be painless.**
- Cancer is most likely to result from infections that involve the tongue and base of the tongue into the throat
- **The type of HPV called HPV 16 causes most oral cancers related to HPV** followed by 6,11

- In most cases, the immune system clears human papillomavirus (HPV) from the body before it can cause a full infection and symptoms.
- Some strains of HPV result in harmless oral lesions that usually resemble common warts, but doctors have linked some others with oral cancers.
- Oral HPV spreads mostly through oral sex and mouth-to-mouth contact between people.
- surgical removal is the only way to treat HPV growths. Some doctors will also use cryotherapy with liquid nitrogen to freeze and remove the **growths. and intralesional injections of interferon.[6] Recurrence is rare, except for lesions in patients infected with HIV**

HPV is the most common sexually transmitted infection in the U.S.

A verruca vulgaris is a sessile lesion with the appearance of a pebbly surface

- The common wart, verruca vulgaris, is generally found on the skin.
- Recurrent oral warts associated with sexual contact or maternal transmission, referred to a condyloma acuminatum

Condyloma acuminatum

Keratoacanthoma

- **Is a localized lesion that is typically found on sun-exposed skin, including the upper lip.**
- Often grow rapidly, and are usually capped by thick keratin.
- These lesions appear fixed to the surrounding tissue (similar to some carcinomas).
- The diagnosis is established from microscopic evaluation.

KAs may regress spontaneously with scarring, but clinically they may be indistinguishable from well differentiated squamous cell carcinoma (SCC) and the clinical course may be unpredictable. Thus, many clinicians and pathologists prefer the term SCC, KA-type and recommend surgical excision.

- KAs are frequently found on sun-exposed areas suggesting that actinic rays among other etiologic factors are largely responsible for the lesion.
- It is believed that cutaneous lesions arise from hair follicles, while the occurrence of KA on mucosal surfaces suggests its possible origin from ectopic sebaceous glands or surface epithelium. KA is a self-limiting lesion that undergoes spontaneous regression and is known to heal by scarring.

Clinical image shows noduloulcerative growth with keratin plugging seen on left vermilion of the lower lip

Connective tissue lesions

Inflammatory/Reactive Hyperplasia of Soft Tissue:

— Wide range of commonly occurring: exophytic or nodular growths of the oral mucosa is termed inflammatory hyperplasia.

Etiologic factors:

- Is generally assumed to be chronic trauma from ill-fitting dentures.
- Calculus, overhanging dental restorations,
- Acute or chronic tissue injury from biting, or fractured teeth.

With some of these lesions (e.g.,pregnancy epulis)

This is a benign (harmless) growth which is generally not painful but which bleeds very easily and can look quite nasty.
In most cases symptoms usually improve after birth when hormone levels return to normal

Clinical appearance:

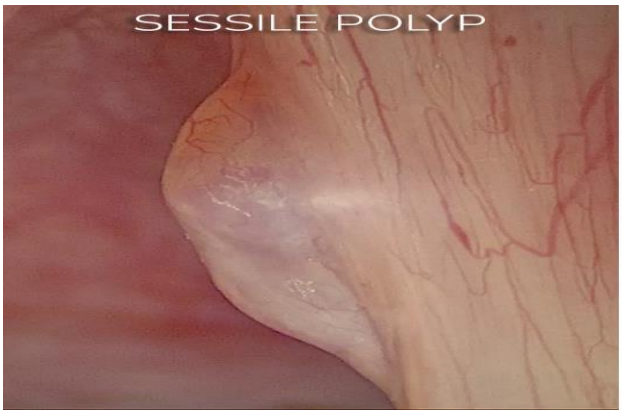
- Is swollen, distended, ulcerated, red to purple in color due to dilated blood vessels, and they exhibit acute and chronic inflammatory exudates and Erosion of the underlying cortical bone rarely occurs with peripheral inflammatory hyperplasia.

