Overview of Periodontics for the General Practitioner

Nashville Area Dental Continuing Education
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The Metropolitan Correctional Center (MCC) San Diego, California is an administrative facility housing nearly 1000 male and female inmates.
Overview of Presentation

- Pathogenesis of Periodontal Diseases
- CPITN
- Current AAP Classification of Periodontal Diseases
- Sequencing of Periodontal Treatment
Background

  
  - Poor oral health is concentrated primarily among low-income, minority and immigrant populations.
  
  - Access to dental care is major problem for these populations.
Pathogenesis of Gingivitis

- Initial Lesion
- Early Lesion
- Established Lesion
Pathogenesis of Periodontitis

- Loss of Connective Tissue Attachment in presence of inflammation
- Migration of Epithelial Attachment along the root surface
- Loss of Bone
- Histopathology similar to established lesion
  - Bacterial virulence
  - Destruction of periodontal tissues
Pathway to periodontal disease

- Presence of Bacteria
  - *Actinobacillus actinomycetemcomitans*
  - *Porphyromonas gingivalis*
  - *Bacteroides forsythus*

- Endotoxin: Lipopolysaccharide
  - Released from gram (-) bacteria
  - Initiates host response
  - Acts with host factors > bone resorption
The diagnosis of periodontal disease is a process that involves observation and measurement of numerous factors and then combining one's findings into a summary statement of the patient's oral disease status.
CPITN

- **Community Periodontal Index of Treatment Needs**
  - World Health Organization
  - Useful in public health surveys and screening
  - Requires use of a Periodontal Probe
  - Modified by American Academy of Periodontology as PSR System
WHO Probe

0.5 mm ball tip

Colored band

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Third molars don’t count!
PROBING

- EXAMINE each tooth
- WALK probe around crevice
- RECORD highest score
Main Requirement of CPITN

- Use a Probe !!!!!!!!
Community Index of Periodontal Treatment Needs

- **Indicators**
  - Presence or Absence of Bleeding
  - Supra-gingival or Sub-gingival Calculus
  - Periodontal Pockets
    - Shallow (4-5 mm)
    - Deep (6 mm or >)
Community Index of Periodontal Treatment Needs

- **How to Probe**
  - “Sensing” Periodontal Pockets
    - Use $\leq 20$ grams of force
    - Align probe with long axis of tooth
    - Explore total extent of pocket
CODE 0

Colored area of probe remains completely visible in the deepest crevice in the sextant. No calculus or defective margins are detected. Gingival tissues are healthy with no bleeding after gentle probing.
CPITN – Code 1

**CODE I**

Colored area of probe remains completely visible in the deepest probing depth in the sextant. No calculus or margins are detected. There is bleeding after gentle probing.
Colored area of probe remains completely visible in the deepest probing depth in the sextant. Supra- or subgingival calculus and/or defective margins are detected.
CPITN - Code 3

**CODE 3**

Colored area of probe remains partly visible in the deepest probing depth in the sextant.
CPITN - Code 4

**CODE 4**

Colored area of probe completely disappears, indicating probing depth of greater than 5.5mm.
<table>
<thead>
<tr>
<th>CPITN Score</th>
<th>Dx Feature</th>
<th>Recommended Tx</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Healthy tissue</td>
<td>None</td>
</tr>
<tr>
<td>1</td>
<td>Bleeding upon probing</td>
<td>Education</td>
</tr>
<tr>
<td>2</td>
<td>Calculus or overhangs and no PD &gt; 3mm</td>
<td>Education, Prophy</td>
</tr>
<tr>
<td>3</td>
<td>At least one PD 4-5mm</td>
<td>Education, Prophy, ScRP</td>
</tr>
<tr>
<td>4</td>
<td>At least one PD of 6mm or &gt;</td>
<td>Education, Prophy, ScRP, Surgery prn</td>
</tr>
<tr>
<td>X</td>
<td>Fewer than 2 teeth function in sextant</td>
<td>Exclude from needs assessment</td>
</tr>
</tbody>
</table>
Detecting Furcations
Nabors Probe
Review

Healthy tooth  Bleeding gingiva  Tooth with calculus  Tooth with shallow pocket  Tooth with deep pocket
Periodontal Diagnosis:
Mod. Periodontitis

CPITN (PS&R) Scores:

