Overview of Periodontics for the General Practitioner

- Surgical Therapy

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Phillip D. Woods, DDS, MPH
Commander, USPHS
BOP National Periodontal Consultant
Diplomate, American Academy of Periodontology
Chief Dentist, MCC San Diego
References for this Presentation

- **Manual of Clinical Periodontics, 2nd Edition**
  - by Francis Serio and Charles Hawley
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- E. Barrie Kenney, D.D.S., M.S., F.R.A.C.D.S.,
  - Professor and Chairma Division of Associated Clinical Specialties UCLA School of Dentistry
  - Several of his clinical slides are presented

- Carranza's Clinical Periodontology, 9th Ed.
  - Michael Newman, Henry Takei,
  - Fermin Carranza and Perry Kokkevold
Preferred Sequence of Periodontal Therapy

1. Emergency Phase
2. Etiotrophic Phase
3. Maintenance Phase
4. Surgical Phase - - - - - Restorative Phase
Overview of Presentation #3

- Indications for Periodontal Surgery
- Review of Basic Periodontal Surgical Concepts
- 2 Suturing Techniques
- Crown Lengthening (several cases)
- Briefly Cover
  - Gingivectomy
  - Flap Surgery
Above all, periodontal surgery *should do no harm* to the patient.

- Be discussed, in all aspects, in advance with the patient.
- Be understood, in all aspects, by the patient and that understanding should be acknowledged as written consent.
- Be as atraumatic as possible.
- Be conducted in an aseptic environment.
- Not exceed the limits of physical tolerance of the patient in terms of discomfort, blood loss, and stress.
- Produce a benefit for the patient.
- Be actively monitored postoperatively to assure uneventful healing.
Indications for Perio Surgery

- Provide access to root surfaces exposed to periodontitis for root debridement. This is the primary indication for periodontal flap surgery.
- Provide access to periodontal bony defects for correction by osseous or regenerative procedures.
- Provide an opportunity to remove periodontal tissue infected by periodontal pathogens.
Review of Basic Surgical Concepts

We learned all these in dental school, right?

- Types of Periodontal Flaps
  - Full-thickness
  - Partial -thickness
  - Repositioned flap
- Suturing Techniques
- Crown Lengthening
- Clinical Cases
- Postoperative Instructions
Mucoperiosteal Flaps

- Full Thickness Flap
- Partial Thickness Flap
Mucoperiosteal Flaps

- Full-thickness flaps, elevated past the MGJ, revealing Alveolar bone
Mucoperiosteal Flaps

- Partial-thickness flap revealing bleeding periosteum covering bone.
Mucoperiosteal Flaps

- Partial-thickness lateral pedicle flap placed over root recession
Mucoperiosteal Flaps

- Partial-thickness lateral pedicle flap placed over root recession
Initial Surgical Incisions

- A. Sulcular
- B. Marginal
- C. Sub-marginal
Mucoperiosteal Flaps

- Sub-marginal incisions being placed palatally
Perio Wound Closure

Methods of Wound Closure (continued)

- Cements
  - Iso-butyl cyanoacrylate
    - Good hemostatic capabilities, must be careful to restrict flow. Can flow under flaps or, in extreme circumstances, compromise the patient's airway.
Wound Closure

- Healing via Primary Closure
Suturing Techniques for Periodontal Flap Surgery
Perio Wound Closure

Methods of Wound Closure

- Sutures
  - Materials
    - Resorbable – gut, chromic gut, Vicryl™
    - Nonresorbable – silk (braided, may cause wicking and inflammation), nylon (monofilament), Gore-Tex™ (monofilament, very tissue tolerant)
Wound Closure

- Healing via secondary closure following a gingivectomy procedure
SILK BLACK BRAIDED
18" (45 cm)
Sterile, Nonabsorbable
Surgical Suture, U.S.P.
Do Not Resterilize

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CUTTING X-1

3-0 (2.0 metric)

632

TEAR LEFT
Interrupted Sutures

Two Versions

- Circumferential Sutures

- Figure 8 Sutures
Interrupted Circumferential
Interrupted Figure 8 Sutures
Interrupted Circumferential
Continuous Sling Sutures
Continuous Sling Sutures
Continuous Sling Sutures
Continuous Sling Sutures

- Apically-Positioned Flap Positioned at Crest With a Continuous Sling Suture.
Clinical Crown Lengthening
Clinical Crown Lengthening

Indications (2)

- Development of Adequate Crown Preparation
  - Gingival Margins must not invade Biological Width
  - Requirements for Periodontal Health

- Esthetics
Biologic Width

- Crown Margins which extend apically beyond the Junctional Epithelium can violate the requirements for periodontal health.
Biologic Width

- Crown Margins which extend apically beyond the Junctional Epithelium can violate the requirements for periodontal health.
Clinical Crown Lengthening

Biological Width

- Gargiulo A., Wentz F., Orban F.