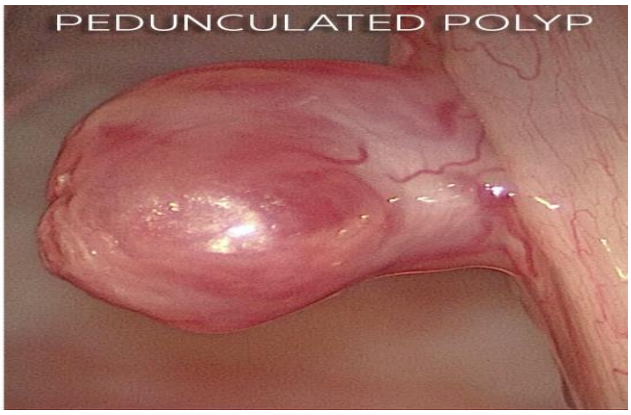
Figure 1: A: Exophytic growth in the mandibular anterior region with two folds and a solitary ulcer in the centre. B: The lesion comfortably fits in between the two folds.

Fibromas:

- May occur as either pedunculated or sessile (broadbased) growths on any surface of the oral mucous membrane.

They are also called traumatic or irritation fibromas

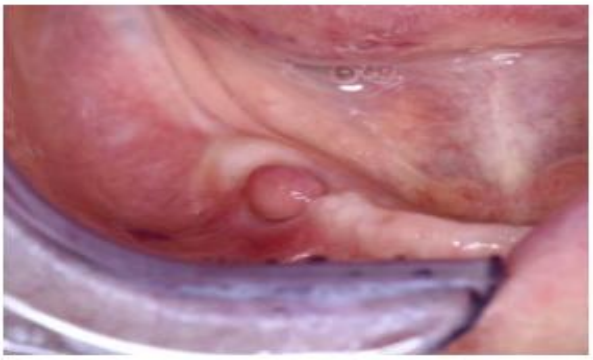




Oral (irritated) fibroma

— An oral fibroma is a common benign scar-like reaction to persistent long-standing irritation in the mouth. It is also known as a traumatic fibroma, focal intraoral fibrous hyperplasia, fibrous nodule or oral polyp

Oral fibroma



Oral fibroma, gum

Oral irritated fibroma, maxillary labial frenulum

- **Who gets an oral fibroma?**
- An oral fibroma is most commonly seen in older adults but can occur at any age. It affects 1–2% of adults.
- It is usually due to chronic irritation such as:
- **Cheek or lip biting**
- **Rubbing from a rough tooth**

Dentures or other dental prostheses

An oral fibroma presents as a firm smooth papule in the mouth. It is usually the same colour as the rest of the mouth lining but is sometimes paler or, if it has bled, may look a dark colour. The surface may be ulcerated due to trauma, or become rough and scaly.
It is usually dome-shaped but may be on a short stalk like a polyp (pedunculated)

- If it has developed under a denture it may be flat with a leaf-like shape.
  The commonest location for an oral fibroma is on the inside of the cheek where the upper and lower teeth meet. Other common sites include the sides of the tongue, gums and inside the lower lip.
- oral fibromas do not cause any symptoms. Oral fibromas develop over weeks or months to reach a maximum size usually about 1 cm in diameter, but can sometimes be larger.

— Oral fibromas do not develop into oral cancer

Oral irritated fibroma due to ill-fitting dentures

Oral irritated fibroma, maxillary labial frenulum | Oral irritated fibroma, hard palate | Oral irritated fibroma, hard palate

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addition to the irritation fibroma, there are a number of other well-recognised types of oral fibroma:

— Oral elastofibroma
— Epulis fissuratum
— Giant cell fibroma
— Myofibroma and myofibromatosis
— Peripheral ossifying fibroma
— Peripheral odontogenic fibroma
— Retrocuspid papilla
— Sclerotic fibroma.

How is oral fibroma diagnosed?

— The diagnosis of oral fibroma will be suspected clinically when there are the usual history and examination findings.
A biopsy may be taken to exclude other conditions or to remove the lesion.

— Histology shows typical dense fibrous tissue with relatively few cells. The overlying epithelium may be ulcerated, thinned or thickened.

What is the treatment of oral fibroma?

— When treatment is required, the only option is surgical excision of the fibroma with narrow margins. It may recur after surgery if the source of irritation continues. It is therefore also important to manage the source of the irritation. Oral fibromas do not disappear without treatment.

The epulis fissuratum

— Is a reactive inflammatory lesion associated with the periphery of ill-fitting dentures that histologically resembles the fibroma.
— The lesion is mainly caused by persistent trauma and irritation
— The growth is often split by the edge of the denture, resulting in a fissure, one part of the lesion lying under the denture and the other part lying between the lip or cheek and the outer denture surface.

