Surgical Therapy

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Periodontal Flap:

a surgical procedure in which incisions are made in the gingiva or mucosa to allow for separation of the epithelium and connective tissues from the underlying tooth roots and underlying alveolar bone
Periodontal Surgery

Why would the elevation of a periodontal flap be beneficial and helpful during periodontal therapy?
Periodontal Surgery

- Access to root surfaces for root debridement

- Make an oral environment conducive to plaque control
  - Elimination/reduction of probing depths
  - Correct abnormal gingiva
  - Correct bone morphology interfere with plaque control
  - Remove plaque retentive factors (i.e. overhangs)
  - Perform root sectioning procedures

- Regeneration of periodontal apparatus

- Correct mucogingival defects & Esthetic

- Make periodontal environment suitable to restorative therapy
Periodontal Surgery

Access to root surfaces for root debridement
Make an oral environment conducive to plaque control
Periodontal Surgery

Regeneration of periodontal apparatus
Regeneration of periodontal apparatus
Periodontal Surgery

Regeneration of periodontal apparatus

The site of bone graft should not be disturbed for several months.

Do not probe until appropriate interval has lapsed.

Meticulous plaque control is critical to maintain health in the area.
Periodontal Surgery

Mucogingival defects
Periodontal Surgery

Mucogingival defects
Periodontal Surgery

Esthetic
Periodontal Surgery

Periodontal Flap:

Full thickness flap - periosteum included in the flap
Split thickness flap - bone covered by periosteum and thin layer of connective tissue
Periodontal Flap:

Displaced flap - laterally, coronally, apically
Replaced flap - left original position
Periodontal Surgery

Coronally positioned flap
Apically positioned flap

Class III
A Class III impacted maxillary canine is located labial to the root of the adjacent lateral incisor. The radiographic evaluation of an orthopantomogram will reveal a canine with its cusp tip over the root of the lateral incisor, whereas the tooth bud will be palpable labially. The lateral incisor is usually inclined palatally to accommodate this orientation. For impacted canines in a Class III position, an apically positioned flap (window flap) is indicated.

A partial thickness dissection, including 2 to 3 mm of the coronally attached gingiva is carried out. The flap is then apically positioned using 2 parallel, vertical releasing incisions (Fig. 5). Using this approach, the clinical crown of the impacted tooth will be completely exposed. This allows the orthodontist to visualize the impacted tooth. Eruption force vectors may then be selected minimizing potential damage to the lateral incisor. Also, following this technique, the width of the keratinized gingiva will increase during orthodontic forced eruption. Hence, increase in the visibility of tooth orientation and preservation of keratinized gingiva are the primary advantages of this approach. Disadvantages of the window flap include its higher level of technique sensitivity compared with gingivectomy and repositioned flap previously described. Also, several authors have reported complications, including risk of soft tissue recession and inadequate access to labial bone.

DISCUSSION
A surgical classification of impacted maxillary canines has been presented relating the width of keratinized gingiva and tooth location to the recommended surgical approach. Several potential complications may arise following surgical exposure and orthodontic forced eruption of the impacted maxillary canine, including root resorption, periodontal defects, poor esthetic outcome, and immobility. Root resorption of incisors occurs quite commonly when adjacent to impacted maxillary canines.

Advantages
- Eliminates periodontal pocket
- Preserves attached gingiva
- Establishes gingival morphology facilitating good plaque control

Disadvantages
- Esthetic issues
- Attachment loss
- Hypersensitivity
- Risk of root caries
- Possibility of exposing furcations
Incision:

Intrasulcular - full retention of the tissues
Inverse bevel - splits the soft tissue pocket wall into an outer gingival surgical flap and an inner epithelialized pocket lining
Periodontal Surgery
Periodontal Surgery
Periodontal Surgery
Healing of Periodontal Flap
Healing of Periodontal Flap
Healing of Periodontal Flap
Healing of Periodontal Flap

Four different types of healing:

(1) Healing by repair

(2) Healing by reattachment

(3) Healing by new attachment

(4) Healing by regeneration
Healing of Periodontal Flap

Healing cells from 4 different sources:

1. Gingival epithelial cells
2. Gingival connective tissue cells
3. Bone cells
4. Periodontal ligament cells
Barrier Membrane

The membrane delays the growth of epithelial cells along the tooth root.

This provides time for the cementum, PDL, and bone to form next to the root.
Guided Tissue Regeneration

The flap is incised and elevated.

Periodontal instrumentation and debridement of the osseous defect
Guided Tissue Regeneration

Barrier membrane is sutured into place.
Guided Tissue Regeneration

The flap is sutured into place, completely covering the barrier material.

