

Aging and Periodontium



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MDS

Contents:

- Gingival epithelium
- Gingival connective tissue
- Periodontal ligament
- Cementum
- Alveolar bone
- Bacterial plaque
- Immune responses

Physiologic changes

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- **Gingival epithelium:**
 - ▣ Thinning and decreased keratinization
 - ▣ Increase in epithelial permeability to bacterial antigens
 - ▣ Flattening of rete pegs and altered cell density
 - ▣ Decreased resistance to functional trauma

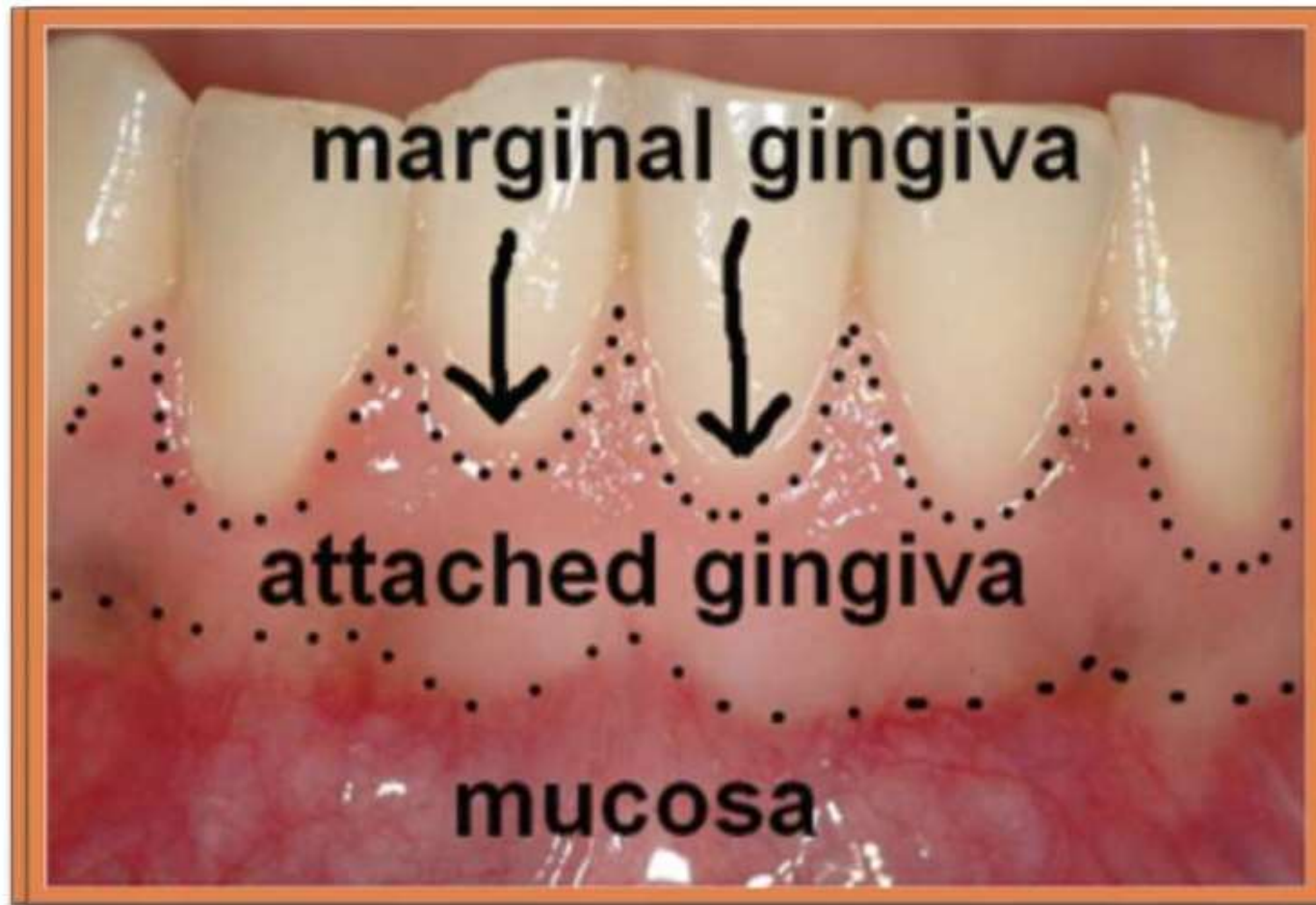


Clinical changes

- Migration of junctional epithelium from its position in healthy individual (on enamel) to more apical position on the root surface with accompanying **gingival recession**.
- The consensus is that gingival recession **is not an inevitable physiologic process** of aging but is explained by cumulative effects of **inflammation or trauma on the periodontium**.