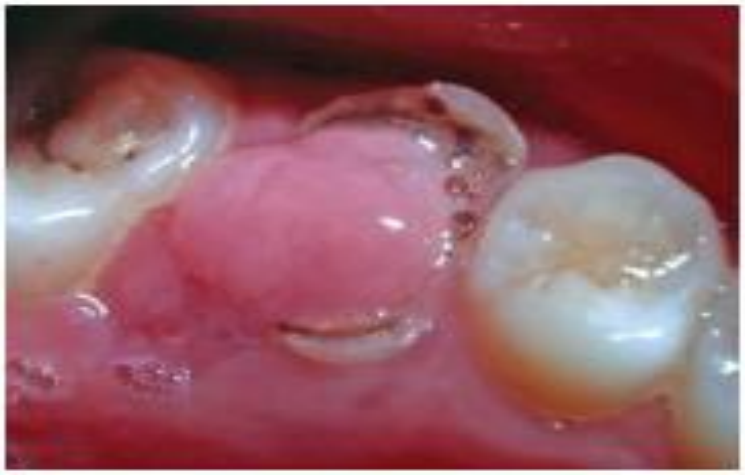
epulis fissuratum is where excess folds of firm tissue form inside the **mouth**, as a result of rubbing on the edge of dentures that do not fit well

Epulis fissuratum is a mucosal hyperplasia that results from chronic low-grade trauma induced by a denture flange. Epulis fissuratum is analogous to acanthoma fissuratum of skin

An epulis fissuratum in the anterior part of the mandible shows a central groove where the denture flange rests. Note the inflammatory erythema. The surface of the lesion is usually smooth as shown in the image

Pulp polyps or chronic hyperplastic pulpitis

- They occur when the pulpal connective tissue proliferates through a large pulpal exposure and fills the cavity in the tooth with a mushroom-shaped polyp that is connected by a stalk to the pulp chamber.
- Masticatory pressure may lead to keratinization of the epithelium covering these lesions.



Pyogenic Granuloma, Pregnancy Epulis, and Peripheral Ossifying or Cementifying Fibroma

- Pyogenic granuloma
- Pyogenic granuloma is a non-neoplastic tumor growth in the tissues of the mouth or skin. It is the most common type of hyperplasia in the mouth; its histology **reveals proliferation of granulation tissue with inflammatory infiltrate and great angiogenic capacity;**
    - Pyogenic granuloma is a hemorrhagic nodule that occurs most **frequently on the gingiva (although it can occur on any surface)** and that has a strong tendency to recur after simple excision if the associated irritant is not removed.
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The peripheral ossifying or cementifying fibroma

is a reactive gingival over growth, occurring frequently in the maxillary anterior region of teenage and young females. Peripheral cemento-ossifying fibroma (PCOF) is supposed to be originating from periosteum and/or periodontal ligamen

Cementifying fibroma includes compact basophilic nodules, whereas ossifying fibroma has trabeculae of osteoblasts pitted with osteocyte cavities. Without treatment, the lesion evolves slowly and progressively. Increasing lesion size threatens the surrounding dental roots, which become mobile

- Is found exclusively on the gingiva.
- **Clinically:** it varies from pale pink to cherry red and is typically located in the interdental papilla region.
- This reactive proliferation is named because of the **Histologic evidence of calcifications that are seen in the context of a hypercellular fibroblastic stroma.**

Figure 1: Facial view of an erythematous maxillary papilla just visible below incisors

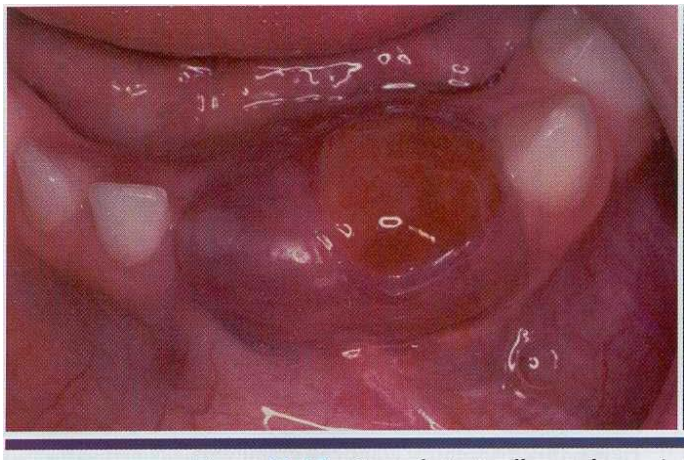
Figure 2: Palatal view of the lesion.

