**Sheet no: 25**

**Refer to slide no: 25**

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**Periodontitis as a manifestation of systemic diseases**

## Note : This sheet include the first topic that was discussed in the lec only .

## And I refered to last year sheet and listened to this year recording to check for extra informations.

Today we'll talk about periodontitis as a manifestation of systemic diseases . Diabetes , pregnancy , smoking are factors that modify plaque induced periodontal disease.

As you remember in aggressive periodontitis, there's rapid and severe bone loss, but the patient is otherwise healthy. If the patient is not healthy and has a systemic disease, then it's not considered as aggressive periodontitis, but periodontitis as a manifestation of a systemic disease.

Periodontitis as a manifestation of systemic diseases include those patients who have specific disease or specific syndrome like down syndrome .

Generally they are rare cases but you should recognize them , you don't even have to spot diagnose them but at least if there is a case you treat it and doesn't response , you should know what the next step would be .

For example this case ( case# 1) : you can see plaque accumulation , severe inflammation , overgrowth , spacing , open bite ,sever bone losson molar.

Case# 2 : this patient has premature loss of primary teeth due to very aggressive periodontitis in his primary teeth and hyperkeratosis on his palms and soles , it's a syndrome called Papillon-Lefevre syndrome , it's rare but it can happen.

Dr said that he faced a case month ago , a 12 years old female patient that didn't have any primary or permenant tooth ,she has the same symptoms and her family was also involved but in less severe degree , the treatment was a complete denture .

They're mainly two categories, hematological disorders and genetic disorders.

-**hematological disorders**

Blood contains RBCs, WBCs,platelets, and diseases might happen to any of these cells.

Anemia is a RBC'S related disorder but it doesn't really affect gingiva since it doesn't relate to immunity , the only things that you can see in anemia is loss of keratinization , pale gingive , shiny tongue and oral ulcerations, it affects the mucosa more than the periodontium and there is no main other manifestation except in aplastic anemia because more cells are involved other than RBCs.

Thrombocytopenia: causes gingival bleeding, and as you know gingival bleeding is a sign of inflammation, but if there was other signs like lip bleeding or petechiae on the arms, it might be something systemic like immune thrombocytopenia and it will be treated with cortisone, scaling won't work in such case.

In thrombocytopenia ( case# 3) not only gingiva is bleeding spontaneously , even limbs has bleeding spots , in the next slide (there is no bleeding after the treatment) .

WBCs disorders are either quantitative or qualitative.

Quantitative disorders: neutropenia, agranulocytosis, leukemia.

Qualitative disorders: leukocyte adhesion deficiency syndrome, and leukemia.

Neutropenia: low neutrophil count.

Oral manifestations: recurrent infections, delayed healing after extraction, periodontal disease which could be more severe than in others.

The absolute neutrophil count :

1000-1500( mild disease)

500-1000(moderate disease)

Less than 500(severe disease)

Cyclic neutropenia: depression in the count of neutrophils every 3 weeks, and lasts for 3-6 days. It causes ulceration, gingivitis, rapid periodontal breakdown and bone loss that usually starts around incisors and molars.

( Patient with Cyclic neutropenia you can treat them during one week in the month when there wbc count become within normal range).

Necrotizing gingivitis can be a sign of cyclic neutropenia.

Familial neutropenia is inherited. The body produces neutrophils but they're not released from the bone marrow to the blood stream.

The patient usually has monocytosis. The body compensates for the low neutrophil count by producing more monocytes. The periodontal manifestations are severe and there could be hyperplasia.

Agranulocytosis: neutrophils are less than 100. It's usually caused by drugs. It's a life threatening condition in which have severe infections and they need bone marrow transplant to survive.

Leukocyte adhesion deficiency syndrome: it's a qualitative disorder, it affects the receptors on neutrophils.So usually there's high number of neutrophils but they can't get in the tissues.

Normally when there is an infection in certain area , cytokines will attract neutophils these neutrophils will start adhere to the blood vessels wall ,and migrate to the area of infection,but in this LAD syndrome they can't do that.

It causes severe inflammation and bone destruction , and results in early loss of teeth.

Also it's a fatal disease , cause early loss of primary teeth ,and loss of permanent teeth after 2 years from its eruption .The treatment is by bone marrow transplant.

Leukemia: it's a malignant neoplasia of WBCs where the leukemic cells replaces the bone marrow. It attacks the oral cavity and causes many problems, like infections and gingival bleeding. The gingiva is red swollen, sometimes it's bluish. Bleeding can be an early sign of leukemia and there could be ulcerations and infections. It also causes bone destruction.

There could be necrosis in the superficial layers, so you could find pseudomembrane covering the gingiva.

* In leukemia, the pseudomembrane covers the marginal gingiva and it's white to yellowish with gingival bleeding. While candidal infection is more generalized covering the oral mucosa and it's whitish.

