٣٠ كانون الثاني ٢٠٢١

Community Dentistry Third class

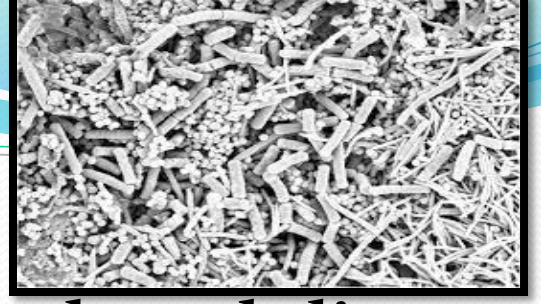
Epidemiology of Periodontal Disease

6th lecture

By Dr. Adil Ghalib Fadhil
College of Dentistry
University of Basrah

- **Periodontal disease is one of the main chronic infectious diseases of the oral cavity and is the main cause of tooth loss.**
- **Periodontal disease includes gingivitis and periodontitis.**
- **Periodontal disease is almost universal in occurrence.**
-

Plaque hypothesis

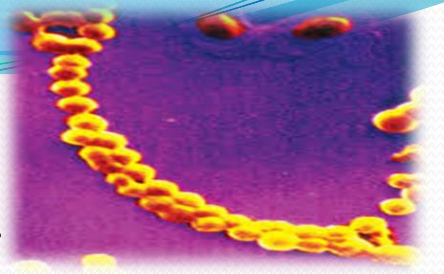


Non specific Plaque hypothesis

- **According to this theory, the periodontal disease results from the noxious products of the entire plaque flora.**
- **It says large amount of plaque and its accumulation is necessary for the onset of periodontal disease.**
- **This theory was discarded because**

1) Some individuals with considerable amount of plaque, calculus and gingivitis do not develop destructive periodontitis.

2) Individual with periodontitis show site specificity with some areas unaffected and some site showing advanced disease.

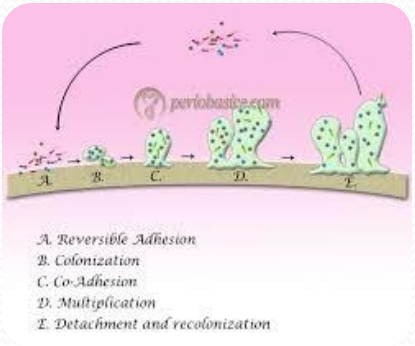


Specific plaque hypothesis (loesche, 1976)

- This theory states that only certain plaque is pathogenic and its pathogenicity depends upon the presence of or increase in specific micro organisms.

