LEcTURER

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ULCERATIVE LESIONS
in oral cavity
Ulcerative lesion in oral cavity:

A) Erosion  
B) Aphtha  
C) Ulcus  
D) Rhagada  
E) Fistula  
F) Vulnus
Aphtha

Aphthous ulcer is a small painful ulcer in the mouth, approximately 2 to 5 mm in diameter. It usually remains for five to seven days and heals within two weeks with no scarring.
Ulcus (ulcer)

An ulcer is a tissue defect which has penetrated the epithelial-connective tissue border, with its base at a deep level in the submucosa, or even within muscle.
Ulcerative lesions

**Facts:**

- Ulcer - a local defect, or excavation of the surface of an organ or tissue, produced by sloughing of necrotic inflammatory tissue.

- Oral ulceration is a break in the oral epithelium, exposing nerve endings in the underlying connective tissue.

- It results in pain and soreness of the mouth especially with spicy food and citrus fruits.

- Patients vary in the degree to which they suffer and complain of the soreness.
Main causes of oral ulceration

1. Local Causes
2. Aphthae
3. Infections
4. Drugs
5. Malignant disease
6. Systemic disease
Ulcerative lesions

1) Local Causes:

i) Trauma (physical)
   - Appliances.
   - Self-inflicted.
   - Sharp teeth or restorations.
   - Iatrogenic.

ii) Burns (chemical)
   - Chemical.
   - Electric.
   - Heat.
   - Radiation.
2) *Recurrent aphthae*

i) Minor ulcers

ii) Major ulcers

iii) Herpetiform type
Ulcerative lesions

3) Infections

i) Viral

- Vesiculobullous diseases caused by viruses
- Human herpesvirus 8 (HHV-8)
- Human Immunodeficiency virus

ii) Bacterial

- Acute Necrotizing Ulcerative Gingivitis (ANUG)
- Syphilis
- Tuberculosis

iii) Fungal

- Chronic Mucocutaneous Candidosis (CMC)
Ulcerative lesions

4) Drugs

i) Drug-induced neutropenia/anaemia (cytotoxics)

ii) Lichenoid drug reactions (e.g. β-blockers, NSAIDs)

iii) Drug-induced mucositis (cyclophosphamide)
Many drugs can cause mouth ulcers as a side effect. Common examples are alendronate (a bisphosphonate, commonly prescribed for osteoporosis), cytotoxic drugs (e.g. methotrexate, i.e. chemotherapy), non steroidal anti-inflammatory drugs, nicorandil (may be prescribed for angina) and propylthiouracil (e.g. used for hyperthyroidism). Some illegal drugs can cause ulceration, e.g. cocaine.
Lichenoid drug reactions
Drug-induced mucositis
5- Malignant diseases

i) Oral squamous cell carcinoma

Rarely, a persistent, non-healing mouth ulcer may be a cancerous lesion. Malignancies in the mouth are usually carcinomas, but lymphomas, sarcomas and others may also be possible. Either the tumor arises in the mouth, or it may grow to involve the mouth, e.g. from the maxillary sinus, salivary glands, nasal cavity or peri-oral skin. The most common type of oral cancer is squamous cell carcinoma.
5- Malignant diseases

Common sites of oral cancer are the lower lip, the floor of the mouth, and the sides and underside of the tongue, but it is possible to have a tumor anywhere in the mouth. Appearances vary greatly, but a typical malignant ulcer would be a persistent, expanding lesion which is totally red (erythroplasia) or speckled red and white (erythroleukoplakia). Malignant lesions also typically feel indurated (hardened) and attached to adjacent structures, with "rolled" margins or a punched out appearance and bleeds easily on gentle manipulation.
Advanced oral cancer (T4 N2 M0, stage 4). Note rolled margins of central ulcer and surrounding areas of premalignant change.
Malignant lesion
Ulcerative lesions

6) *Systemic diseases*

i) Mucocutaneous diseases

ii) Haematological disorders

iii) Gastrointestinal disorders
6) *Systemic diseases*

i) **Mucocutaneous disease**

- Behcet’s syndrome

- Lichen planus

- Vesiculobullous diseases
Behçet disease is named after Hulusi Behçet (1889–1948), the Turkish dermatologist and scientist who first recognized the syndrome in one of his patients in 1924 and reported his research on the disease in Journal of Skin and Venereal Diseases in 1936.
Behçet's syndrome

• Behçet's disease or Behçet's syndrome is a rare immune-mediated small-vessel systemic vasculitis that often presents with mucous membrane ulceration and ocular problems. Behçet's disease (BD) was named in 1937 after the Turkish dermatologist Hulusi Behçet, who first described the triple-symptom complex of recurrent oral aphthous ulcers, genital ulcers, and uveitis.