Date 4 Mar 02  Date 6 May 02

3 2 3  4 2 3
3 2 2  3 2 2

Therapy or Evaluation Needed:
F/U, Perio Probes

PART V. TREATMENT PLAN
The Comprehensive Periodontal Examination

- Circumferential probing depths
- Areas of recession
- Areas of food impaction
- Bleeding on probing
- Tooth mobility
- Radiographs
- Tooth vitality
Former Periodontal Diagnoses

1. Adult

2. Early-Onset
   - Prepubertal (localized and generalized)
   - Juvenile (localized and generalized)
   - Rapidly Progressive

3. Periodontitis Associated with Systemic Disease

4. Necrotizing Ulcerative

5. Refractory
Current Periodontal Diagnoses

- Summary of the 1999 International Workshop for a Classification of Periodontal Diseases and Conditions

Current Periodontal Diagnoses

I. Gingival Diseases
- A. Dental Plaque - Induced
- B. Non-Plaque – Induced

II. Chronic Periodontitis
- A. Localized
- B. Generalized
Current Periodontal Diagnoses, cont.

III. Aggressive Periodontitis
- A. Localized
- B. Generalized

IV. Periodontitis as Manifestation of Systemic DZ
- Acquired Neutropenia
- Leukemias
- Other
Periodontal Diseases

- Gingival Diseases
- Chronic Periodontitis
- Aggressive Periodontitis
- Periodontitis as a manifestation of systemic disease

- Necrotizing Periodontal disease
- Abscesses of the periodontium
- Perio-Endo Lesions
- Developmental or Acquired deformities and conditions
Abscesses of the Periodontium

- Gingival Abscess
- Periodontal Abscess
- Pericoronal Abscess
Gingival Abscess

- A localized purulent infection that involves the marginal gingiva or interdental papilla
Gingival Abscess
Gingival Abscess

- **Etiology**
  - Acute inflammatory response to foreign substances forced into the gingiva

- **Clinical Features**
  - Localized swelling of marginal gingiva or papilla
  - A red, smooth, shiny surface
  - May be painful and appear pointed
  - Purulent exudate may be present
  - No previous periodontal disease
Gingival Abscess

- **Treatment**
  - Elimination of foreign object
  - Drainage through sulcus with probe or light scaling
  - Follow-up after 24-48 hours
Periodontal Abscess

- A localized purulent infection within the tissues adjacent to the periodontal pocket that may lead to the destruction of periodontal ligament and alveolar bone.
Periodontal Abscess
Periodontal Abscess

- Usually pre-existing chronic periodontitis present!!!

- Factors associated with abscess development
  - Occlusion of pocket orifice (by healing of marginal gingiva following supragingival scaling)
  - Furcation involvement
  - Systemic antibiotic therapy (allowing overgrowth of resistant bacteria)
  - Diabetes Mellitus
Periodontal Abscess

**Clinical Features**

- Smooth, shiny swelling of the gingiva
- Painful, tender to palpation
- Purulent exudate
- Increased probing depth
- Mobile and/or percussion sensitive
- Tooth usually vital
Periodontal Vs. Periapical Abscess

**Periodontal Abscess**
- Vital tooth
- No caries
- Pocket
- Lateral radiolucency
- Mobility
- Percussion sensitivity variable
- Sinus tract opens via keratinized gingiva

**Periapical Abscess**
- Non-vital tooth
- Caries
- No pocket
- Apical radiolucency
- No or minimal mobility
- Percussion sensitivity
- Sinus tract opens via alveolar mucosa
Periodontal Abscess

**Treatment**
- **Anesthesia**
- **Establish drainage**
  - Via sulcus is the preferred method
  - Surgical access for debridement
  - Incision and drainage
  - Extraction
Periodontal Abscess

Other Treatment Considerations:

- Limited occlusal adjustment
- Antimicrobials
- Culture and sensitivity

* A periodontal evaluation following resolution of acute symptoms is essential!!!
**Periodontal Abscess**

- **Antibiotics** (if indicated due to fever, malaise, lymphadenopathy, or inability to obtain drainage)
  - Without penicillin allergy
    - Penicillin
  - With penicillin allergy
    - Azithromycin
    - Clindamycin
  - Alter therapy if indicated by culture/sensitivity
Pericorononal Abscess

- A localized purulent infection within the tissue surrounding the crown of a partially erupted tooth.
- Most common adjacent to mandibular third molars in young adults; usually caused by impaction of debris under the soft tissue flap.
Pericoronial Abscess
Pericoronal Abscess