Figure 3: Maxillary occlusal radiograph showing normal aspect

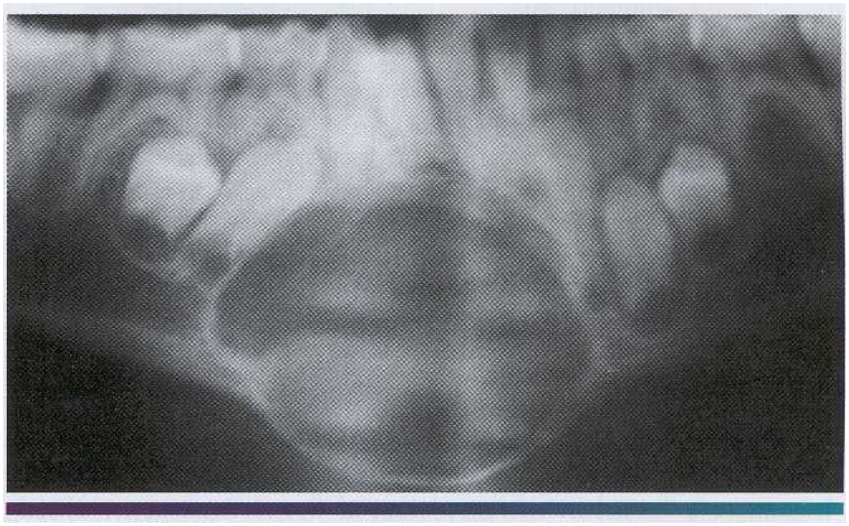
Peripheral Giant Cell Granuloma(PGCG):

- GCG occurs either as a peripheral exophytic lesion found exclusively on the gingiva or as a centrally located lesion within the jaw, skull, or facial bones.
- PGCG are five times as common as the CGCG lesions.
- Both peripheral and central lesions are histologically similar and are considered to be examples of benign inflammatory hyperplasia in which cells with fibroblastic , osteoblastic, and osteoclastic potential predominate in the tissue.

Peripheral giant cell granuloma. Nodular reddish-purple mass of the maxillary gingiva.



Central giant cell granuloma. A bluish-purple mass is present on the anterior alveolar ridge of this 4-year-old white boy.



Central giant cell granuloma. Panoramic radio graph showing a large,expansile radiolucent lesion in the anterior mandible.

Vascular Anomalies

Hemangiomas:

— Hemangiomas of the head and neck are true neoplasms and appear a few weeks after birth and grow rapidly. They have been described in almost all head and neck locations in a variety of presentations:
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— superficial and deep, small and large,
— most commonly as solitary lesions but also as multiple lesions.
— Small lesions may be clinically indistinguishable from:

- pyogenic granulomas and
- superficial venous varicosities.
- Oral hemangiomas are benign tumors that develop in and around the oral cavity due to endothelial cell proliferation. The majority of oral hemangiomas will involute over time and do not require treatment. Medical and surgical therapy is available if these tumors persist into adulthood or interfere with speech, swallowing, or the airway.
- While 60 to 70 percent of hemangiomas occur in the head and neck region

Lymphangioma

- lymphatic malformation similar to other vascular malformations. It is characterized by an abnormal proliferation of lymphatic vessels.
  - **Majority of them are superficial, but a few may extend deeply into the connective tissue**

The most common extraoral site : The neck (predominantly in the posterior triangle)

and Intraoral lymphangiomas occur more frequently on the dorsum of tongue, followed by palate, buccal mucosa, gingiva, and lips

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The most common extraoral site :

the neck (predominantly in the posterior triangle)

and intraoral site is the tongue.

- Large lymphangiomas may become life threatening if they compromise the airway or vital blood vessels, and those spreading into and distending the neck are macrocystic and are referred to as cystic hygromas.

The lipoma

- Is a benign tumor of mature fat cells.
- When occurring in the superficial soft tissue, the lipoma appears as a yellowish mass with a thin surface of epithelium.

- Because of this thin epithelium, a delicate pattern of blood vessels is usually observed on the surface.
- Deeper lesions may not demonstrate this finding and therefore are not as easily identified clinically

Premalignant and malignant lesions of the oral mucosa

1-Hyperkeratosis (focal keratosis)

Is a microscopic term meaning increased thickness of the keratin layer of stratified squamous epithelium with no microscopic evidence of atypical epithelial cells.