• As a systemic disease, it can also involve visceral organs such as the gastrointestinal tract, pulmonary, musculoskeletal, cardiovascular and neurological systems. This syndrome can be fatal due to ruptured vascular aneurysms or severe neurological complications.

Ulcerative lesions
recurrent oral aphthous ulcers, genital ulcers, and uveitis.
Pathohystology: immune-mediated vasculitis
According to the International Study Group guidelines, for a patient to be diagnosed with Behçet's disease, the patient must have oral (aphthous) ulcers (any shape, size, or number at least 3 times in any 12 months period) along with 2 out of the following 4 "hallmark" symptoms:

- **genital ulcers** (including anal ulcers and spots in the genital region and swollen testicles or epididymitis in men)
- **skin lesions** (papulo-pustules, folliculitis, erythema nodosum, acne in post-adolescents not on corticosteroids)
- **eye inflammation** (iritis, uveitis, retinal vasculitis, cells in the vitreous)
- **pathergy reaction** (papule >2 mm dia. 24-48 hrs or more after needle-prick). The pathergy test has a specificity of 95% to 100%, but the results are often negative in American and European patients
There is no specific pathological testing or technique available for the diagnosis of the disease, although the International Study Group criteria for the disease are highly sensitive and specific, involving clinical criteria and a pathergy test.
6) *Systemic diseases*

ii) Haematological disorders

- Anaemia
- Leukemia
Ulcerative lesions

6) **Systemic diseases**

iii) Gastrointestinal disorders

- **Coeliac disease** *(Gluten-sensitive enteropathy)*
- **Crohn’s disease**
- **Ulcerative colitis**
6) **Systemic diseases**

iii) Gastrointestinal disorders

- Coeliac disease *(Gluten-sensitive enteropathy)*
- Crohn’s disease
- Ulcerative colitis
Crohn’s disease
Ulcerative colitis
Granuloma
Microabscessus
Crohn’s disease

labial swelling

aphthous ulcers

mucosal tags

cobblestoning
Crohn's disease
Ulcerative lesions

1) Local Causes:

- Are common oral lesions, most of them are caused by physical trauma. In addition, ulcers may arise with other traumatic causes as:

1. Physical (mechanical)

2. Chemical
1) Local Causes: Traumatic ulcers:

1- Physical Trauma:

- Physical traumatic ulcers are common oral lesions.

- Common causes of oral ulceration include rubbing on sharp edges of teeth, fillings, crowns, dentures, orthodontic appliances. Accidental biting caused by a lack of awareness of painful stimuli in the mouth (following a local anesthetic e.g. during dental treatment) may cause ulceration.
Traumatic ulcers:

1- Physical Trauma:

- Eating rough foods can damage the lining of the mouth. Some people cause damage inside their mouths themselves, either through an absent minded habit or as a type of deliberate self harm (factitious ulceration). Examples include biting the cheek, tongue or lips, rubbing a finger nail, pen or toothpick inside the mouth.

- Iatrogenic ulceration can also occur during dental treatment, when incidental abrasions to the soft tissues of the mouth are common.
Ulcerative lesions

1) Local Causes:

Traumatic ulcers

1- Physical Trauma:

Clinical features:

- They are clinically diverse, but usually appear as a single, painful ulcer with a smooth red or whitish-yellow surface and a thin erythematous halo. They are usually soft on palpation, and heal without scarring within 6–10 days, spontaneously or after removal of the cause.
Ulcerative lesions

1) Local Causes:

Traumatic ulcers

1- Physical Trauma:

Clinical features:

- However, chronic traumatic ulcers may clinically mimic a carcinoma.
- The tongue, lip, and buccal mucosa are the sites of predilection.
- The diagnosis is based on the history and clinical features. However, if an ulcer persists over 10–12 days a biopsy must be taken to rule out cancer.
Physical traumatic ulcer
Ulcerative lesions

**Traumatic ulcers**

1- Physical Trauma:

**Differential diagnosis** Squamous-cell carcinoma and other malignancies, aphthous ulcer, syphilis, tuberculosis.

**Treatment** Removal of traumatic factors. Topical steroids may be used for a short time.
ulcus decubitale
Ulcerative lesions

*Traumatic ulcers*

1- Thermal and electrical burn:

• Thermal burns usually result from placing hot food or beverages in the mouth. This may occur in those who eat or drink before a local anesthetic has worn off. The normal painful sensation is absent and a burn may occur. Thermal food burns are usually on the palate or posterior buccal mucosa, and appear as zones of erythema and ulceration with necrotic epithelium peripherally.