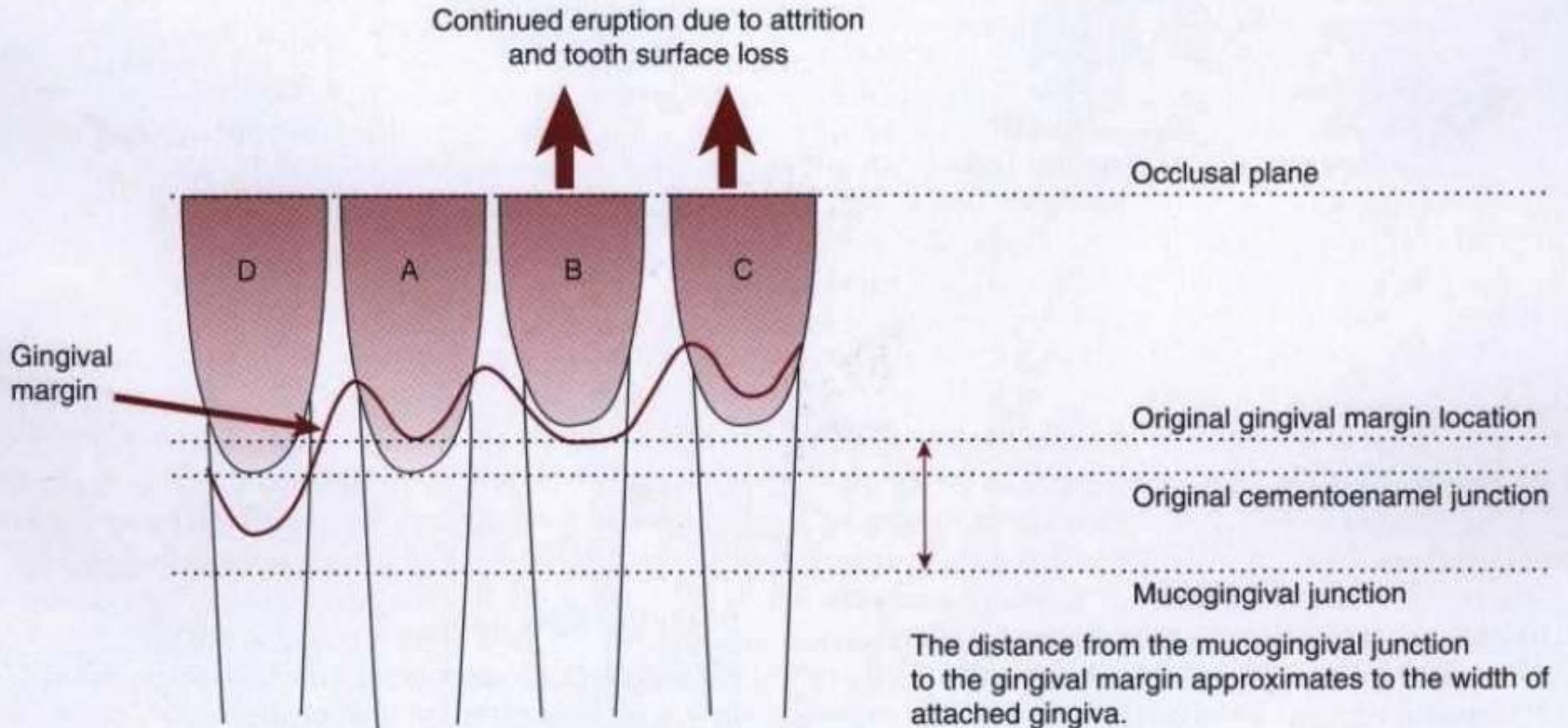
Attached gingiva

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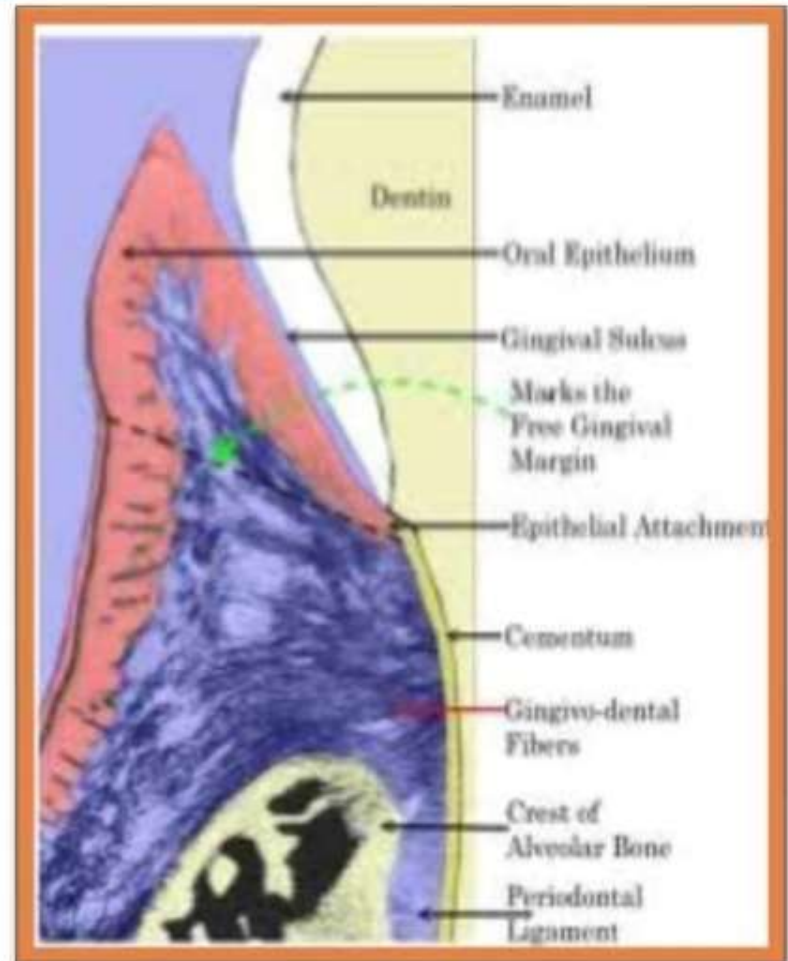