In leukemia, the gingival inflammation could be not directly related to leukemia, it could be a result of the drugs, chemotherapy or reduced immunity.

Slide 27: dr asked why it's not an NUG ?

Patient didn’t complain of pain ,the papilla shape is normal ,there is no reverse architecture .

**Genetic disorders**:

Down syndrome: trisomy of chromosome 21. Patients are mentally retarded. 1 out of 800 births has the syndrome.

Periodontitis occurs in almost 100% of patients. Oral manifestations are usually caused by poor oral hygiene. They have crowding, local factors and high frenal attachments.

Patients have severe inflammation and bone destruction. They usually end up losing their teeth early, but they could be maintained for a longer time with good oral hygiene.

Patients have more tendency to have necrotizing gingivitis, because the defective chromosome can result in many things,, like poor terminal circulation, decreased t cell maturation and PMN cells chemotaxis and phagocytosis, defect in collagen( the main component of the periodontium), or the type of bacteria in these patients causes more destruction.

Papillon lefevre syndrome:

Clinical features: palmer planter hyperkeratosis: keratosis in the areas of friction like palms, soles, elbows, knees.

It also causes severe periodontal disease and calcification of the dura.

This syndrome is autosomal recessive, primary teeth are lost by the age of 5, and permanent teeth are lost by the age of 15.

In this disease there's a defect in cathepsin c which affects the pathways of destruction.

Loss of teeth could be delayed in patients given retinoids with good oral hygiene, mouth washes, systemic antibiotics and non surgical periodontal treatment.

Slide 39 : Show difference over the years how can the patient loss his primay and permenant teeth.

Chediak higashi syndrome: rare autosomal recessive disorder. It affects granulocytes, any cell with granules, including melanocytes( results in partial albinism), they could also have silver hair.

It affects the fusion of lysosome with phagosome, it also affects platelets( causes mild bleeding) and causes severe periodontitis. The average life span in these patients is 6 years.

Patients usually don’t respond to periodontal treatment and they lose their teeth early. Treatment of choice is bone marrow transplant.

Langerhan cell histocytosis: it has 3 types. The first type, eosinophilic granuloma, where there's localized periodontitis and delayed healing after extraction. The first type has the most periodontal manifestations, the other 2 types are more severe and fatal but have less periodontal manifestations.

Distinctive radiographic feature of this disease is floating teeth.

Hypophosphatasia: deficiency of serum alkaline phosphatase( which mineralizes the bone), resulting in hypomineralization of bone( rickets) and affects the cementum, depending on when the deficiency happens.

It could be odontohypophosphatasia affecting only teeth, or it could affect teeth and bone.

Cementum hypoplasia or aplasia results in premature loss of teeth. There will be also localized aggressive periodontitis. Other than early loss of teeth, teeth will be conical in shape

It needs lab tests and urine test to be diagnosed.

Ehlers danlos syndrome: a connective tissue disorder, it affects collagen synthesis, and it has 10 types.

It's characterized by hypermobility of joints, hyperextensibility of the skin, increased tissue friability, and delayed wound healing. Usually severe periodontal disease is associated with type 4 and 8.

Type 4 is more severe and life threatening. It affects the walls of blood vessels.

Type 8 is the most commonly associated with of periodontitis.

Osteoporosis: low bone mass(density). There's limited evidence of increased risk of attachment loss and bone loss.

Nutritional deficiency needs to be prolonged and severe before it affects the periodontium.

(vitamen c affect collagene turnover )

HIV infection is caused by a retrovirus. It affects immune cells carrying CD4 surface receptors.

Antiretroviral agents and protease inhibitors improve the health status of these patients , and they could have normal count of t lymphocytes, but it's a life long therapy.

Oral features of HIV positive patients:

Candidiasis is the most common oral infection in HIV patients.

Oral hairy leukoplakia caused by epstein barr virus.

Kaposi sarcoma caused by human herpes virus 8. (it can be as a lesion as an ulcer in the palate ,in the gingiva ,anywhere in the mouth)

Necrotizing ulcerative stomatitis.

Viral infections, the most common is herpetic infection.

Periodontal manifestations are mainly 3 :

1-Linear gingival erythema that looks like gingivitis but it's caused by candida infection and it doesn’t respond to the conventional treatment of plaque removal. It needs antifungal drug.

2-atypical periodontal lesion (necrotizing form of periodontitis).

3-typical periodontitis.

HIV positive patients respond to non surgical therapy and oral hygiene. If the level of t lymphocytes is close to normal or high enough, treat them like normal patients.

So in general, the management of periodontitis as a manifestation of systemic disease starts with prevention. You need to give the patient oral hygiene instructions. You can do scaling, root debridement, give them mouth washes, you may need to give them antimicrobial agents and local hemostatic agents in cases of bleeding, you may need to work with others like oral surgeons and prosthodontists .( like dental implant's but it depend on the patient immunity ).