• Electrical burns more commonly affect the oral commissure. The lesions are usually initially painless, charred and yellow with little bleeding. Electrical burns in the mouth are usually caused by chewing on live electrical wiring (children). Saliva acts as a conducting medium and an electrical arc flows between the electrical source and the tissues, causing extreme heat and possible tissue destruction.
Ulcerative lesions

**Traumatic ulcers**

2- Chemical trauma

Caustic chemicals may cause ulceration of the oral mucosa if they are of strong enough concentration and in contact for a sufficient length of time. Holding an aspirin tablet next to a painful tooth in an attempt to relieve pulpitis is common, and leads to epithelial necrosis. Other caustic medications include hydrogen peroxide, used to treat gum disease, is also capable of causing epithelial necrosis at concentrations of 1–3%. Silver nitrate, sometimes used for pain relief from aphthous ulceration, acts as a chemical cauterant and destroys nerve endings, but the mucosal damage is increased.
Ulcerative lesions

**Traumatic ulcers**

2- Chemical trauma:

**Clinical features:**
- It appears as a red, painful erythema that may undergo desquamation, leaving erosions.
- The lesions heal spontaneously in about a week.
- The diagnosis is made exclusively on clinical grounds.
**Chemical (Aspirin burn) ulceration:**

- The photos show a patient who placed an aspirin on her gums. Aspirin is an acid and burned the oral tissues (gums and cheek).
- Fortunately the mouth heals quickly and within two weeks healing occurred.
Ulcerative lesions

**Traumatic ulcers**

2- Chemical trauma:

**Differential diagnosis**

- Thermal burn, traumatic lesions, aphthous ulcers, drug reactions.

**Treatment**

- Discontinue the application of the causative agent.
Main causes of oral ulceration

1. Local Causes
2. Recurrent Aphthous Stomatitis
3. Infections
4. Drugs
5. Malignant disease
6. Systemic disease
Recurrent Aphthous Stomatitis

Recurrent aphthous ulcers are among the most common oral mucosal lesions, with a prevalence of 10–30% in the general population. The cause remains unclear. Recent evidence supports the concept that cell-mediated immune responses play a primary role in the pathogenesis.

Several predisposing factors have been reported, such as trauma, allergy, genetic predisposition, endocrine disturbances, emotional stress, hematological deficiencies, and AIDS.

Three clinical variations have been recognized: minor, major and herpetiform ulcers.

They are very painful and cause the patient a lot of discomfort.
2-Recurrent Aphthous Stomatitis

Herpetiform recurrent Aphthous Stomatitis

-The herpetiform variation is characterized by small, painful, shallow ulcers, 1–2 mm in diameter, with a tendency to coalesce into larger irregular ulcers.

- Characteristically, the lesions are multiple (10–100), persist for one or two weeks, and heal without scarring.

- usually in old age group, common in females.
Herpetiform aphthae
Minor recurrent Aphthous Stomatitis

- Minor aphthae are the most common form, and they present clinically as small, painful, round ulcers 3–6 mm in diameter, covered by a whitish-yellow membrane and surrounded by a thin red halo.

- The lesions may be single or multiple (two to six), and they heal without scarring in 7–12 days.

- Mainly found in on the non-keratinized mobile mucosa, lips cheeks, floot of the mouth.
Minor aphthous ulcer
Treatment is aimed at reducing the pain and swelling and speeding healing, and may involve systemic or topical steroids, analgesics (pain killers), antiseptics, anti-inflammatories or barrier pastes to protect the raw area.
Major recurrent Aphthous Stomatitis

- The major form is characterized by deep painful ulcers, 1–2 cm in diameter, that persist for 3–6 weeks and may cause scarring.

- The number of lesions varies from one to five.

