Oral-pathological lesions on the gingiva

Correlation between periodontology and oral medicine
• There are a lot of local and systemic diseases causing symptoms on the oral mucous membrane.
• Most of these diseases are very painful.
• Because the tooth brushing is also painful the patients give it up.
• As a result early periodontal problems will develop.
Aphtous Oral Ulcer

• Recurrent Aphtous Stomatitis (RAS) has three different clinical forms. It is a common condition restricted to the mouth that typically starts in childhood or adolescence, as recurrent round or ovoid ulcers with circumscribed margins, erithematous halos and yellow or gray floor. Positive family history is common. According to the literature, this is the disease of the rich population.

• Diagnosis based on history and clinical picture.
Pathophysiology

- The etiology of RAS is not entirely clear and aphtae are therefore termed as idiopathic, may be the manifestation of a group of disorders of quite different etiology.
- RAS does not appear to be infectious, contagious or sexually transmitted.
- I have found literature autoantibodies against oral mucosal epithelial cells were shown in the circulation in Mikulitz and Sutton aphtae and the disease is selfgenerating.
• A genetic basis exist for some RAS.
• This is shown by positive family history in about one third of the patients.
• An increased frequency of some HLA types such as: A2, A11, B12 and DR2.
• RAS probably involve cell mediated mechanisms, but the precise immunopathogenesis remain unclear.
• Phagocytic and cytotoxic T cells probably aid in destruction of oral epithelium that is directed and sustained by local cytokine release such as IL-6 and IL-2R, ICAM and E-selectin.

Sutton aphthae
• There are cross reactivity between some strepococcal heat shock protein (HSP) 60 and 65 and oral mucosa.
• Most frequently was shown out S. Sanguinis which cross react with mitochondrial hsp and induce oral mucosal damage.
• RAS patients has an anomalous activity of the toll like receptor (TLR2) pathway probably influences the stimulation of an abnormal Th1 response (ADCC).
Aphtous Oral Ulcer may be seen in the following

- Hematinic deficiencies: iron, folic acid (folate) and $B_12$.
- Malabsorption: celiac and Crohn diseases, pernicious anemia, dermatitis herpetiformis.
- Immundefficiencies: HIV, neutropenia, some other immune defects.
- Drugs: especially NASID-s.
• Because this is a selfgenerating disease it can develop increasingly.
• It can occur the time when the patients continously has apahtous ulcer in the mouth.
• In this case he or she unable to clean the teeth.

**Treatment of Aphthous ulcer**

1. Antimicrobial mouth washes: Used to control microbial contamination and secondary infections
   Antibiotics (Tetracycline) and Anti-septic (Chlorhexidine)
2. Topical Corticosteriods eg. Betamethasone and Beclomethasone.
3. Levamisole
4. Local Anesthetics eg. Lignocaine.
5. AMX-07 (5% oral paste)
Herpes Virus Infections

Human herpes virus group has eight member
Herpes virus particle has a very complex structure.

- Large double stranded DNA genom assumes a toroidal shape, round a protein core further surrounded by a complex icosahedral nucleocapsid, about 100 nm in diameter.
- Outside the capsid is the tegument, a protein filled region appearing amorphous in electron micrographs.
- On the outside of the particle is the lipic bilayer envelop, which contains a large number of glycoproteins.
Herpes virus family types

- There are eight currently identified members of the human herpes virus family. They are ubiquitous and extremely well adapted pathogens.
- The name comes from the Greek "herpein" – to creep describing the chronic, latent or recurrent nature of infection.
They belong to the following three families.

- **Alpha herpesviruses:**
  - HSV-1, HSV-2, VZV; these have relatively short reproductive cycles, efficiently destroy infected cells, and establish latent infections primarily in sensory ganglia.

- **Béta herpesviruses:**
  - CMV, HHV-6, HHV-7; they have long reproductive cycles and restricted host range. Infected cells often enlarged.

- **Gamma herpesviruses:**
  - EBV and HHV-8; these are specific for either T or B lymphocytes and latency often demonstrated in lymphoid tissue.
After initial infections all herpes virus remain latent within specific host cells and may subsequently reactivate. Herpes viruses do not survive long outside a host, transmission usually requires intimate contact in people with latent infections, the virus can reactivate without causing symptoms.

Reactivated HSV-1 infection
Varicella Zoster Virus infection (Shingle)

- Varicella-Zoster virus (VZV) also known as HHV-III, is a member of herpes virus group.
- Varicella (chickenpox) is the primary infection of VZV, and it is a very common among children in both sexes.
- Herpes zoster (shingles) is the recurrent form. The virus stagnate in the regional nervous ganglia. It occurs 3-5% of population rather older or immunocompromised.
- Postherpetic neuralgie a significant pain and dysaesthesia present 3 or more month approximately 10-20% of patients.
Herpes Zoster (HZ)

• HZ in the head results from involvement of first second, third sometime all branch of trigeminal nerve.

• 3-4 days after prodromal period manifesting general symptoms as fever, weakness, fatigue and neck stiffness.