Sites treated by guided tissue regeneration should **not be probed for several months** following the surgery.
Mucogingival Surgery

Coronally Advanced Flap
Mucogingival Surgery

Free Gingival Graf
Mucogingival Surgery

Semilunar Flap

Laterally Positioned Flap
Periodontal Surgery

Crown Lengthening:

a surgical procedure that creates a longer clinical crown for a tooth by removing gingival and alveolar bone from necks of teeth
Crown Lengthening

What are the scenarios where each type of crown lengthening procedure might be conducted?
What is the benefit?
Periodontal Surgery

**Functional Crown Lengthening:**
performed when the existing tooth structure is inadequate to support a necessary restoration—decay below the gingival margin

**Esthetic Crown Lengthening:**
performed to improve appearance of teeth when there is excess gingiva in relation to clinical crowns
Gingivectomy

the surgical removal of the gingival tissue. Results in more apical position of the gingival margin. Allows for better self-care in select sites. Plays a greatly reduced role in modern periodontal surgery.
Connective tissue wound created by a gingivectomy.
Periodontal Surgery

Gingivectomy

Results in more apical position of the gingival margin.
Dental Implant

artificial tooth root placed into the alveolar bone to hold a replacement tooth. Requires exposure of alveolar bone using flap surgery. A precise hole is drilled into bone and metallic implant screw (artificial root) is inserted.
Periodontal Surgery

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Periodontal Microsurgery

periodontal surgery performed using surgical microscope. Can result in procedures performed with increased precision on the part of the surgeon.
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Biological enhancement

attempts to enhance the outcomes of periodontal surgery by using chemical or biologic mediators to influence healing following periodontal surgical procedures

1. Root surface modification
2. Growth factors
3. Enamel matrix derivative (EMD)
4. Platelet rich plasma (PRP)
5. Bone morphogenetic proteins (BMP)
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**Sutures**

is a device placed by a surgeon to **hold tissues together** during healing.

Must be nontoxic, flexible, and strong

No wicking effect
(not allowing bacteria to travel down the suture and contaminate wounds)

No tension on the flap
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Sutures

Nonabsorbable suture material that does not dissolve in body fluids; must be removed by the clinician.

Absorbable suture material designed to dissolve harmlessly in body fluids over time.
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Continuous Sutures

Interrupted Sutures
**Periodontal Surgery**

**Periodontal Dressing**

A protective material applied over a periodontal surgical wound. Used somewhat like a bandage to cover a finger wound. Modern periodontal surgical techniques may not require a periodontal dressing.

- **Chemical cure paste** requires the mixing of paste from two tubes to form a dressing with a putty-like consistency
- **Light-cured paste** a light-cured gel that contains a resin
Periodontal Surgery

Chlorhexidine digluconate

A chlorhexidine mouth rinse is recommended for use twice daily until the patient can safely resume mechanical self-care.

Areas of the dentition not involved by the surgery may be cleaned with routine self-care techniques.

Flap surgery resume self-care in 10 to 14 days.
Guided tissue regeneration resume self-care in 4 to 6 weeks.
(or bone graft)
Periodontal surgery performed for: access for debridement, regeneration, pocket reduction, pre-prosthetic or esthetic.

The patient should have achieved a high level of plaque control prior to surgery and should be able to maintain it.

Healing by primary intention is a desirable goal following surgery.
Review Questions

1. One of the indications for periodontal surgery is to provide access for improved periodontal instrumentation of the root surfaces.
   A. True
   B. False

2. One relative contraindication for periodontal surgery can be a high risk for dental caries.
   A. True
   B. False

3. The term healing by repair means that the architecture and function of lost tissue is completely restored.
   A. True
   B. False
4. In bone replacement graft procedure, using an autograft means that the graft material is taken from the patient.
   A. True
   B. False

5. The term xenograft refers to a graft taken from a human other than the patient receiving the graft.
   A. True
   B. False

6. A subepithelial connective tissue graft is a type of periodontal plastic surgery.
   A. True
   B. False
7. Esthetic crown lengthening surgery results in longer clinical crowns for the teeth.
A. True
B. False

8. The suture size 4-0 is smaller than the suture size 3-0.
A. True
B. False

9. When removing sutures following a periodontal surgical procedure, the suture knot should always be pulled through the tissues.
A. True
B. False
10. When placing periodontal dressing, the primary guideline is to place as much bulk of dressing as possible over the wound surface.
A. True
B. False

11. Facial swelling following periodontal surgery is always a sign that healing will not occur properly.
A. True
B. False

12. During postsurgical visits, it is important to remind patients to take all prescribed antibiotic medication.
A. True
B. False
Thank You!