- **Clinical Features**
  - Operculum (soft tissue flap)
  - Localized red, swollen tissue
  - Area painful to touch
  - Tissue trauma from opposing tooth common
  - Purulent exudate, trismus, lymphadenopathy, fever, and malaise may be present
Pericoronal Abscess

- **Treatment Options**
  - Debride/irrigate under pericoronal flap
  - Tissue recontouring (removing tissue flap)
  - Extraction of involved and/or opposing tooth
  - Antimicrobials (local and/or systemic as needed)
  - Culture and sensitivity
  - Follow-up
Necrotizing Periodontal Diseases

- Necrotizing Ulcerative Gingivitis (NUG)
- Necrotizing Ulcerative Periodontitis (NUP)
Necrotizing Ulcerative Gingivitis

- An infection characterized by gingival necrosis presenting as “punched-out” papillae, with gingival bleeding and pain
Necrotizing Ulcerative Gingivitis
Necrotizing Ulcerative Gingivitis

- Necrosis limited to gingival tissues
- Estimated prevalence 0.6% in general population
- Young adults (mean age 23 years)
- More common in Caucasians

Bacterial flora

- Spirochetes (Treponema sp.)
- Prevotella intermedia
- Fusiform bacteria
Necrotizing Ulcerative Gingivitis

- Clinical Features
  - Gingival necrosis, especially tips of papillae
  - Gingival bleeding
  - Pain
  - Fetid breath
  - Pseudomembrane formation
Necrotizing Ulcerative Gingivitis
Necrotizing Ulcerative Periodontitis

- An infection characterized by necrosis of gingival tissues, periodontal ligament, and alveolar bone
Necrotizing Ulcerative Periodontitis
Necrotizing Ulcerative Periodontitis

Clinical Features

- Clinical appearance of NUG
- Severe deep aching pain
- Very rapid rate of bone destruction
- Deep pocket formation not evident
Necrotizing Ulcerative Periodontitis
Necrotizing Periodontal Diseases

- **Treatment**
  - Local debridement
  - Oral hygiene instructions
  - Oral rinses
  - Pain control
  - Antibiotics
  - Modify predisposing factors
  - Proper follow-up
**Necrotizing Periodontal Diseases**

- **Treatment**
  - **Local debridement**
    - Most cases adequately treated by debridement and sc/rp
    - Anesthetics as needed
    - Consider avoiding ultrasonic instrumentation due to risk of HIV transmission
  - **Oral hygiene instructions**
Necrotizing Periodontal Diseases

- **Treatment**
  - Oral rinses – (frequent, at least until pain subsides allowing effective OH)
    - Chlorhexidine gluconate 0.12%; 1/2 oz 2 x daily
    - Hydrogen peroxide/water
    - Povidone iodine
  - Pain control
Necrotizing Periodontal Diseases

- **Treatment**
  - Antibiotics (systemic or severe involvement)
    - Metronidazole
    - Avoid broad spectrum antibiotics in AIDS patients
  - Modify predisposing factors
  - Follow-up
    - Frequent until resolution of symptoms
    - *Comprehensive periodontal evaluation following acute phase!!!*
Gingival Diseases of Viral Origin

- Acute manifestations of viral infections of the oral mucosa, characterized by redness and multiple vesicles that easily rupture to form painful ulcers affecting the gingiva.
Primary Herpetic Gingivostomatitis

- Classic initial infection of herpes simplex type 1
- Mainly in young children
- 90% of primary oral infections are asymptomatic
Primary Herpetic Gingivostomatitis
Phases of Periodontal Therapy

- Preliminary Phase
  - Treatment of emergencies
- Etiotropic Phase (Phase I Therapy)
  - Plaque control and patient education
- Evaluation of response to Etiotropic Therapy
- Surgical Phase (Phase II Therapy)
- Restorative Phase (Phase III Therapy)
- Maintenance Phase (Phase IV Therapy)
Preferred Sequence of Periodontal Therapy

1. Emergency Phase

2. Etiotrophic Phase

3. Maintenance Phase

4. Surgical Phase - - - - - Restorative Phase
Reference Text

- Carranza's Clinical Periodontology, 9th Ed.
  - Michael Newman, Henry Takei,
  - Fermin Carranza and Perry Kokkevold
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