**ORAL ULCERS**

* Reactive Ulcers (*Riga Fede* in infants)  
  **Acute:** Traumatic (Mechanical), Thermal, Iatrogenic, Therapeutic  
  **Chronic:** Factitious, Traumatic Eosinophilic Ulcer, Necrotizing Sialometaplasia
* Infectious Ulcers  
  **Bacterial:** Syphilis, Gonorrhea, Tuberculosis **Fungal:** Deep fungal infections, opportunistic fungal infections
* Immune-Mediated Ulcers  
  **RAS/Behcet Disease (DD)  
  Erythema Multiforme  
  Drugs:** Contact Allergy **Granulamatous Disorders:** Oro-facial Granulomatosis, Sarcoidosis, Midline Granuloma, Wegner Granulomatosis
* Neoplastic  
  **Squamous Cell Carcinoma**

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| LOCATION | |
| Gonorrhea | Mucous Membranes (genital, rectal, oral) |
| Tuberculosis | Oral Mucosa (secondary to pulmonary infection by sputum) |
| Opportunistic Fungal Infections | Nasal, Sinuses or Oro-pharynx |
| Deep Fungal Infections | Oral Mucosa (secondary to pulmonary infection by sputum) |
| Minor RAS | Non-Keratinized Mucosa |
| Major RAS | Mucosal Surfaces |
| Herpetiform RAS | Mucosal Surfaces |
| Behcet Disease | Mouth, Eyes, Genitalia, Skin, CNS, CVS (Oral ulcers precede others) |
| Erythema Multiforme | Mucocutaneous (Oral lesions 70% of cases) |
| Contact Allergy | Skin (rarely oral mucosa) |
| Oro-facial granulomatosis | Upper lip, lower lip then cheeks |
| Sarcoidosis | Lymphoid tissue, skin, eyes, salivary glands |
| Wegner Granulomatosis | URT, lungs, Kidneys |

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| SYMPTOMS | |
| Deep fungal infections | Cough, fever, night sweating, weight loss |
| Behcet | Weakness, pharyngitis, generalized pain, headache, weight loss |
| Contact Allergy | Burning and Erythema |

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| CAUSE | |
| Syphilis | Caused by treponema pallidum |
| Congenital Syphilis | Due to Spirochetemia that resulted from Secondary syphilis in mother |
| Gonorrhea | Caused by Nesisseria gonorrhea (g-ve) |
| Tuberculosis | Caused by acid-fast aerobic bacillus mycobacterium (M.Tuberculosis, M.Bovis, M.Avium, M.Intracellulare) |
| Deep Fungal Infections | Caused by four types (Histoplasmosis, coccidioidomycosis, blastomycosis, cryptococcosis) |
| Opportunistic Fungal Infections | Phycomycosis (mucormycosis)  Aspergillosis |
| Recurrent Aphthus Stomatitis (RAS/Canker) | **Genetic** (HLA-A2 A11 B12 DR2) **Haematologic** (Iron, pernicious(b12), folic)  **Cyclic Neutropenia**  **GIT Disorders** (Coeliac, Crohn, Colitis, H. Pylori)  **Hormonal** (Progesterone)  **Allergy** (Food)  **Stress** |
| Behcet Syndrome | Cross reactivity between epithelial proteins and bacterial proteins (Strep. Sangus)  Relation with HSV, pesticide, foods and heavy metals  **Genetic** (HLA-B51) |
| Erythema Multiforme | **Genetic** (HLA-B15 HLA-DQ3 HLA-DQB1)  Immune Conditions  Immune complex deposition in superficial microvasculature of skin and mucosa which in turn causes cell-mediated immunity in the area.  Immune complexes are formed due to hypersensitivity to:   |  |  | | --- | --- | | **Minor EM** | **Major EM** | | Micro-organisms (HSV, TB, Histoplasmosis) | Drugs (Antimicrobial, NSAID, Sulfonamide, Barbiturate, Anticonvulstants) | |  | Stevens-Johnson Syndrome | |
| Contact Allergy | Drugs that are antigenic to body  Or mast cell immune response to drugs  Other allergens such as dental materials, oral hygiene products. |
| Midline Granuloma | Peripheral T-cell lymphona |

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| PATH | |
| Syphilis | Sexually  Blood Transfusion  Trans-placental |
| Gonorrhea | Sexually |
| Tuberculosis | Airborne |
| Deep Fungal Infections | Airborne |
| Opportunistic Fungal Infections | GIT (food)  Airborne |

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| DIAGNOSIS | |
| Syphilis | Darkfield examination of exudate from active lesion  Silver Stain  Serology |
| Gonorrhea | Swabs and gram stain and/or culture  Serology  Immuno-histochemistry |
| Tuberculosis | Ziehl Neelsen Stain or Fite Stain |
| Behcet | = RAS + two of the following:   1. Recurrent Genital Ulceration 2. Eye lesions (posterior uveitis) 3. Skin Lesions (erythema nodosum, acneiform nodules) 4. Positive pathergy test |

