

Lec 12 year 5

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Periodontal surgery

Is any surgical procedure used to treat periodontitis or modified the shape of the periodontium

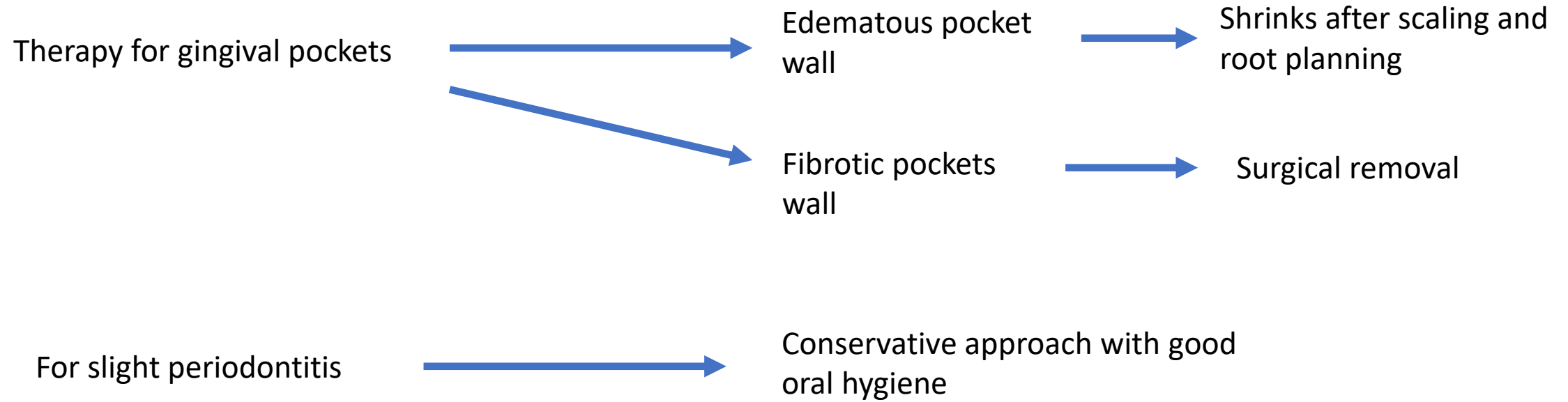
Surgical pocket therapy

Re-evaluation after phase 1 therapy

All patients should be treated initially with scaling and root planning and the final decision on the need for periodontal surgery should be made after evaluation of the effects of phase 1 therapy no less than 1-3 months after completion of phase 1 therapy



Approaches to specific pocket problems



Approaches to specific pocket problems

Moderate to severe periodontitis
in anterior sector



- Scaling and root planning
- The papilla preservative flap or sulcular incision flap if surgery is indicated

Moderate to severe periodontitis
in posterior sector



Surgery is frequently indicated

Critical zones in pocket surgery

1- Soft tissue pocket wall: thickness, topography and persistence of inflammatory changes in the wall

2- Tooth surface: the accessibility of the root surface to instrumentation

3- Underlying bone: bone craters, horizontal or angular bone loss are important criteria in the selection of the treatment technique

4- Attached gingiva: presence or absence of adequate area of attached gingiva

General principles of periodontal surgery

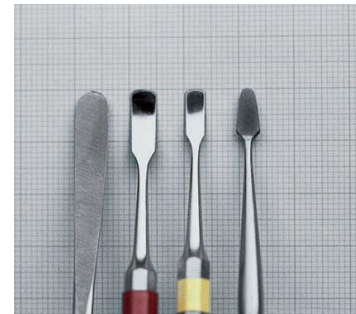
- All surgical procedures should be very carefully planned
- The patient should be adequately prepared, psychologically and practically for all aspects of the intervention

Principles

1. Preparation of the patient
2. Emergency equipment
3. Measures to prevent transmission of infection
4. Sedation and anaesthesia
5. Tissue management
6. Scaling and root planning
7. Haemostasis
8. Periodontal dressing
9. Instructions after surgery
10. First post operative week
11. Removal of the pack
12. Management of post operative pain