• Characteristic sign of oral HZ is the presence of unilateral vesicles that break rapidly leaving small ulcers. On the skin and lips vesicles rupture can result erosion and hemorrhagic crusts.
Ethiopathogenesis

- Following primary infections the virus is latent in the neurons of the sensory ganglia and reactivates itself as a consequence of immunedifficiency.
- The inflammation of ganglion is followed by hemorrhagic necrosis of the nerve together with a partial necrosis of the ganglion.
- Virus spreading through sensory part of the second and third branch of the trigeminal nerve lead to the pathological changes in the oral cavity.
- The viral presence leads to the acantholysis in the prickle cells and vesicle formation.
Treatment

- Shingles treatment include several antiviral drugs: Famcyclovir, Valacyclovir often given particularly older or immunocompromised people.
- Acyclovir is sometimes used.
- The drugs are likely to be ineffective if started more than 3 days after blisters appear.
- In some case big dose of $B_{12}$ and pain relieving drugs are required.
- If the shingles patients are treated with $\alpha$-interferon no postherpetic neuralgy will develop.
Periodontal aspects

- No periodontal aspects can be found in the varicella patients (few oral symptoms).
- Several periodontal problem can develop in the shingles cases.
- The patients are unable toothbrushing for a long period of time.
Erythema exudativum multiforme

It is a third type hypersensitivity reaction disease
Clinical Features

• It is a dermatologic disorder that is often but not invariably precipitated by drug allergens such as benzole rings with side chain in para postition (sulfa, amidasophen, penicillin). This is the minor form of the disease.

• Precedent herpes infection is a common finding in many instances in which no other antigen can be identified. This is the major form of the disease.
• The disease evolve as a consequence of perivascular immunocomplex deposition of immunoglobulins, antigen and complement. The disease manifests a variety of lesions of skin and mucosa including bullae, erosions, and on skin erythematous circular wheal with circumferential halo, the so called target or iris lesion.
• In oral cavity bullae develop and rapidly burst leaving raw erosions.
• Although any oral tissue can be involved the lips are almost constantly affected with painful erosions. Occasionally oral lesions can be seen without dermatologic manifestation.
• Slightly elevated temperature is commonly detected.
• There is a general form of mucosal erythema multiforme: Steven-Johnson syndrome in other (genital, eye) transitional epithelium.
Epidemiology

- Approximately 1,2-6 cases per million individuals per year.
- The following medical conditions predispose individuals to a higher risk of developing the disease: HIV infection, corticosteroid exposure, bone marrow transplant, SLE, and inflammatory bowel diseases.
- Patients undergoing radiation or chemotherapy are also at a higher risk.
Treatment

• The cause of Erythema Exudativum Multiforme (EEM) should be identified. If a drug is suspected it must withdrawn as soon as possible.

• For all forms of EEM the most important treatment symptomatic, including oral or parenteral antihistamines, soothing mouthwashes (ex. Sol. Bethadine), suppression of HSV can prevent HSV associated EEM with antiviral treatment.

Steven-Johnson syndrome
• These patients also unable for a normal toothbrushing. By this way susceptible a lot of periopathogene bacterial infection.

• Because the disease frequently recure the patients can produce periodontitis.
Mucocutan diseases

Most member of this group belongs to autoimmune diseases.
Pathophysiology

• A group autoimmune blistering skin disease are recognized as autoantibody mediated disease. This group of diseases can be divided into 2 major subset: the pemphigus subset and the pemphigoid subset.

• Whereas pemphigus subset of diseases is mediated by autoantibodies that target the extracellular mucosal component that link one epidermal cell to another.

• The autoantibody is desmoglein 1-3 (Dsg) the member of cadherin dfamily.

Pemphigus Vulgaris
There is no inflammatory courtyard
The pemphigoid subset is mediated by autoantibodies that targeted the extracellular mucosal components that link the basement membrane components either the lower most layer of epidermal cells or to the submucosal components.

The pemphigus subset of diseases is termed as intraepithelial blistering disease, while pemphigoid subset of diseases is named subepithelial blistering diseases.
Rheumatoid Arthritis (RA)

- An autoimmune disorder RA occurs when the immune system mistakenly attacks the body's own tissues.
- RA is a chronic inflammatory disorder that can affect more than the patient's joints. In some people, the condition also can damage a variety of body systems including the skin, eyes, lungs, heart, and blood vessels.
- In this disease, the hands of the patients are also damaged and they are unable to clean their teeth.
Systemic lupus erythematosus (SLE)
Discoid lupus erythematosus (DLE)

- SLE and DLE are also autoimmune diseases in which autoantibodies attacks healthy tissues in many parts of the body.
- Symptoms vary between people and maybe mild to severe. Common symptoms include: painful and swollen joints, fever, chest pain, hair loss, mouth ulcers, feeling tired and red rash which is most commonly on the face.
- The joint problems and oral ulcers also hamper the tooth cleaning.