- Found in any area of the mucosa, including keratinized dorsum of the tongue, palate.
Major aphthous ulcer
# Aphthous ulceration

<table>
<thead>
<tr>
<th></th>
<th>Minor aphthae (90% - 95%)</th>
<th>Major aphthae (5-10%)</th>
<th>Herpetiform ulcers (1-5%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age of onset</strong></td>
<td>Childhood or adolescence</td>
<td>Childhood or adolescence</td>
<td>Young adult</td>
</tr>
<tr>
<td><strong>Ulcer size</strong></td>
<td>2–4 mm</td>
<td>10 mm or larger</td>
<td>Initially tiny, but ulcers coalesce</td>
</tr>
<tr>
<td><strong>Number of ulcers</strong></td>
<td>Up to about 6</td>
<td>Up to about 6</td>
<td>10–100</td>
</tr>
<tr>
<td><strong>Sites affected</strong></td>
<td>Mainly vestibule, labial, buccal mucosa &amp; floor of mouth</td>
<td>Any site</td>
<td>Any site but often on ventrum of tongue</td>
</tr>
<tr>
<td><strong>Duration of each ulcer</strong></td>
<td>Up to 10 days</td>
<td>Up to 1 month</td>
<td>Up to 1 month</td>
</tr>
</tbody>
</table>
Main causes of oral ulceration

1. Local Causes
2. Recurrent Aphthous Stomatitis
3. Infections
4. Drugs
5. Malignant disease
6. Systemic disease
3) Infections

- Many infections can cause oral ulceration:

<table>
<thead>
<tr>
<th>Agent</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viral</td>
<td>chickenpox, hand, foot and mouth disease, herpangina, herpetic stomatitis, human immunodeficiency virus, infectious mononucleosis</td>
</tr>
<tr>
<td>Bacterial</td>
<td>acute necrotizing ulcerative gingivitis, syphilis, tuberculosis</td>
</tr>
<tr>
<td>Fungal</td>
<td>blastomycosis, cryptococcosis, histoplasmosis, paracoccidioidomycosis</td>
</tr>
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</table>
Ulcerative lesions

Infectious causes of oral mucosal ulcers

1- Viral

- Vesiculobullous diseases caused by viruses (see lecture №6)

- Human herpesvirus 8 (HHV-8)

- Human Immunodeficiency virus
Human Herpes virus-8 (HHV-8)

-The causative microbe for Kaposi’s sarcoma (KS).

-Kaposi sarcoma is a malignant neoplasm of endothelial cell origin.

-Four forms of KS are recognized:

Classic, African (endemic), Immunosuppression-associated (iatrogenic) and AIDS-related (epidemic): This has a high incidence among AIDS patients, primarily involves the skin, lymph nodes, viscera, and frequently the oral mucosa.
Kaposi’s sarcoma starts as a spot or erythematous or violet plaque which appears flat. Its habitual location is the palate or the gingiva.
Human Herpes virus-8 (HHV-8)

-Clinically: the oral lesions present as multiple or solitary red or brownish-red patches or elevated plaques or tumors.

- The palate and gingiva are the most common sites affected, followed by buccal mucosa, tongue, and lips.

- Differential diagnosis: Pyogenic granuloma, peripheral giant-cell granuloma, hemangioma.

- Treatment: Interferon, chemotherapy, radiotherapy, or surgical excision in small, localized lesions.
Ulcerative lesions

Infectious causes of oral mucosal ulcers

1- Viral

Human Immunodeficiency Virus (HIV)

- A minority of patients with severe HIV disease will develop deep, necrotic ulcers of unknown aetiology.

- These ulcers are painful, cause profound dysphagia and can arise on any oral mucosal surface, although the buccal and pharyngeal mucosa are the more commonly affected sites.
Ulcerative lesions

Infectious causes of oral mucosal ulcers

1- Viral

Human Immunodeficiency Virus (HIV)

-The ulcers typically resolve with systemic thalidomide (e.g. 200 mg daily)

- Small number of patients with HIV disease may have ulcers similar to that of recurrent aphthous stomatitis (RAS), although whether the frequency of RAS in HIV is truly increased remains unclear.
HIV-associated ulceration
3) Infections

i) Viral

- Vesiculobullous diseases caused by viruses
- Human herpesvirus 8 (HHV-8)
- Human Immunodeficiency virus

ii) Bacterial

- Acute Necrotizing Ulcerative Gingivitis (ANUG)
- Syphilis
- Tuberculosis

iii) Fungal

- Chronic Mucocutaneous Candidosis (CMC)
Ulcerative lesions

Infectious causes of oral mucosal ulcers

2- Bacterial

i) Acute Necrotizing Ulcerative Gingivitis (ANUG)

ii) Syphilis

iii) Tuberculosis
Ulcerative lesions

Infectious causes of oral mucosal ulcers

2- Bacterial

i) Acute Necrotizing Ulcerative Gingivitis (ANUG)

- This entity used to be called "Trench Mouth" because of its prevalence in soldiers fighting in the trenches during World War I.