It consider a premalignant condition in many cases if not well treated

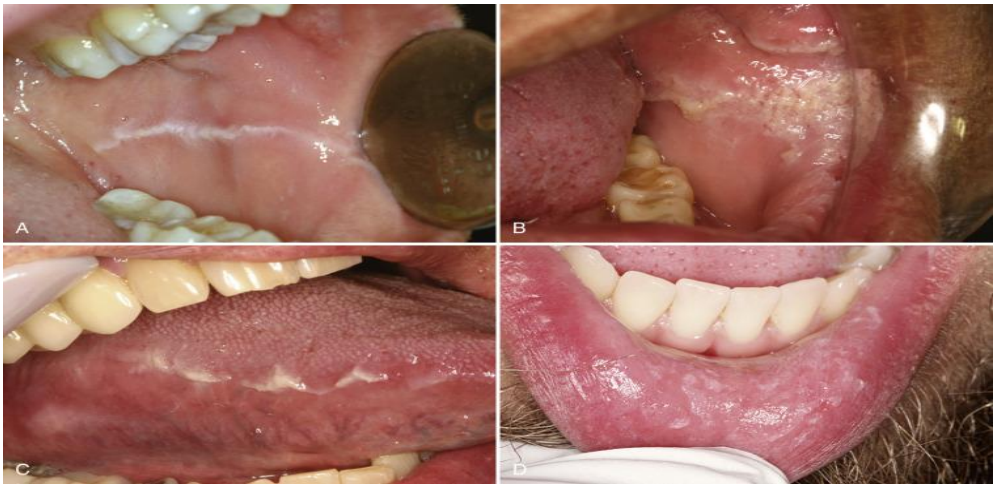
Clinically

Hyperkeratotic lesions appear as white, rough, non-painful patches ;do not rub off.

They are often secondary to chronic irritation, such as biting, tooth irritation, or tobacco use

Hyperkeratotic lesions on surfaces that are normally nonkeratinized are potentially more serious and should be biopsied if they do not resolve if irritants are removed.

— Remember, however, that dysplasia, carcinoma *in situ*, and squamous cell carcinoma can occur on any oral mucosal surface.



Epithelial dysplasia

—Is atypical or abnormal growth of the stratified squamous epithelium lining a mucosal surface.

—Oral epithelial dysplasia is a spectrum of architectural and cytological epithelial changes caused by accumulation of genetic changes, and is associated with an increased risk of progression to squamous cell carcinoma

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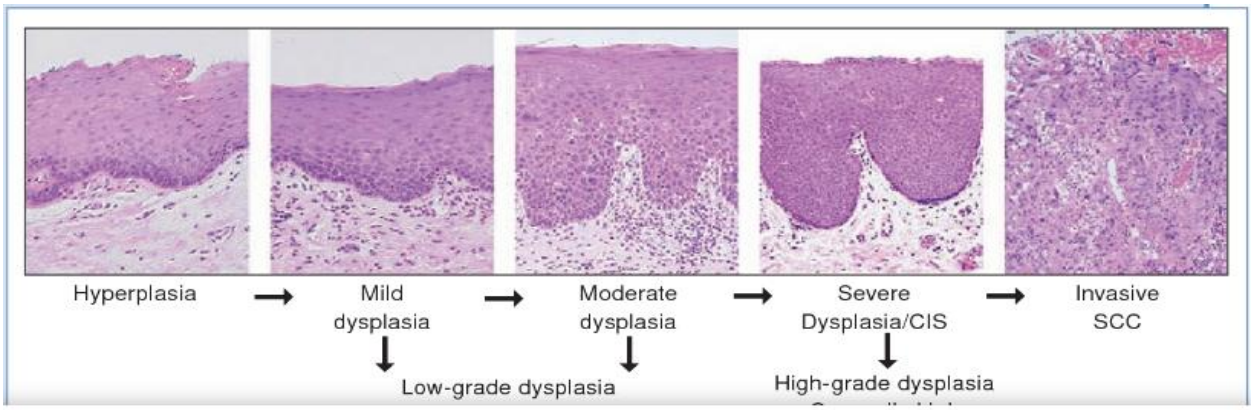
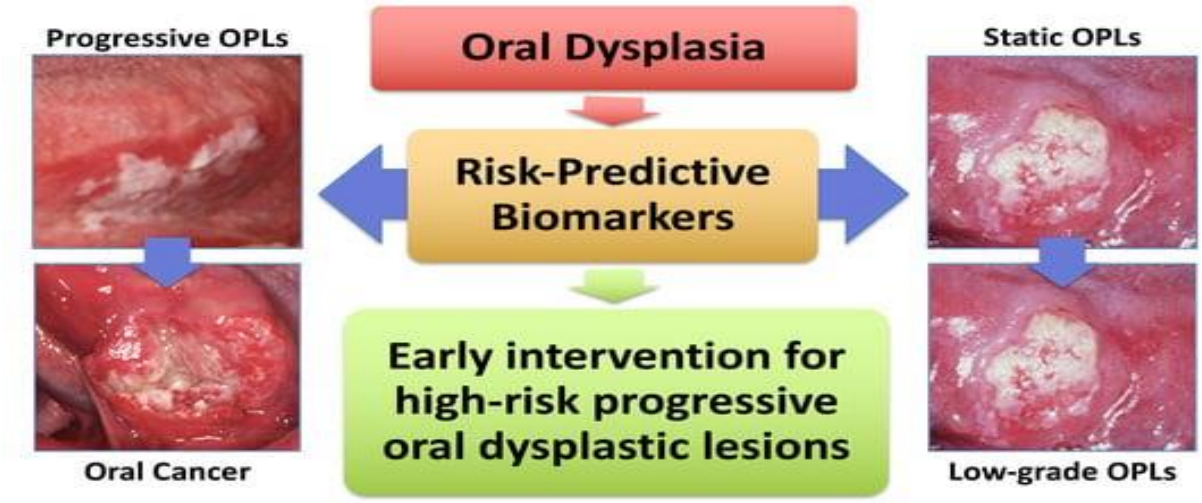
— **It is a diagnosis that must be made microscopically (Histopathology)**.