Surgical instruments

- 1- Excision and incisional instruments
- 2- Surgical curettes and sickles
- 3- Periosteal elevators
- 4- Surgical chisels
- 5- Surgical burs and files
- 6- scissors
- 7- Haemostats and tissue forceps

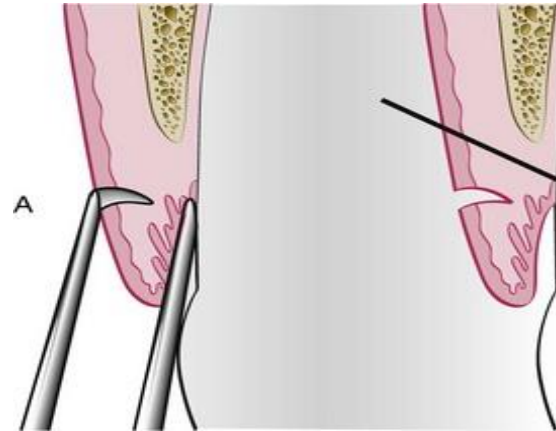


Types of incisions in periodontal surgery

Horizontal incisions

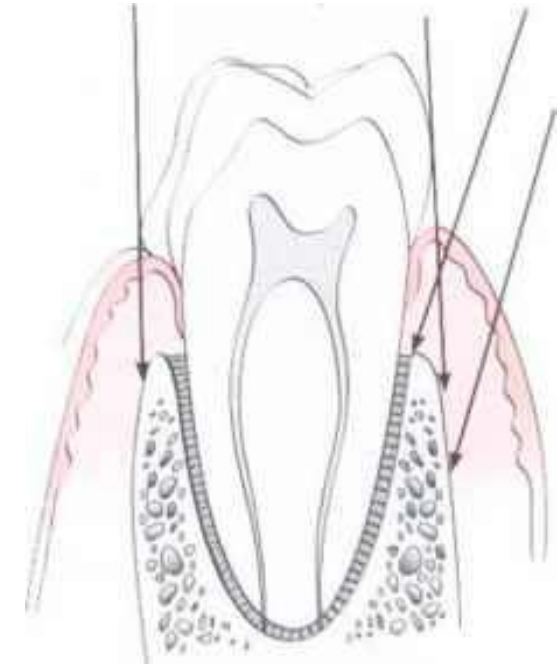
A- External bevel incision (gingivectomy incision)

- Bevelled at 45 degrees to the tooth surface
- Kirkland knife is used for this incision



B- Internal bevel incision (the basic incision in periodontal flap surgery)

- It starts at a distance (1-2mm) from the gingival margin and is aimed at the bone crest. The no. 15 surgical blade is used
- The initial incision for the reflection of a periodontal flap
- Reverse bevel incision, because its bevel is in reverse direction from that of the gingivectomy incision