- **Etiology**: *Fusobacterium nucleatum, Treponema vincentii*, and probably other bacteria play an important role.

- Predisposing factors are emotional stress, smoking, poor oral hygiene, local trauma, and mainly HIV infection.
Plaut, Hugo Carl, 1858-1928
Vincent J. H. (1865-1950)
Fusobacterium nucleatum and Treponema vincentii
Ulcerative lesions

Infectious causes of oral mucosal ulcers

2- Bacterial

i) Acute Necrotizing Ulcerative Gingivitis (ANUG)

-Clinical features The characteristic clinical feature is painful necrosis of the interdental papillae and the gingival margins, and the formation of craters covered with a gray pseudomembrane.

- Spontaneous gingival bleeding, halitosis, and intense salivation are common. Fever, malaise, and lymphadenopathy are less common.

-Rarely, the lesions may extend beyond the gingiva (necrotizing ulcerative stomatitis).

-The diagnosis is made at the clinical level.
Acute Necrotizing Ulcerative Gingivitis
Infectious causes of oral mucosal ulcers

2- Bacterial

   i) Acute Necrotizing Ulcerative Gingivitis (ANUG)

- Differential diagnosis Herpetic gingivitis, Desquamative gingivitis, Agranulocytosis, leukemia.

- Treatment Systemic metronidazole and oxygen-releasing agents topically are the best therapy in the acute phase, followed by a mechanical gingival treatment.
Ulcerative lesions

Infectious causes of oral mucosal ulcers

2- Bacterial

   ii) Syphilis

- Syphilis is a relatively common sexually transmitted disease.

- **Etiology** *Treponema pallidum*.

- **Clinical features**: Syphilis may be *acquired* (common) or *congenital* (rare).

- Acquired syphilis is classified as *primary, secondary* and *tertiary*. 
Ulcerative lesions

Infectious causes of oral mucosal ulcers

2- Bacterial

  ii) Syphilis

  - Clinical features:

  - The characteristic lesion in the primary stage is the chancre that appears at the site of inoculation, usually three weeks after the infection.

  - Oral chancre appears in about 5–10% of cases, and clinically presents as a painless ulcer with a smooth surface, raised borders, and an indurated base.

  - Regional lymphadenopathy is a constant finding.
chancres on the lip and the tongue
Infectious causes of oral mucosal ulcers

2- Bacterial

   ii) Syphilis

- Differential diagnosis Traumatic ulcer, aphthous ulcer, tuberculosis, herpes simplex, candidiasis, erythema multiforme, lichen planus.

- Treatment Penicillin is the antibiotic of choice. Erythromycin or ephalosporins are good alternatives.
Ulcerative lesions

Infectious causes of oral mucosal ulcers

2- Bacterial

  iii) Tuberculosis

-Tuberculosis is a chronic, granulomatous, infectious disease that primarily affects the lungs.

- **Etiology** *Mycobacterium tuberculosis*.

- **Clinical features** The oral lesions are rare, and usually secondary to pulmonary tuberculosis.

- The tuberculosis ulcer is the most common feature.

- Clinically, the ulcer is painless and irregular, with a thin undermined border and a vegetating surface, usually covered by a gray-yellowish exudate.

- The dorsum of the tongue is the most commonly affected site, followed by the lip, buccal mucosa, and palate.
Ulcerative lesions

Infectious causes of oral mucosal ulcers

2- Bacterial

   iii) Tuberculosis

- **Clinically**, the ulcer is painless and irregular, with a thin undermined border and a vegetating surface, usually covered by a gray-yellowish exudate.

- The dorsum of the tongue is the most commonly affected site, followed by the lip, buccal mucosa, and palate.

- **Differential diagnosis**: carcinomas, syphilis, eosinophilic ulcer, necrotizing sialadenometaplasia, malignant granuloma, major aphthous ulcer.

- **Treatment** Antituberculous drugs.
Tuberculosis: typical ulcer on the dorsal surface of the tongue

Hard palate involvement