Papillon drawing on the face (dentist must recognize)
Treatment side effects

- The most effective treatment schedule of the autoimmune diseases is the steroid therapy.
- The systemic and local steroid treatment has many side effects.
- Most of them have symptoms in the oral cavity: fungal infections, changing bacterial flora, osteoporosis, increased blood pressure, etc.
- These also participate in developing periodontal disease.
Lichen oris

• Lichen word originated from Greek language. It means **moss**.
  It was mentioned in the 142. scroll of Hypocrate.
• The oral lichen planus (further: lichen) is a chronic inflammatory disease, that cause bilateral white striation, papules or plaques on the buccal mucosa, tongue and gingivae.

• Erythema, erosions and blisters may or may not be present.

The skin lesion really seems to be moss.
Epidemiology

- Lichen affects approximately 1-2% of the general adult population, although the prevalence of the disease is unknown in many areas.
- Lichen is a common, noninfectious orlal mucosal disease among adult population.
- **Race**: lichen affects all racial groups.
- **Sex**: The female-to-male ratio: 1.4-1.
- **Age**: Predominantly occurs in adults older than 40 years, although younger and children can be affected.

Reticular and plaquie like forms
Pathophysiology

• Current data suggest that oral lichen planus (OLP) is a T cell mediated autoimmune disease in which autocytostatic CD8+ T cells trigger apoptosis of oral epithelial cells.

• The dense subepithelial mononuclear infiltrate in OLP is composed of T cells and macrophages and there are increased number of intraepithelial T cells.

Papular and bullous forms
• Early in the formation of OLP lesion CD8^+T cells recognize an antigen associated with MHC class I. on keratinocytes. After antigen recognition and activation CD8^+T cells may trigger keratinocyte apoptosis.

• OLP lesions contain increased levels of TNFα. Serum and salivary TNF levels are elevated in OLP.

• OLP has been succesfully treated with thalidomide which suppress the TNF production.
Treatment

- In this time there is no cure so the treatment focuses on helping severe lesions heal and reducing pain or other discomfort.
- The OLP patients severe illness knowledge. In early stage of disease patients needs psychological help.
- I never give OLP patients corticosteroid therapy.
- Immune therapy is the best: including: β-levamisole
- α interferon
- thalidomide
Periodontal conditions of lichen patients

- To evaluate the periodontal status of patients with oral lichen planus and compare it with that of healthy controls.
- Mean CPINT scores were significantly higher in OLP patients than in healthy controls.
- The periodontal conditions of the oral lichen planus patients was significantly worse than the controls.
Desquamative gingivitis

- Gingival desquamation is a clinical sign in which gingiva appears redish, glazed and friable with destruction of epithelium. Gingival desquamation may be the result of various disease processes in gingiva. Mucous membrane pemphigoid, Oral lichen planus, Pemphigus vulgaris accounts the major causes. According to my opinion it is not a disease it is a symptom of autoimmune diseases.
Oral conditions in neuroendocrine diseases.
Oral aspects of diabetes.
(People with diabetes face a higher risk of)

• **Dry Mouth:**
• **Uncontrolled diabetes can decrease saliva flow resulting in dry mouth.**
• **Dry mouth can further lead to soreness, ulcers, infections, and tooth decay.**
Gum inflammation and periodontitis

- Because weakening white blood cells another complication of diabetes is that it causes blood vessels to thicken. This slows the flow of nutrients to and waste products from body tissues including the mouth. When this combination of events the body loses its ability to fight infections. Since periodontal disease is a bacterial infection people with uncontrolled diabetes might experience frequent and more severe gum disease.
Poor healing of oral tissues

- People with uncontrolled diabetes do not heal quickly after oral surgery or other dental procedures because blood flow to the treatment site can be damaged.
Thrush (pseudomembranous Candidasis)

- People with diabetes who frequently take antibiotics to fight various infections are especially prone to developing fungal infections of the mouth. The fungus thrives on the high glucose levels in the saliva.
- The upper lobe of parotid gland excrete the saccharose from circulation.
People with diabetes who smoke are at an event higher risk – up to 20 times more likely than non-smokers to develop periodontal disease.
Grynspan syndrome

- Grynspan a French physician recognized in 1973 diabetes patients has oral lichen planus and high blood pressure more than 38.4%.
- In our studies in the Dept. Oral Surgery was recognized more than 54% of OLP patients has higher blood sugar level.
Oral conditions of thyroid gland diseases

Mainly Hypothyreosis
Thyroid conditions have become very common in human population due to many reasons every alternate persons mainly females are effected with various thyroid conditions and as a dentist it is important for us to learn the various dental diseases.

Thyroid conditions:

1. Hyper Thyroidism
2. Hypo Thyroidism
3. Hypo Para Thyroidism
Hypothyreoidism

- Delayed eruption of teeth.
- Exfoliation of deciduous teeth.
- Macroglossia
- Thick lips
- Over development of maxilla and under development of mandioobile:
- Malocclusion
Dental manifestation of Hypo Parathyroidism

- Dental dysplasia
- Impacted teeth
- Short Blunt roots
- Partial anodontia
A lot of human systemic diseases have oral, of course a lot of them periodontal problems. The dentist must be able to recognize these diseases on the basis of oral symptoms. Thank you for your attention.