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Periodontal Disease: Classification and Non-Surgical Treatment for the Dental Hygienist

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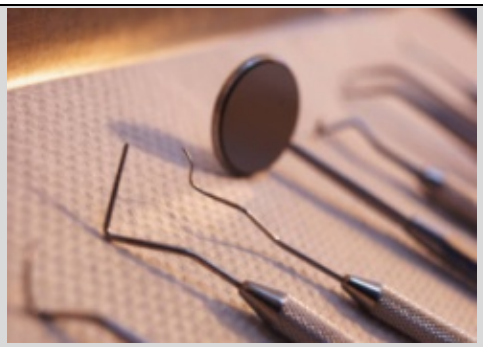

TOPIC I

Classification System of Periodontal Diseases and Conditions

Introduction:

- 1970's Model of Periodontitis
- Current Model
- Microbial Challenge/Host Interactions

I. Gingival Diseases

A. Dental plaque- induced gingival diseases

1. Gingivitis associated with dental plaque only
   1) Without other local contributing factors
   2) With local contributing factors
2. Gingival diseases modified by systemic factors
   1) Associated with the endocrine system
      1) Puberty- associated gingivitis
      2) Menstrual cycle-associated gingivitis
      3) Pregnancy-associated
         a. Gingivitis
         b. Pyogenic granuloma
      4) Diabetes mellitus-associated gingivitis
   2) Associated with blood dyscrasias
      1) Leukemia-associated gingivitis
      2) Other
3. Gingival diseases modified by medications

a. Drug –influenced gingival diseases

1) Drug –influenced gingival enlargements
2) Drug-influenced gingivitis

a) Oral contraceptive-associated gingivitis
b) Other

4. Gingival diseases modified by malnutrition
   a) Ascorbic acid-deficiency gingivitis
   b) Other

B. Non-plaque induced gingival lesions

1. Gingival diseases of specific bacterial origin
   a. Neisseria gonorrhea-associated lesions
   b. Treponema pallidum-associated lesions
   c. Streptococcal species-associated lesions
   d. Other
2. Gingival diseases of viral origin
   a. Herpes virus infections
      1) Primary herpetic gingivostomatitis
      2) Recurrent oral herpes
      3) Varicella-zoster infections
   b. Other
3. Gingival diseases of fungal origin
   a. Candida-species infections
      1) Generalized gingival candidiasis
   b. Linear gingival erythema
   c. Histoplasmosis
   d. Other
4. Gingival lesions of genetic origin
   a. Hereditary gingival fibromatosis
   b. Other
5. Gingival manifestations of systemic conditions
   a. Mucocutaneous disorders
      1) Lichen planus
      2) Pemphigoid
      3) Pemphigus vulgaris
      4) Erythema multiforme
      5) Lupus erythematus
      6) Drug-induced
      7) Other
   b. Allergic reactions
      1) Dental restorative materials
         a) Mercury

b) Nickel
c) Acrylic
d) Other

2) Reactions attributable to
a) Toothpastes/dentrifices
b) Mouthrinses/mouthwashes
c) Chewing gum additives
d) Food and additives

3) Other

6. Traumatic lesions (factitious, iatrogenic, accidental)
   a. Chemical injury
   b. Physical injury
   c. Thermal injury
7. Foreign body reactions
8. Not otherwise specified (NOS)

II. Chronic Periodontitis

A. Localized
B. Generalized

III. Aggressive Periodontitis

A. Localized
B. Generalized

IV**. Periodontitis as a Manifestation of Systemic Diseases**

A. Associated with hematological disorders
   1. Acquired neutropenia
   2. Leukemias
   3. Other
B. Associated with genetic disorders
   1. Familial and cyclic neutropenia
   1. Down syndrome
   2. Leukocyte adhesion deficiency syndrome
   3. Papillon-Lefevre syndrome
   4. Chediak-Higashi syndrome
   5. Histiocytosis syndrome
   6. Glycogen storage disease
   7. Infantile genetic agranulocytosis
   8. Cohen syndrome
   9. Ehlers-Danlos syndrome (Types IV and VIII)

10. Hypophosphatasia
11. Other

C. Not otherwise specified (NOS)

V. Necrotizing Periodontal Diseases

A. Necrotizing ulcerative gingivitis (NUG)
B. Necrotizing ulcerative periodontitis (NUP)

VI. Abscesses of the Periodontium

A. Gingival abscess
B. Periodontal abscess
C. Pericoronal abscess

VII. Periocoronitis Associated with Endodontic Lesions

A. Combined periodontic – endodontic lesions

VIII. Developmental or Acquired Deformities and Conditions

A. Localized tooth-related factors that modify or predispose to plaque-induced gingival diseases/periodontitis
    1. Tooth anatomic factors
    2. Dental restorations/appliances
    3. Root fractures
    4. Cervical root resorption and cemental tears
B. Mucogingival deformities and conditions around teeth
    1. Gingival/soft tissue recession
        a. Facial or lingual surfaces
        b. Interproximal (papillary)
    2. Lack of keratinized gingival
    3. Decreased vestibular depth
    4. Aberrant frenum/muscle position
    5. Gingival excess
        a. Pseudopocket
        b. Inconsistent gingival margin
        c. Excessive gingival display
        d. Gingival enlargement
    6. Abnormal color
C. Mucogingival deformities and conditions on edentulous ridges
    1. Vertical and/or horizontal ridge deficiency
    2. Lack of gingival/keratinized tissue
    3. Gingival/soft tissue enlargement
    4. Aberrant frenum/muscle position
    5. Decreased vestibular depth
    6. Abnormal color
D. Occlusal trauma

1. Primary occlusal trauma
2. Secondary occlusal trauma

References: Ann Periodontol. Development of a Classification System for Periodontal Diseases and Conditions; Volume 4, Number 1; Dec. 1999.