C- Crevicular incision

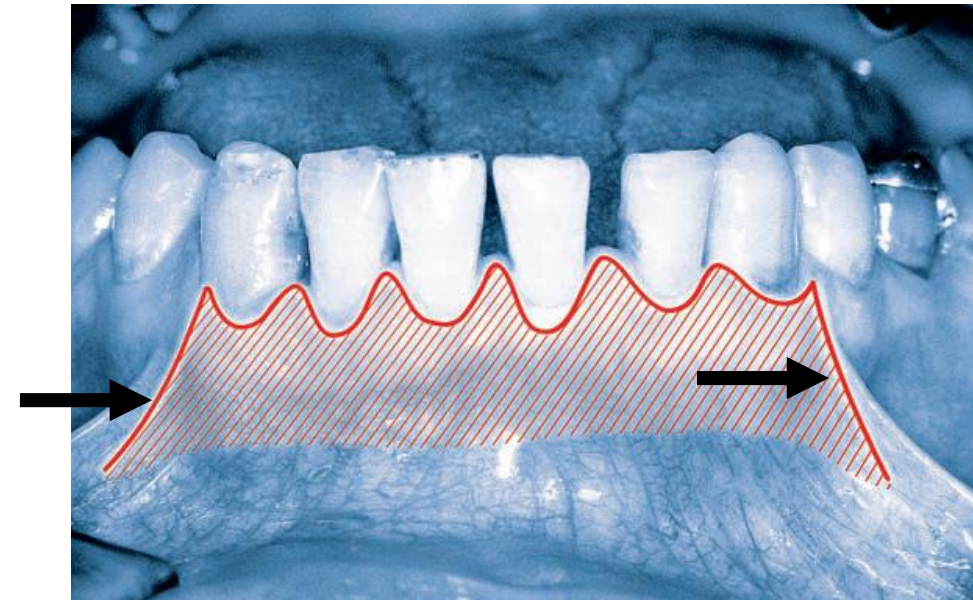
- Second incision, is from the base of the pocket to the bone crest
- Scalpel no. 12D is usually used
- This incision results in a V-shaped wedge of tissue containing of lateral wall of pockets, junctional epithelium and connective tissue fibres between the base of the pocket and crest of the bone

D- Interdental incision

- Orban knife is used for this incision

2- Vertical incision

- Oblique releasing incision: can be used on one or both ends of the horizontal incision
- Vertical incisions at the both ends are necessary if the flap is to be apically displaced.
- Vertical incision must extend beyond the mucogingival line to reach the alveolar mucosa, this allows for release the flap and to be displaced
- Generally, vertical incisions in the lingual and palatal areas should be avoided unless it is necessary

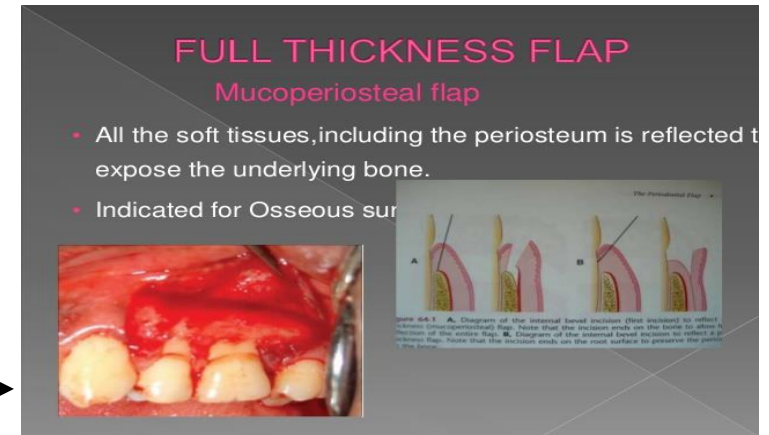


Elevation of the flap

1- Blunt dissection

For full-thickness flap reflection:

- A periosteal elevator is used to separate the mucoperiosteum from the bone by moving it mesially, distally and apically until the desired reflection is accomplished



2- Sharp dissection: is necessary to reflect a partial thickness flap

- A surgical scalpel no.15 is used



Gingival surgical techniques

Gingival curettage: scraping of the gingival wall of a periodontal pocket to separate diseased soft tissue

Subgingival curettage: refers to the procedure that is performed apical to the epithelial attachment, serving the connective tissue attachment down to osseous crest

Inadvertent curettage: that is done unintentionally during scaling and root planning

Ultrasonic curettage

- Recommended for gingival curettage. It is effective for debridement of the epithelial lining of periodontal pockets
- This results in a narrow band of necrotic tissue (micro cauterization) , which strips off the inner lining of the pocket
- According to some investigators, when they found ultrasonic instruments is to be as effective as manual instruments for curettage, but resulting in less inflammation and less destruction to the underlying connective tissue than manual instruments