— These lesions appear clinically as white, rough, non-painful areas,

—or non-painful red patches (“erythroplakia” or “erythroplasia”),

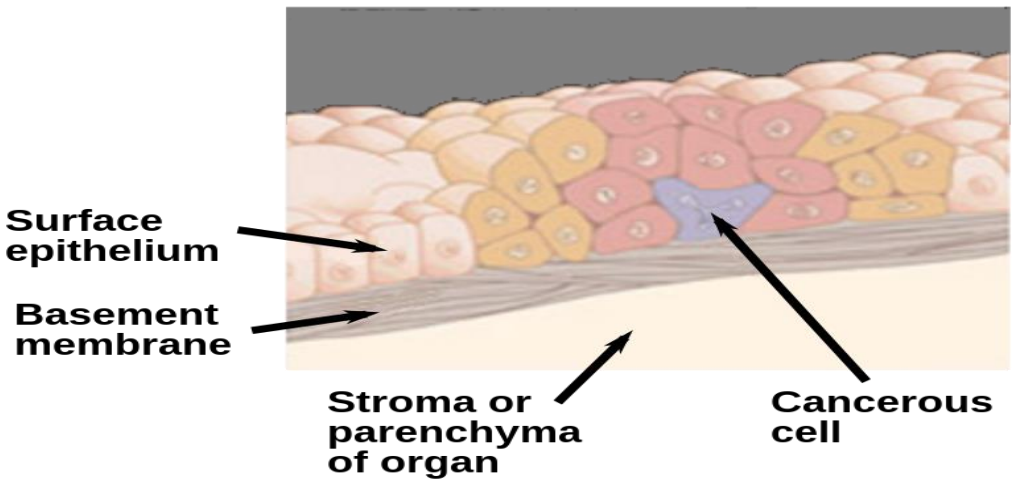
- Dysplastic changes of oral keratinocytes start in the basal and parabasal cell layers, showing
- hyperchromatism,
- pleomorphism,
- increased nuclear-to-cytoplasmic ratio,
- large and prominent nucleoli,
- increased mitotic activity, abnormal mitotic figures, and altered epithelial architecture and maturation pattern.
- Oral epithelial dysplasia is classified either as low-grade, including mild and moderate dysplasia, when cytomorphological changes are confined to the lower half of the epithelium, or as high-grade (severe dysplasia) when changes involve more than half of the epithelial thickness according to the 2017 WHO criteria