TOPIC II

Clinical Decision Making

Advanced Instrumentation/Non-Surgical Care

Progress on Disease Knowledge, Prevalence Data, Referral Patterns

I. Prevalence of Periodontitis- 2012- HANES Report
II. Journal of Dental Research, June 2013: Patient Stratification for Preventive Care in Dentistry
III. Trends in Referral Patterns to Periodontists
IV. Who Renders Periodontal Therapy in a General Practice
V. What does this mean for practicing hygienists and dentists?
   A. Need to question one-size-fits all treatments

Non-Surgical Treatment- Instrumentation and Theory

I. Advanced Periodontal Instrumentation
   A. Trends in general practices
   B. Trends in Dental Hygiene Education
   C. Trends in Instrumentation
      1. Use of magnification
      2. Use of endoscope
      3. Use of calculus detection probes
      4. Miniaturization of manual and powered instruments
      5. Increase use of ultrasonics

6. Use of diamond coated instruments
7. Use of adjunctive antimicrobials or local delivery systems

D. Ongoing Problems
    1. Misuse of ultrasonics
    2. Misuse of antibiotics and antimicrobials
    3. Lack of early recognition of periodontal disease
    4. Inability of hygienists and dentists to SCRP adequately

E. Objectives of Root Debridement
    1. Calculus removal
    2. Subgingival plaque/biofilm removal
    3. Endotoxin removal

F. History of Instrumentation
    1. 1960's-1970's Over-instrumentation
        i. Glassy smooth era with aggressive SRP
        ii. Intentional removal of cementum
        iii. Hypersensitivity issues
    2. 1980's-1990's Under-instrumentation
        i. Burnished calculus
        ii. Low powered ultrasonic use
        iii. Preserved cementum and residual calculus
    3. 21st Century
        i. Ultrasonics on high power
        ii. Hand instrumentation still important
        iii. Thin tipped manual and ultrasonics
        iv. Recognition that the contaminants need to be removed

G. Success of Root Debridement
    1. Access!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
        i. Ineffective fulcrums
        ii. Failure to use careful, even, close, overlapping strokes
        iii. Failure to detect
    2. Adaptation/ angulation
    3. Thoroughness
    4. Host response

H. Problems with Root Debridement
    1. Access
    2. Enamel projections
    3. Iatrogenic risk factors
    4. Anomalies of tooth form

5. Root proximity
6. Where deposits are left
    i. Furcations
    ii. Between non-overlapping strokes
    iii. CEJ
    iv. Root concavities
    v. Line angles-root prominences
    vi. **Retrospective study of 626 sites deeper than 4 mm (Stambaugh) demonstrated 1-2 mm reduction of pocket depth ONLY after traditional SCRP.
7. Slide show of many anomalies that hygienists encounter that significantly impede our ability to SCRP effectively.
8. Significant studies: Gher, M. and Dunlop, R. : "Linear variation of the root surface area of the maxillary first molar"

I. Types of Periodontal Probes
    1. Marquis probes 3, 6, 9, 12 mm
    2. Williams 1,2,3,5,7,9,10 mm
    3. Michigan "O" 3, 6, 8 mm
    4. Nabors (furcation probe) 3, 6, 9, mm
    5. Novatech
    6. Colorvue

J. Periodontal Hand Instrumentation
    1. Rationale for scaling and root planning
    2. Sample instruments
        i. After-five and Mini-Gracey Curets
        ii. Vision Curvettes
        iii. Langer Curettes
        iv. Gracey's 15/16 & 17/18
        v. After Five Explorer
        vi. Micro-Mini-Five Gracey's
        vii. DeMarco Curet
        viii. O'Hehir New Millennium Debridement Curet- 3D
        ix. Nevi 1, 2, 3, & 4
        x. Quetin Furcation Curets
        xi. Micro –Mini Curetes
        xii. New Double Gracey Scandette
        xiii. LM Dental
        xiv. Other

1. Younger Good
2. Mountain Jack
3. Combination of blade types
4. Queen of Hearts

xv. Diamond Furcation Files

1. Brassler
2. HuFriedy
3. Nordent

K. Sharpening

1. Manual versus Automatic
    i. Retipping
2. New sharpening technologies

L. Ultrasonic Instrumentation

1. AAP Position Paper: Ultrasonics and sonic scalers appear to attain similar results as hand instrumentation for the removal of plaque, calculus and endotoxin.
2. Ultrasonic Models and Tip Designs for Use
   Slide Presentation of different models on the market.
    - After-Fives by Hu Friedy
    - Cavitron THINsert by Dentsply
    - The Burnet Power Tip by Parkell
    - Scorpion
    - Mini's by Vista Dental
    - Lighted by Discuss, Dentsply, Hu Friedy, and Brassler
    - Diamond Coated Ultrasonics by Hu Friedy, Satelec and Vista Dental

I. Products for Implant Maintenance

a. Dentsply SofTip
b. DynaTip
c. Implant Tip
d. Biosonic SUVI
e. EMS Piezon
f. Satelec PerioSoft Carbon Mini Tips
g. Wingrove Titanium
h. Nordent ImplaMate
i. HuFriedy Starter Kit
j. HuFreidy Implacare
k. Amercian Eagle Scalers

l. Premier Scalers
m. AIT

II. Local Drug Delivery (LDD)
a. Options (Arestin, PerioChip, Atridox)
b. Evidence
c. Other Products- no long term research