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| TREATMENT | |
| Traumatic Eosinophilic Ulcer | Remove Irritant | Keep area clean |
| Necrotizing Sialometaplasia | Mouthwash |
| Syphilis | Penicillin |
| Gonorrhea | Penicillin |
| Tuberculosis | Antibiotics and Chemo agents  (Isoniazid, ethambutol, streptomycin) |
| Deep Fungal Infections | Azole Group  Amphotericin B |
| Opportunistic Fungal Infections | Amphotericin B  Surgical Debridement |
| Minor RAS (recur) | Heals alone in 1 week without scarring |
| Major RAS (recur) | Heals alone in 10-40 days with chance of scarring |
| Herpetiform RAS (recur) | Heals alone in 10 days with scarring |
| RAS Treatments (So it does not recur) | Remove systemic causes Topical / Systemic/ Intralesion Corticosteroids  Tetracycline/Nystatin Mouthways  Immunosuppressants |
| Erythema Multiforme | If viral induced 🡪 Acyclovir  Plasmapheresis might be indicated in severe EM  Refer to ophthalmology and dermatology |
| CHARACTERISTIC FEATURES | |
| Traumatic Eosinophilic Ulcer | Eosinophilic Presence |
| Factitious Ulcer | Linked to psychological disorder |
| Necrotizing Sialometaplasia | Necrosis of salivary glands |
| Congenital Syphilis | Deafness, mulberry molars and notched incisors |
| Tuberculosis | Caseous Necrosis  Langhan Cells  Multi-nucleated Giant Cells |
| Deep Fungal Infections | Might cause abscess (blastomycosis) |
| Opportunistic Fungal Infections | Can perforate palate, nasal cavity and orbit |
| Recurrent Aphthus Stomatitis (RAS/Canker) | Pre-ulcerative presence of CD4+ cells Ulcerative presence of CD8+ cells  Surrounded by erythematous halo  Floor is white(CT) 🡪 yellow (fibrin) 🡪 grey (granulation tissue) |
| Herpetiform RAS | All stated above +  Multiple minute pinhead ulcers which coalesce into large ragged ulcers |
| Behcet Syndrome | Vasculitis (Immune-complex related)  Abnormal CD4/CD8 ratio  Increased Cytokine Activity  Posterior in mouth  Ragged Edges |
| Erythema Multiforme | Apoptosis of basal cells  Blistering  Vasculitis |
| Contact Allergy | Lichenoid Reaction Plasma Cell Infiltrate |
| Wegener Granulomatosis | Vasculitis  Orally has a strawberry appearance (Red and granular masses affecting gingiva)  Might cause respiratory or kidney failure (due to replacement of lung parenchyma or necrosis of kidney cells) |
| Midline granuloma | Affect midline of oro-nasal structures  Manifestation of T-cell lymphoma |

* Ulcers that show vasculitis

1. Behcet Disease
2. Erythema Multiforme
3. Wegner Granulomatosis

* Ulcers that has pseudo-epitheliomatous hyperplasia:

1. Necrotizing Sialometaplasia
2. Deep Fungal Infections
3. Erythema Multiforme

* Ulcers that present as indurated, deep with rolled over edges, sharply demarcated, large and non-healing:

1. Factitious Ulcers (Linked to psychological disorders)
2. Traumatic Eosinophilic Ulcer
3. Necrotizing Sialometaplasia
4. Tuberculosis
5. Deep fungal infections

* Ulcers that cause granulation tissue formation:

1. Traumatic Eosinophilic Ulcer
2. Tuberculosis
3. Deep Fungal Infections
4. All types of Recurrent Aphthus Stomatitis (Minor/Major/Herpetiform Aphthae)
5. Oro-facial Granulomatosis
6. Sarcoidosis
7. Midline Granuloma
8. Wegener Granulomatosis

* Ulcers that cause necrosis:

1. Necrotizing Sialometaplasia – Salivary Glands Necrosis
2. Syphilis – Epithelial necrosis by bacterial toxins
3. Tuberculosis – Caseous Necrosis
4. Opportunistic Fungal Infections – (Nasal, sinuses or oropharynx)
5. Recurrent Aphthus Stomatitis (RAS/Canker)
6. Erythema Multiforme
7. Wegener Granulamatosis
8. Midline Granuloma

* Ulcers that have female predilection

1. Recurrent Aphthus Stomatitis (RAS/Canker)
2. Oro-facial Granulomatosis
3. Sarcoidosis

* Ulcers that have male predilection

1. Behcet Syndrome
2. Erythema Multiforme

* Ulcers that affect young adults

1. Behcet Syndrome
2. Erythema Multiforme
3. Oro-facial Ganulomatosis
4. Sarcoidosis