Width of attached gingiva

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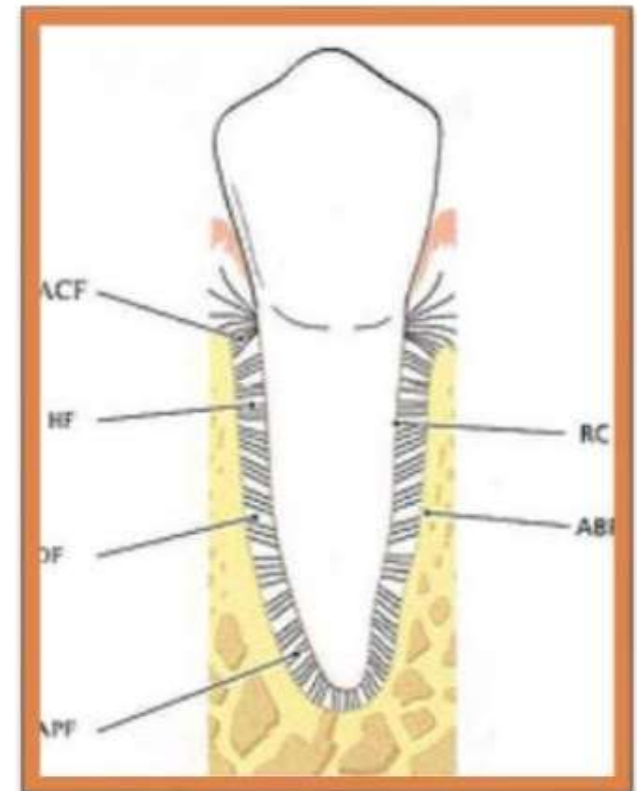


