Introduction to Periodontics

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Definitions

• **Periodontics:** That branch of dentistry that deals with the diagnosis and treatment of disease and conditions of supporting and surrounding tissues of the teeth or their implanted substitutes
• **Periodontology**: The scientific study of the periodontium in health and disease

• **Periodontitis**: Dental practitioner who by virtue of special knowledge and training in the field limits his practice or activities to periodontics.

• **Periodontitis**: Inflammation of the supporting tissue of the teeth

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peri ............. around
odous .......... tooth
logous .......... Study
itis ............. inflammation
Periodontium

The tissues that invest and support the teeth including the:

Gingiva / Alveolar Mucosa
Periodontal Ligament
Alveolar Bone
Cementum
• **Gingiva:** The fibrous investing tissues, covered by keratinized epithelium, which immediately surrounds a tooth and is contiguous with a periodontal ligament and with the mucosal tissues of the mouth.
Gingiva

- Marginal / Free Gingiva
- Attached Gingiva
- Interdental Gingiva

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- **Gingival sulcus (crevice):** Shallow fissure (space) between the marginal gingiva and the enamel or cementum. The clinical normal gingival sulcus in human is 2 to 3 mm, can be determined clinically with a periodontal probe (probing depth).
• **Histology:** Gingival tissues are made up of fibrous connective tissue covered by stratified squamous epithelium.

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Gingival Collagen Fibers

Functions

1. **Bracing** the marginal gingiva against the tooth
2. **Providing** rigidity to withstand the forces of mastication.
3. **To unite** the free marginal gingiva with the cementum of the root and adjacent attached gingiva
• **Periodontal ligament (PDL):** the CT that surrounds and attaches roots of teeth to the alveolar bone. Average width of PDL is 0.18 mm, widest in coronal aspect narrower in the apex, and narrowest in the middle.

• It consists of bundles of collagen fibers arranged into a network referred as principle fibers.
• **Roles of PDL:**
  – Mechanical functions
  – Formative function
  – Nutritive function
  – Sensory function
• **Cementum**: is calcified tissue that covers the root of the tooth and provides a means of attachments for the periodontal ligament fibers to the tooth.
Cementum

- It consists of calcified collagen fibers and interfibriller ground substance.
- It is made up of 45% to 50% inorganic material and 50% to 55% organic matter and water.
• **Alveolar bone:** are the parts of the maxilla and mandible providing the housing for the roots of the teeth.
• **Alveolar bone:**
  1- alveolar bone proper  
  (lamina dura in radiographs)  
  2- trabecular bone  
  3- compact bone
**Periodontium**

**Vascular Supply**

Branches of Superior and inferior alveolar arteries

1. Supraperiosteal arteries
2. Interdental arteries
3. Periodontal ligament arterioles

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Functions of Periodontium

• Attach tooth the bony housing and to another tooth
• Resist and resolve the forces generated by mastication, speech and deglutition
• Adjust for structural changes associated with wear and aging through continuous remodeling and regeneration
• Defined against the noxious external environment that are present in the oral cavity
Etiology of Periodontal Diseases

Bacterial Plaque (Primary Factor)
Secondary/Predisposing Factors
Bacterial Plaque

Bacterial aggregation on the teeth or other solid oral structures.

It consists of:

Bacteria

Organic: protein, polysaccharide …

Inorganic: calcium, phosphorus …
Secondary/Predisposing Factors

• **Dental Calculus**: Mineralized dental plaque attached and covering the enamel and/or root surface.
Classification of Periodontal Disease
The pathological diseases affecting the periodontium

Gingivitis
Periodontitis
Gingivitis
Inflammation of the gingiva.
It is the most common type of gingival disease.
Etiology is bacterial plaque
Periodontitis

- Inflammation of the supporting tissues of the teeth.
- Usually a progressively destructive changes leading to loss of bone and periodontal ligament.
- An extension of inflammation from gingiva to adjacent bone and ligament.
Amounts of microbial deposits are consistence with the severity of bone loss
Healthy

- Gingivitis

- Periodontitis

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Aim of Periodontal Therapy
Retention of Teeth
• Periodontal Therapy
  - Eliminate gingival inflammation
    - Oral hygiene
    - Scaling and root planing
    - Local or systemic antimicrobials
    - Systemic collagenase inhibitor
  - Restore normal tissue contours
    - Tooth surfaces assessable to daily oral hygiene
  - Regenerate periodontal attachment
    - Bone graft, guided tissue generation
Scaling

Instrumentation of the crown and root surfaces of the teeth to remove plaque, calculus and stains from these surfaces.
Root Planing

A treatment procedure designed to remove cementum or surface dentin that is rough, impregnated with calculus or contaminated with toxins or microorganisms
Thanks

• We will see you all inshallah in our main two courses:
  • Third year 311PDS
  • Fourth year 411PDS