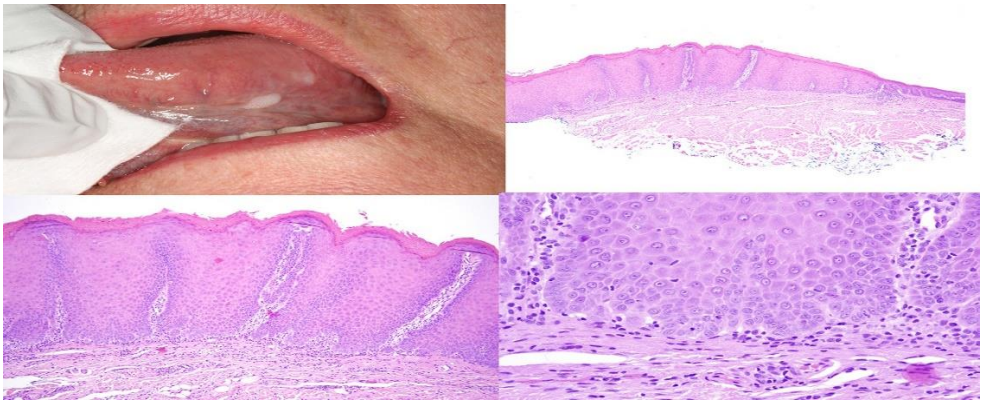


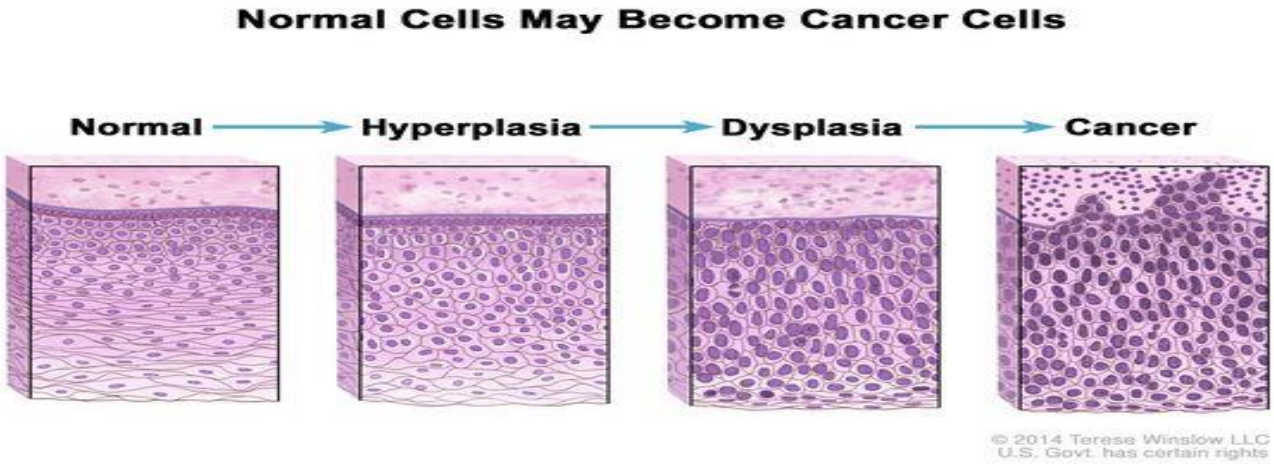
Carcinoma in situ

- Is cancer of the oral epithelium which is confined to the epithelial layer only.
- It presents most commonly as a persistent red plaque (erythroplakia)
- or a mixed white and red plaque. It may also appear as a white plaque.
- Complete removal is the treatment.