□ Gingival connective tissue:

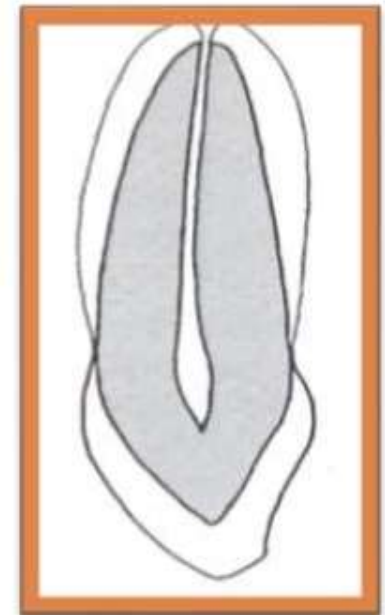
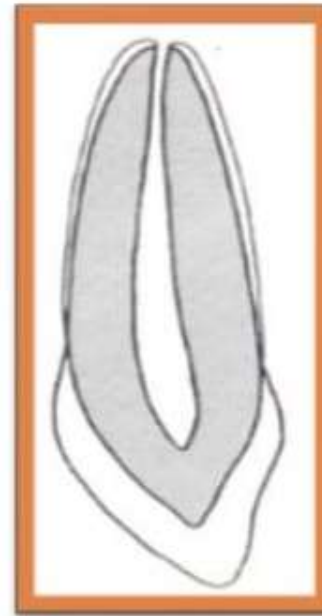
- Quantitative & Qualitative changes in collagen.
- Coarser and denser gingival connective tissue.
- ↑ denaturing
- ↑ rate of conversion of soluble to insoluble collagen
- ↑ mechanical strength



- Periodontal ligament:
 - Decrease in the no of collagen fibers: reduction or loss in tissue elasticity.
 - Increased amounts of elastic fiber.
 - Decreased organic matrix (mucopolysaccharides) production
 - Decreased Epithelial cell rests

