Incorporating “Quality” periodontics into comprehensive Restorative Dentistry

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Current Concepts of Periodontitis

1. Biofilms
2. Sites
3. Episodic

5 Commitments to Achieving Success in Periodontics
- Commit to the comprehensive perio exam
- Define staff skills and limitations - manuals
- Commit to the Phase I reevaluation
- Commit to a recare appointment
- Maintain a quality dialogue with your periodontist

Sequence Treatment
- Determine:
  - Overall periodontal prognosis
  - Gingival health
  - Apical extent of caries
  - Probing depths
  - Level of alveolar crest
  - Root length and form

Dental History is critical in formulating a patient’s periodontal status
- Familial history
- Medical status
- Smoking habit
- Stress activity
- Parafunctional habits

“Knowing” your patient
- Who was your previous dentist’s experiences
- Any symptoms of gum disease
- Has any dentist mentioned gum disease
- When was your last “cleaning”? Frequency?
- Brothers, sisters, parents.. any history of gum disease
- Tobacco use??
- Grind or clench your teeth..?
Data Collection

- Etiology
- Diagnosis
- Prognosis
- Treatment Plan

Radiographic Exam
- Probing
- Tissue Characteristics
- Mobility

Vertical Bitewings
- Alveolar Crest Height
- Pattern of Bone Loss
- CEJ
- Dentition Related Pathology

Periodontal Probing

Automated Probing

Furcation Involvement

Class I

Class II

Class II+

Class III
Prognosis

- A prediction of the probable course, duration, and outcome of a disease...
- Based on etiology and presence of risk factors...

Prognosis classification

Excellent to good:
- No or minimal bone loss
- Compliance
- No systemic or environmental factors
- Minimal or no mobility
- Excellent crown root ratio
- No furca involvement

Fair prognosis:
- Less than adequate bone support
- Class I furcation
- Mobility < 1
- Presence of limited or environmental factors

Poor prognosis:
- Moderate to advanced bone loss
- Tooth mobility
- Class II furcation
- Doubtful patient cooperation
- Presence of systemic or environmental factors

Hopeless prognosis
- Advanced bone loss
- Class II+ or Class III furcation
- Mobility of 2 to 3
- Non-maintainable sites

Overall versus individual tooth prognosis
- Consider both…
Factors in Determining a Prognosis

- **Overall Clinical factors**
  - Patient age
  - Disease severity
  - Plaque control
  - Patient compliance

- **Systemic and Environmental factors**
  - Smoking
  - Systemic disease or condition
  - Genetic Factors
  - Stress

- **Local Factors**
  - Biofilms
  - Restorations
  - Tapered roots
  - Concavities
  - Root Proximity
  - Furbations
  - Mobility

- **Prosthetic and restorative factors**
  - Abutment selection
  - Caries
  - Nonvital teeth
  - Root resorption

Predicting Periodontal Prognosis

1. Increasing pocket depth
2. Furcation involvement
3. Mobility
4. Crown root ratio
5. Smoking
6. Restorative dentistry

McGuire, 1995
Age

Local Factors
(subgingival calculus, plaque)

Periodontitis
(attachment loss, radiographic bone loss)

“Susceptibility”

Susceptible vs. Resistant

Treatment outline

- Initial oral and radiographic assessment
- Remove defective restoration
- Excavate the decay
- Provisional restoration
- Endodontic therapy
- Periodontal therapy
- Reevaluation
- Surgery

Flap Surgery

- Preserve keratinized gingivae
- Access to osseous acceptable
- Internal beveled incisions above the mucogingival junction
- Intrasulcular incisions

Basic Tenets of Surgery

- Access
- Hemostasis
- “do no harm”
- Asepsis

Medications Associated with Periodontal Surgery

- Sedatives/ hypnotics
  - Halcion, etc
- Antibiotics
  - Augmentation procedures
- Anesthesia
  - Vasoconstriction
- Analgesics
  - Non steroidal anti-inflammatory
**Attached Gingivae**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Alveolar Mucosa</th>
<th>Gingivae</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>red</td>
<td>coral pink</td>
</tr>
<tr>
<td>Surface</td>
<td>smooth, shiny</td>
<td>stippled</td>
</tr>
<tr>
<td>Mobility</td>
<td>loose, mobile</td>
<td>firm, immobile</td>
</tr>
</tbody>
</table>

**Diagnosis of mucogingival defects**
- Direct measurement
- Clinical findings
- Amount of attached keratinized tissue
- Other factors
- Indications

**Clinical findings**
- Marginal gingivae inflamed
- Bleeding or exudate
- Obvious recession
- Moving tissue by retracting the lip

**Classification of recession**
- Sullivan and Atkins
  - Shallow and narrow
  - Shallow and wide
  - Deep and narrow
  - Deep and wide