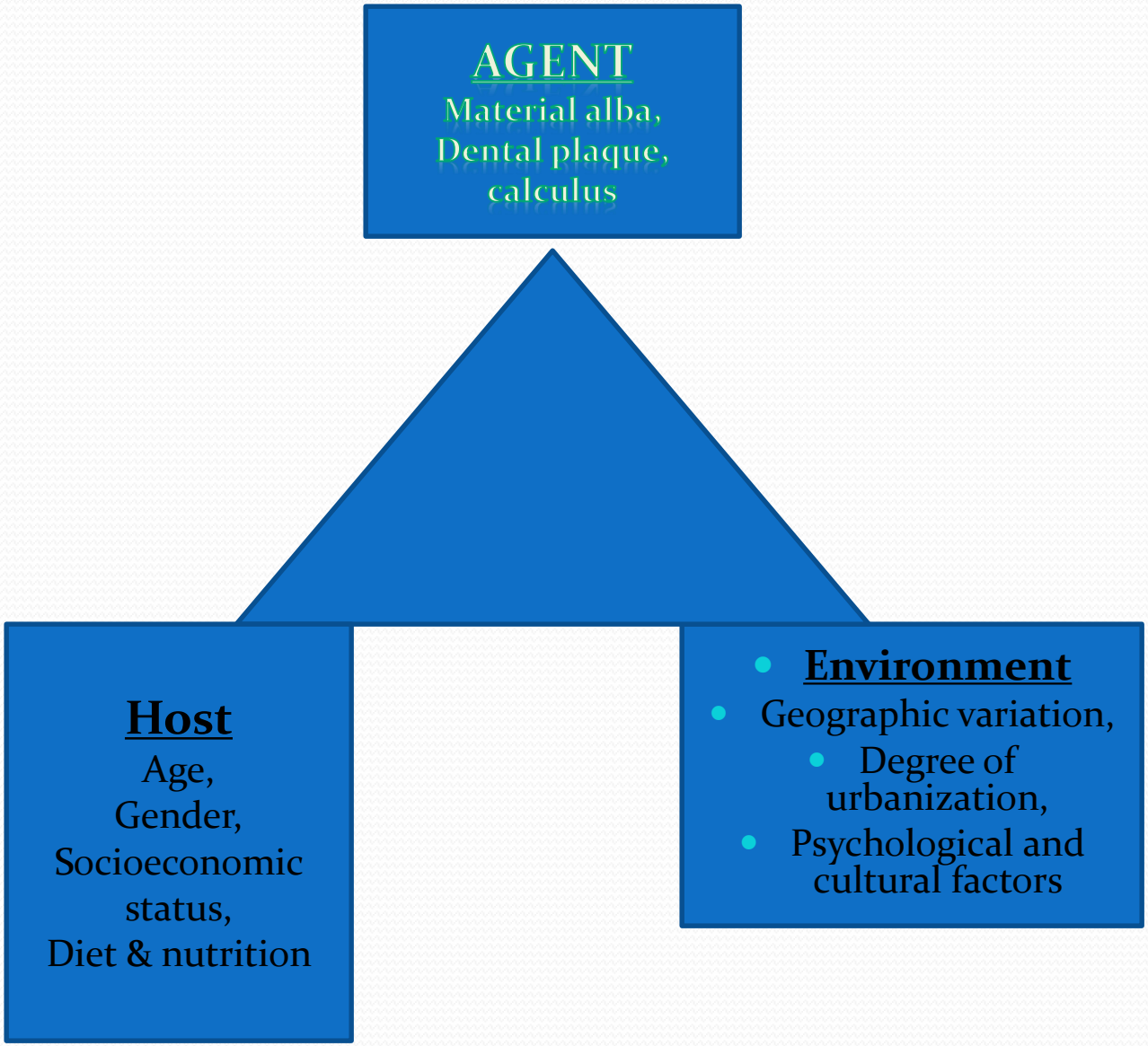
Ecological plaque hypothesis (Marsh, 1991)

- In this hypothesis it is proposed that a change in a key environmental factor/s will trigger a shift in the balance of the resident plaque microflora.



- This might predispose a site to a disease.

Epidemiological triad



Agent factors in periodontal disease

1) Materia Alba

- Refers to the soft accumulations of bacteria, desquamated epithelial cells, leucocytes, salivary proteins and lipids.

- It lacks the organized structure of dental plaque and can be removed by rinsing.

2) Dental plaque

- Defined as a structured, resilient, yellow grayish substance that adheres tenaciously to the intraoral hard surfaces, including removable and fixed restorations.

- Plaque is composed of bacteria in a matrix of salivary glycoproteins and extracellular polysaccharides , it is because of this matrix the plaque cannot be removed by rinsing.

1 gram of plaque (wet weight)	Approximately 10^{11} bacteria
Healthy gingival crevice	Approx 10^{3} bacteria
Deep periodontal pocket	Approx more than 10^{8} bacteria

3) Calculus

- It is a hard deposit that forms by mineralization of dental plaque and is usually covered by a layer of unmineralized plaque.

- Mineralization of dental plaque results in calculus. Precipitation of mineral salts into plaque starts between the first and the fourteenth day of plaque formation.

- Calcification begins along the inner surface of the supra gingival plaque and attached component of the sub gingival plaque and is formed in layers.

Host factors in periodontal disease

1) Age

- The prevalence and severity of periodontal disease has been found to increase with increasing age.

2) Gender

- In general epidemiologic studies have shown that males have a higher prevalence and severity than females. The male inter the beginning phase destructive periodontal disease at approximately 35 years of age while female inter by 45 years of age

3) Socioeconomic status

- Periodontal disease has been related to the lower socioeconomic status.