- Dimensions and Relations of the Dentogingival Junction in Humans Circumferential Sutures J. Periodontol 1961 32:261

- Used histologic sections to measure average dimensions of biologic width.

- Width of junctional epithelium plus connective tissue width was **Biologic width**, approximately 2 mm.
There must be a minimum of 1mm between the apical level of the Junctional Epithelium and the bone crest.
Biological Width

- If a subgingival crown margin is placed in the middle of the gingival sulcus, the crest of bone should be a minimum of 2 mm apically positioned.
Clinical Crown Lengthening

- Flap Surgery with Osseous Resection

- This is the method of choice when crown margins will impinge on the Biologic Width
Clinical Crown Lengthening

- Periapical Radiographs are needed to ensure sufficient root length is available. This case cannot have surgical crown lengthening and both premolars need to be extracted.
Clinical Case

- This patient had extensive tooth wear and loss of Vertical Dimension.
- There was insufficient clinical crown volume of the incisors for adequate retention, so flap surgery was indicated.
Prior to Flap Surgery
Full thickness labial and lingual flaps
Bone is recontoured so that there is a 2 mm distance between level of proposed crown margin and crest of bone.
The lingual side requires minimal bone surgery.
Flaps are positioned apically to increase length of clinical crowns.
Note similar apical positioning of flap on lingual.
Crown preparations 12 weeks after crown lengthening surgery.
Final upper and lower restorations.
Results of Crown Lengthening
Inadequate clinical crowns for retention of new restorations
Flap design on buccal.
Intrasulcular incisions, mesial vertical incision, distal wedge.
Flap design on palatal. Reverse bevel incision removing gingival margin, mesial vertical incision, distal wedge.
Buccal full thickness flap elevation to expose at least 3 mm of crestal bone.
Crown Lengthening

Buccal

Palatal
Palatal flap elevation to expose at least 3 mm of crestal bone.
The gingival level of new crown margin is estimated and bone removed so bone crestal level is 2 mm apical to this.
Buccal crown margins will be subgingival for esthetics, so margins will be in middle of gingival sulcus i.e. 1 mm coronal to probing depth; add another 1 mm for connective tissue to determine bone level from crown margin.
Palatal crown margin will be supragingival. So allow 1 mm for connective tissue plus 2 to 3 mm for sulcus, so bone level = 3 to 4 mm apical to level of crown margin.
Buccal flap is sutured apically with increased tooth structure for crown preparation.
Palatal flap repositioned with continuous sling mattress sutures and simple U shaped sutures of distal wedge and vertical incisions.
Buccal Healing at 3 weeks.
Palatal Healing at 3 weeks.
Crowns placed at 6 weeks.
Crown Lengthening

Before

After
Crown Lengthening

- Case Selected for Crown Lengthening. Additional clinical crown is needed for restoration of the lateral incisors.
Crown Lengthening

- Apically-Positioned Flaps After Crown Lengthening. Additional increased length of the clinical crowns is apparent.
Crown Lengthening

- Healed and Restored Case
Final crown restorations should not be completed until a minimum of 6 weeks after surgery.

In esthetic areas a minimum of 12 weeks after-surgery is recommended to be ensure minimal additional gingival recession will occur.
Most cases need flap and osseous surgery. Gingivectomy used when have adequate band of Keratinized tissue and bone crest is positioned apically with an initial wide Biological Width.
Gingivectomy

- The *excision* of a portion of the gingiva; usually performed to reduce the soft tissue wall of a periodontal pocket.
- It is performed using an external bevel initial incision (in contrast to the internal bevel initial incision of the APF), which is kept, where possible, entirely within the band of keratinized gingiva.
- The gingivectomy may be performed with a knife, electrosurgery, or a laser.
Gingivectomy

- Nearly all of the Indications for a Gingivectomy Exist (suprabony pockets, no intraosseous defects, gingival enlargement due to medications, adequate zone of attached gingiva, and ample vestibular depth)
Gingivectomy

- It is made using a Kirkland knife held at a 45° angle with the tooth beginning just apical to the clinical attachment level and ending at the attachment level.
Gingivectomy

- A completed Gingivectomy showing blended margins and interproximal grooves.
Gingivectomy
Gingivoplasty

- This is the reshaping of the gingival surface using a blade, rotary instrument, electrosurgery, or laser. This procedure does not remove any of the wall of the pocket but recontours the gingiva.
Poor crowns with recurrent caries.
Soft tissue removal will be adequate for exposure of sound tooth for margins.
Electrosurgery used for gingivectomy. This can also be done with scalpels or laser (note dating of photo).
Tissue is recontoured to expose root surfaces for adequate preparation of margins.
Provisional restorations at 12 weeks. Marginal gingiva is now stable so final subgingival crowns can be completed.
Periodontal Flap Surgery

- Definition
- Indication
Periodontal Flap Surgery
Periodontal Flap Surgery
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Periodontal Flap Surgery
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  ■ Great narratives, clinical photographs, and online access
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