**Other factors**
- Other teeth involved
- Age of the patient
- Overall dental needs
- Oral Hygiene level

**Current indications**
- Persistent inflammation in a narrow gingivae
- Root sensitivety
- Esthetic concerns
- Withstand planned restoration
- Continuous attachment loss
- Mucosa around implants
Crown Lengthening Procedures

- Considerations:
  - Biologic width
  - Attached gingivae
  - Furcations
  - Restorability
  - Support loss to the adjacent tooth

Purpose of Crown lengthening

- Provide proper form and retention of restorations
- Access to subgingival caries
- Access to subgingival fractures
- Esthetic enhancement of patient’s smile

Indications of crown length

- Subgingival caries
- Subgingival fractures
- Endodontic perforations
- Short clinical crowns

Contraindications for surgical crown lengthening

- Non-restorable tooth
- Adjacent teeth will be severely compromised
- Inadequate interdental width
- Poor crown/root ratio
- Overall expense

MUSTS before crown length surgery

- Remove all caries!
- If possible define the most apical margins
- Break contacts
- Prep teeth
- Place fantastic easily removed provisionals

Common reasons to avoid crown length surgery

- Reduce time/expense
- Lack of understanding of biologic width
- Uncomfortable with proper procedures to correct the situation
Problems with invading the biologic width
- Marginal leakage
- Inaccurate impressions
- Poor finish lines
- Recurrent decay
- Irreversible effect on the periodontium

Expectations of a periodontist
- Relation of restorative margins to gingival margins
  - 5 millimeters supragingivally!
- Materials for restorative margins
  - Cast gold collars
- Embrasure spaces
  - Big black triangles
- Pontics
  - High water -- sanitary

The “Ideal” Subgingival Restoration
- One must consider:
  - Health of the sulcus
  - Local anatomy
  - Management of the tissue
  - Location of the margin
  - Integrity of the margin
  - Contour of the restoration

“Biologic Width”

Surgical instrumentation
- Periodontal probe: UNC 12
- Furcation probe
- Double sided mirror
- Blade holder round
- 15/16 kirkland knife
- 1/2 Orban
- Periosteal elevator
- 13 K Chisel
- Ultrasonic tip
- Universal currette
- # 8 Round burr
- Oschenbien chisels
- Castrojevo needle holder
- Hemostat
- Tissue forceps

Gingivectomy
- Limited for psuedopockets
- Adequate keratinized gingivae
- No osseous access required
- External beveled incisions above the mucogingival junction
Procedures for Pocket Reduction

- Excisional periodontal surgery
  - Gingivectomy
- Incisional periodontal surgery
  - Flap surgery

Gingivectomy --- **NO!!**

- Access to osseous is critical
- Minimal or no attached gingivae

Gingivectomy -- **Yes!!**

- Suprabony pockets - Access to osseous not important
- Gingival enlargement
- Fibrotic gingivae
- Adequate attached gingivae

Periodontal Clinical Conditions

- Color
- Size
- Shape
- Texture
- Consistency
- Sulcular Depth

What is attractive??

- Teeth
- Smile
- Lips
- Eyes
- Nose

Rule of Golden Proportion

1:1.6
Introducing Chu's Aesthetic Gauges

Different Absorption Characteristics:
- Blue: Water
- Red: Hydroxyapatite

Laser-Tissue Interaction
Absorption Characteristics of Dental Lasers:

<table>
<thead>
<tr>
<th>Laser</th>
<th>Wavelength</th>
<th>Type</th>
<th>Absorbed Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diode</td>
<td>812-980 nm</td>
<td>Solid</td>
<td>Melanin, Water</td>
</tr>
<tr>
<td>Nd:YAG</td>
<td>1064 nm</td>
<td>Solid</td>
<td>Melanin, Water, Dentin</td>
</tr>
<tr>
<td>Ho:YAG</td>
<td>2120 nm</td>
<td>Solid</td>
<td>Water, Dentin</td>
</tr>
<tr>
<td>Er:YAG</td>
<td>2780-2940 nm</td>
<td>Solid</td>
<td>Water</td>
</tr>
<tr>
<td>CO2</td>
<td>10.6 um</td>
<td>Gas</td>
<td>Hydroxyapatite, Water</td>
</tr>
</tbody>
</table>

Advantages of Lasers in Surgical Procedures

- Laser Cut More Visible To Eye / Dry Field
- Laser Sterilizes Wound As It Cuts
- Decreased Post Operative Pain And Edema
- Decreased Post Operative Infection
- The theory of "Sealing" and "Sterilizing" the wound?
- Less Wound Contraction And Scarring

Modes of Laser Operation:
- **Continuous Wave**
  Maximizes coagulation and speed
- **Pulsed Wave (Gated or Free-Running)**
  Minimizes thermal damage and pain

Soft Tissue

- De-epithelialize
- Degranulate
- Denature proteins
- Gingivectomy
- Inhibit epithelial migration...clot establishment
Hard tissue

- Tooth
  - Cementum
  - Calculus
  - Dentin
- Bone
  - Removes
  - Biostimulates

Access

- Hemostasis
- Visualize site

Antibacterial...