- Generally those who are better educated , wealthier and live in better circumstances have better health. As they frequently have dental visits, good diet, good oral hygiene etc.

4) Diet and Nutrition

- Sticky foods adheres o the teeth and is difficult to remove, thus interfering with the natural cleansing process.
- The nutrients deficiency that have been specifically associated with the periodontal tissues. vitamin **A** (more chance to develop periodontal pockets), vitamin **B** complex (gingival inflammation) , vitamin **C** (scurvy) & vitamin D, calcium and phosphorous.

- Studies have shown that the prevalence and the severity of periodontal disease increases where protein calorie malnutrition and vitamin A deficiency are common.

5) Habits

a) Unilateral mastication

- The people who chew only from one side because of pain, caries, loss of teeth etc, show the accumulation of plaque and calculus on the affected side hence the development of periodontal disease.

b) Abnormal Habits

- Abnormal habits which involves putting foreign bodies into the oral cavity like biting pencil, finger nail, tooth picks, biting lip and cheek etc creates traumatic injury to the periodontium.

6) Local irritants

a) Mechanical irritants

- Faulty tooth brushing causes abrasion or recession of the gingival tissues and irritate already inflamed tissues

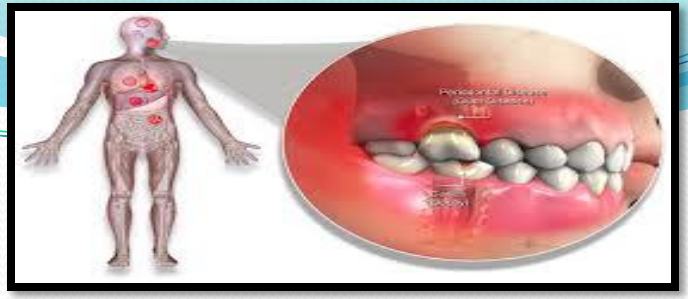
- Faulty dentistry like over hanging margins of restorations or open cavity margins impinge on gingiva and irritate them.

- Faulty orthodontic treatment also results in root resorption as well as alveolar bone loss and mobility.

b) Chemical irritants

- The harmful substances present in alcohol and tobacco directly lowers tissue resistance and increases susceptibility to gingivitis and periodontal diseases.

7) Systemic factors



- Many systemic diseases have been implicated as risk factors in periodontal disease.
- Studies have shown that although there are specific bacteria associated with destructive periodontal disease, these bacteria do not cause disease simply by their presence alone, the individual host response to these pathogens is important.
- Certain systemic disorders alter host tissue reducing host defense to periodontal infection.
- Ex: diabetes mellitus, hematologic disorders like (acute leukemia, pernicious anemia, aplastic anemia……) ,debilitating diseases like (TB, CVD, chronic nephritis), hyperparathyroidism, HIV/AIDS, radiation, drugs such as dilantin sodium (phyntoin), cytotoxic drugs .
- There is no epidemiologic evidence that systemic factors are a significant cause of chronic periodontal disease, but it can influence the disease progression.

Environmental factors

1) Geographic variation

- Earlier studies showed considerable differences in the susceptibility to periodontal disease between nations.

- However WHO global oral health data bank does not suggest any differences between nations .
- And therefore race and ethnicity cannot be considered as risk factors for periodontal disease.

2) Degree of urbanization

- This appears to be related to periodontal disease.
- Studies have shown that people living in rural areas had a significantly higher prevalence of periodontal disease than the urban people.
- This could however be because of oral hygiene practices, diet, socioeconomic status and inaccessibility to dental care.

3)Psychological and cultural factors

- In the socially and cultural diverse countries the role of these factors in the prevalence of periodontal disease is very significant.

- Anxiety, fear of dentist, lack of knowledge about disease and its treatment are some of relevant psychological factors.

- Also certain cultures think dental problems are just ageing process.

- Lack of transport in village and the belief that the dental problems are not life threatening are other factors.


THANK YOU