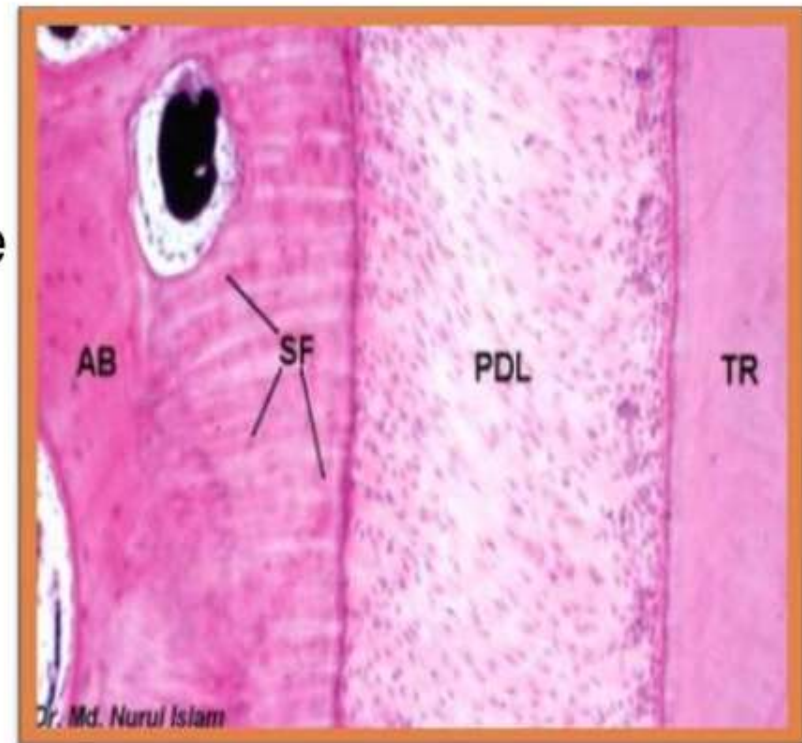


- Cementum:
 - ▣ Increase in cemental width/ thickness
 - ▣ Upto 5 to 10 times with increasing age
 - ▣ The increase in width is greater in apically and lingually.
 - ▣ Increasing surface irregularity.



□ Alveolar bone:

- ▣ Decrease in bone density
- ▣ Increase in bone resorption
- ▣ Decrease in vascularity.
- ▣ Irregular periodontal surface of bone
- ▣ Less regular insertion of collagen fibers.
- ▣ Healing rate of bone in extraction sockets appears to be unaffected by increasing age.



Relation of Bacterial plaque with aging periodontium

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- Dentogingival **plaque accumulation** has been suggested to increase with age-
 - ▣ Increased hard tissue surface area resulting from gingival recession
 - ▣ Surface characteristics of the exposed root surface compared to enamel
- Subgingival plaque: increased numbers of **rods and pseudomonads**
- Periodontal pathogens:
 - ▣ Increased *Porphyromonas gingivalis*
 - ▣ Decreased *Actinobacillus actinomycetemcomitans*

Relation of Immune responses with aging periodontium

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- *Immunosenescence*
- Difference between young and older individuals can be demonstrated for **T and B cells, cytokines and natural killer cells**, but not for polymorphonuclear cells and macrophage activity.
- McArthur in 1999: no evidence for age related in host defenses correlating with periodontitis in an elderly group of individuals, with and without disease.

Xerostomia

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- Saliva plays an essential role in maintaining oral health.
 - ▣ Antimicrobial activity
 - ▣ Buffering capacity
 - ▣ Lubrication of the oral cavity
 - ▣ Transport of taste sensors
 - ▣ Digestive function

- Loss of acinar cells with aging.
- Medications: tricyclic antidepressants, antihistamines, antihypertensives, and diuretics.
- Radiation treatment, Sjohren's syndrome, poorly controlled diabetes, bone marrow transplantation, thyroid disorders, and depression-

Periodontal disease in older adults

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- Age is either nonexistent or provides a small and clinically **insignificant increased risk of loss of periodontal support.**

Periodontal treatment planning

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- To preserve function
- Eliminate or prevent the progression of inflammatory disease
- Prevention, comfort, function, esthetics and ease of maintenance are the criteria for successful management of an older adult.

- The risks and benefits of both surgical and non surgical therapy should be considered.
- Nonsurgical approach is often the first treatment choice.
- Age alone is not a contraindication of surgery.
- Maintenance of surgical results.
- Palliative support periodontal care.

Response to treatment of the periodontium

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- The successful treatment of periodontal requires both meticulous **plaque control** by the patient at home and meticulous supragingival debridement by therapist.
- Despite the histologic changes in the periodontium with aging, no differences in response to nonsurgical or surgical treatment have been shown for periodontitis

Prevention of periodontal disease and maintenance of periodontal health in older adults

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- Oral hygiene maintenance
- Chemotherapeutic agents
 - ▣ Antiplaque agents
 - ▣ Fluoride
 - ▣ Saliva substitutes



Antiplaue agents

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- Chlorhexidine
- Subantimicrobial tetracycline: periostat
- Listerine or its generic counterparts



5 golden rules for healthy teeth

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1. Brush your teeth twice daily
2. Rinse your mouth after every meal
3. Eat fresh fruits and vegetables
4. Do not eat sweet in between meals
5. Visit your dentist every six months

Thank you!