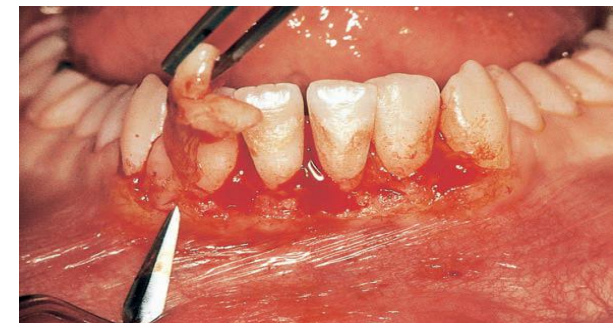


Gingivectomy

Means excision of the gingiva (performed to eliminate false periodontal pockets)

Objectives

- Removing the false pockets, calculus and smoothing of root surface
- Creating a favourable environment for gingival healing and restoration of a physiologic gingival contour



Gingivoplasty

- Is a reshaping of the gingiva to create physiologic gingival contours in the absence of pockets
- Can be done by means of a periodontal knife, scalpel, rotary coarse diamond stones or electrode

Indications

- 1- Elimination of supra-bony pockets, regardless of their depth, if the pocket wall is fibrous and firm
- 2- Elimination of gingival enlargements
- 3- Elimination of suprabony periodontal abscesses

Contraindications

- 1- In case of need for bone surgery or examination of bone shape and morphology
- 2- Situations in which the bottom of the pocket is apical to the mucogingival junction
- 3- Aesthetic considerations, particularly in the anterior maxilla

Technique

Step-1: after anesthetizing the area indicated for surgery, the pockets on each surface are explored with a periodontal probe

Step-2: Periodontal knives (Kirkland knives) are used for incision on the facial and lingual surfaces and on the distal to the terminal tooth in the arch while Orban periodontal knives are used for interdental incision

- The incision starts apical to the points marking the course of the pockets and it is directed coronally to a point between the base of the pocket and the bone crest
- The incisions should be bevelled at 45 degrees to the tooth surface and should be in line with the normal scalloped pattern of the gingiva

Step-3: Removing the excised pocket wall and cleaning the area

Step-4: carefully curette out the granulation tissue and remove any remaining calculus and necrotic cement and make a smooth and clean root surface

Step-5: cover the area with surgical pack

The periodontal flap

Why do we do periodontal flap surgery?

- To provide access and direct visibility to the root surface for thorough debridement as in some non-surgical situations, the complete removal of subgingival plaque and calculus is not possible
- To eliminate the pathological changes in the pocket wall
- To gain access for osseous resective surgery
- In case of furcation involvement of grade 2 or 3 to ensure complete removal of irritants and perform any necessary root resection and hemisection
- To create a stable easy maintainable state
- To promote periodontal regeneration by applying certain materials
- The successful periodontal therapy is based on the total elimination of plaque, calculus and diseased cementum from root surface
- Whenever there is a pocket, plaque control becomes difficult and the deeper the pocket the more difficult is the access

Advantages of flap operation

- 1- Preservation of existing gingiva
- 2- The root surfaces, marginal alveolar bone and furcation areas are exposed
- 3- The flap can be returned to its origin position or displaced apically, coronally or laterally
- 4- The post operative period usually shows less discomfort to the patient compared to gingivectomy

Classification of flaps

Based on bone exposure after flap reflection

- **Full thickness flap:** includes epithelium, connective tissue and periosteum elevated from underlying bone
- **Partial thickness flap (split flap):** includes epithelium and CT reflected from bone and periosteum

Based on placement after surgery

- Non displaced flaps
- Displaced flaps

Based on the management of the papilla

- Conventional flap
- Papilla preservation flap

The flap techniques for pocket therapy

- 1- The original WIDMAN (1918) by Leonard Widman
- 2- The Neuman flap (1920)
- 3- The modified flap operation (the Kirkland flap) 1931
- 4- The apically repositioned flap (1962) by Friedman
- 5- The modified Widman flap (1974) by ramfjord and Nissle
- 6- The papilla preservation flap (1985) by Takei et al