The earliest form of squamous cell cancer





Squamous cell carcinoma

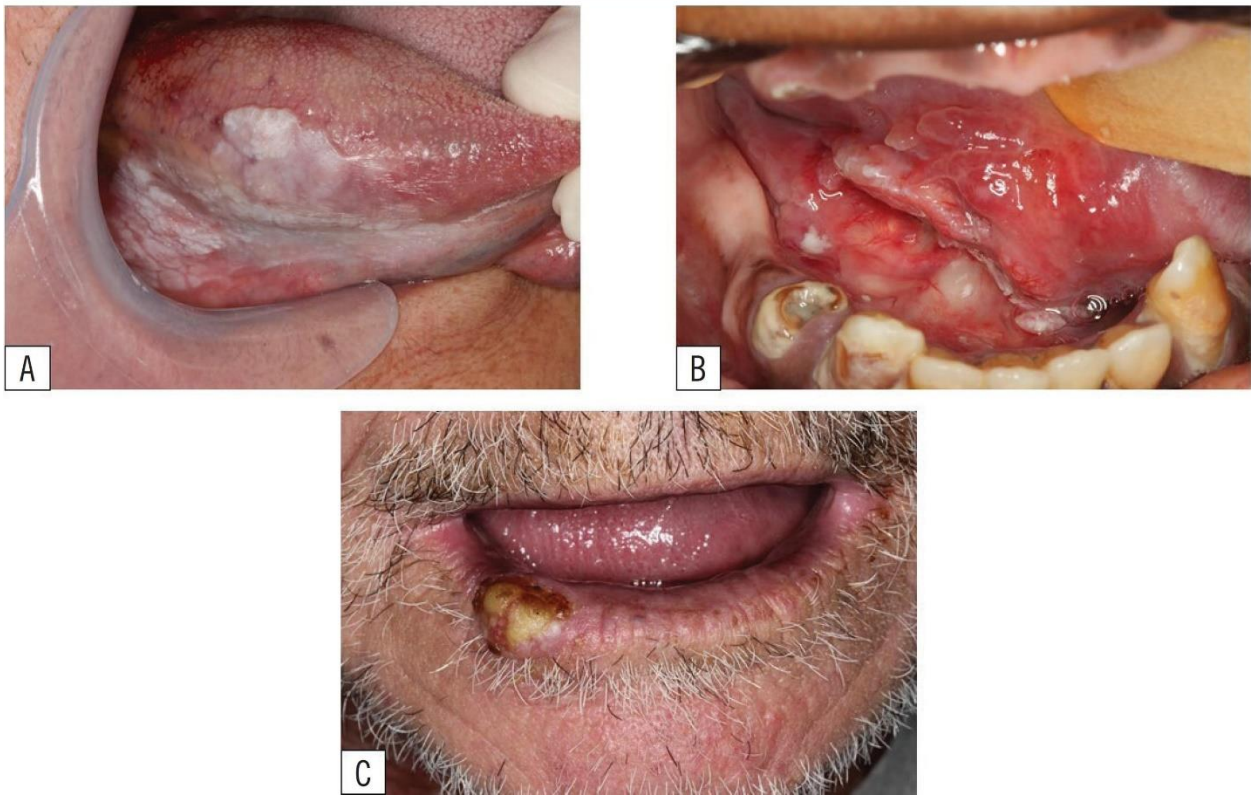
- **Definition:**
  It's a malignant neoplasm of stratified squamous epithelium in the oral cavity capable of local destructive growth and distant metastasis.

Squamous Cell Carcinoma

- 6th most common cancer worldwide (48,000 cases, 11,260 deaths in US, 2009)
- 5-year survival rate (~50%) improved only marginally in past decade
- recurrence in about 50% of patients

— Is the most common malignant neoplasm of the oral cavity.

- Tobacco and alcohol use and HPV infection have been identified as risk factors, but squamous cell carcinoma can occur in patients with no known risk factors.
- Squamous cell carcinoma can occur anywhere on the oral mucosa, but is most common on the ventral and lateral surfaces of the tongue, floor of the mouth, soft palate, tonsillar pillar area, and retromolar areas



Presenting Signs and Symptoms

- The high-risk sites ,lower lip, the anterior floor of the mouth, and the lateral borders of the tongue.
- Discomfort is the most common symptom that leads a patient to seek care and may be present at the time of diagnosis in up to 85% of patients.

mass in the mouth or neck.

- Dysphagia, and limited movement, oral bleeding, neck masses, and weight loss may occur with advanced disease.
- Loss of sensory function,.
- Loss of function involving the tongue can affect speech, swallowing, and diet.
- Possible tissue changes may include a red, white, or mixed red-and-white lesion

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Staging of Oral Cancer—TNM System

- The American Joint Committee on Cancer (AJCC) has developed Tumor Nodes Metastasis (TNM) staging system of cancer, which reflects the prognosis, and is therefore determinants for the treatment strategy.
- T is the size of the primary *t*umor,
- N indicates the presence of regional lymph *n*odes, and
- M indicates distant *m*etastasis.

Treatment of oscc depends on :

- cell type
- degree of differentiation,
- the site and size of the primary lesion
- lymph node status
- the presence of local bone involvement
- the ability to achieve adequate surgical margins
- the presence or absence of metastases