- Bio-films
- Bacterialcidal

6 Key Decisions

Cosmetic Crown Lengthening

1. Sound the osseous crest (3.0 mm osseous crest - proposed GM)
2. Zone of keratinized gingiva
   Scallop desired lengths if >1mm will be retained
3. Bevel papilla areas
   (later you can apically position and adjust levels)
4. Leave papilla intact at base
5. Thin osseous crest but leave minimum of 1mm thickness
6. Will Dentin / Root Surfaces be exposed?

Treatment Plan Restorative Procedures

Bobby Butler

Practical Procedures and Aesthetic Dentistry Vol 18 #3 - May 2006

editorial commentary

Use of the Di:Co: YAG Laser to Improve Periodontal Plastic Surgery: The Periodontist's Perspective

[Image of a dental procedure]
Characteristics of Gingiva in Esthetics

A. Exposure: Repose versus Smile
B. Form: Scallop versus flat
C. Level: Gingival margin to CEJ
D. Thick or Thin Gingiva

Gingival Esthetic Examination

Tooth Form
- Length
- Length - Width
- Embrasure Form
- Dominance

Gingival Esthetic Examination

- Dimensions of Gingiva
- Clinical Crown Length
- Anatomical Crown Length
- Bone Level and Thickness

Periodontics and the Placement of Dental Implants

Recare Evaluation

- Patient signs / symptoms
- Periapical radiographs:
  - 2X per year first 2 years
  - 1X per year thereafter
- Soft tissue evaluation
- Probing
- Stability

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**Periodontal Recare**

- Medical History
- Plaque Control: PASS SCORE____% E
  - Recommendations:
- Areas of Concern
  - Therapy Today
  - Next recare/ Comments

**The “80” minute recare**

- 5 minutes: Seat patient
- 5 minutes: Update medical history
- 10 minutes: Clinical exam
  - BP, H&N, OH, Caries, Perio, etc...
- 25 minutes: Subgingival debridment
- 5 minutes: Supragingival debridment
- 5 minutes: Dismiss the patient
- 5 minutes: Write up chart

**Periodontal Recare**

- Medical History: Reviewed, BP 140/80, H&N WNL
- PASS: 60% E
  - Recommendations: Proxybrush 614
- Areas of Concern
  - Therapy Today: Ultra/Manual, Betadine AOC
  - Next recare/ Comments: 6-02, check caries d #3

**Periodontal Surgery**

<table>
<thead>
<tr>
<th>2 month recall</th>
<th>Sporadic recall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plaque Score</td>
<td>16%</td>
</tr>
<tr>
<td>Bleeding</td>
<td>2%</td>
</tr>
<tr>
<td>Pocket Depth</td>
<td>1.5mm</td>
</tr>
<tr>
<td>Attachment</td>
<td>maintained</td>
</tr>
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</table>

*Axelsson, Lindhe 1981*

**Increase Frequency.............**

1. Poor plaque control performance.
2. Increasing pocket depth, bleeding, suppuration.
3. Radiographic increase of bone loss.
4. Increasing furcation involvement.
5. Complex restorative cases.

**Periodontal Referral Patterns 1980 Versus 2000**

- Fewer patients use tobacco
- Patients had a greater loss of teeth
- More severe disease
- Required extraction of a greater number of teeth

*Cobb, et al. J Perio October 2003*
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### Patients with poor plaque control

- Document in records
- Increase frequency of recare
- Place emphasis gently - do not challenge!
- Power toothbrushes
- Rinses after debridement
- Local delivery antimicrobials

### Patients who refuse a “root planing” treatment plan

- Document in records
- Attempt to establish rapport through education
- Education equals treatment acceptance
- Dismiss from practice if “prophy” is last resort

### Patients who are inconsistent with recare appointments!

- Document with records... mandatory
- Consider 2 appointments ... 1 week apart, recare can not be completed in 1 appointment
- Consider rinses following recare
- Progressive periodontitis and caries

### Patients who refuse to see a periodontist or have periodontal surgery!!

- Document with records!!
- Root planing must be very competent!!
- Increase frequency of recare... 2-3 months
- Emphasis on plaque control
- Pharmaceutical intervention
- Compromised restorative care

### “Know Your Patient”

L. D. Pankey
“The goal of my practice is simply to help my patients retain their teeth all of their lives if possible. In maximum comfort, function, health, and esthetics”

Dr. L. D. Pankey