Rationale for Periodontal Treatment

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Content

- WHAT DOES PERIODONTAL THERAPY ACCOMPLISH?

i. Local Therapy
ii. Systemic Therapy

- FACTORS THAT AFFECT HEALING

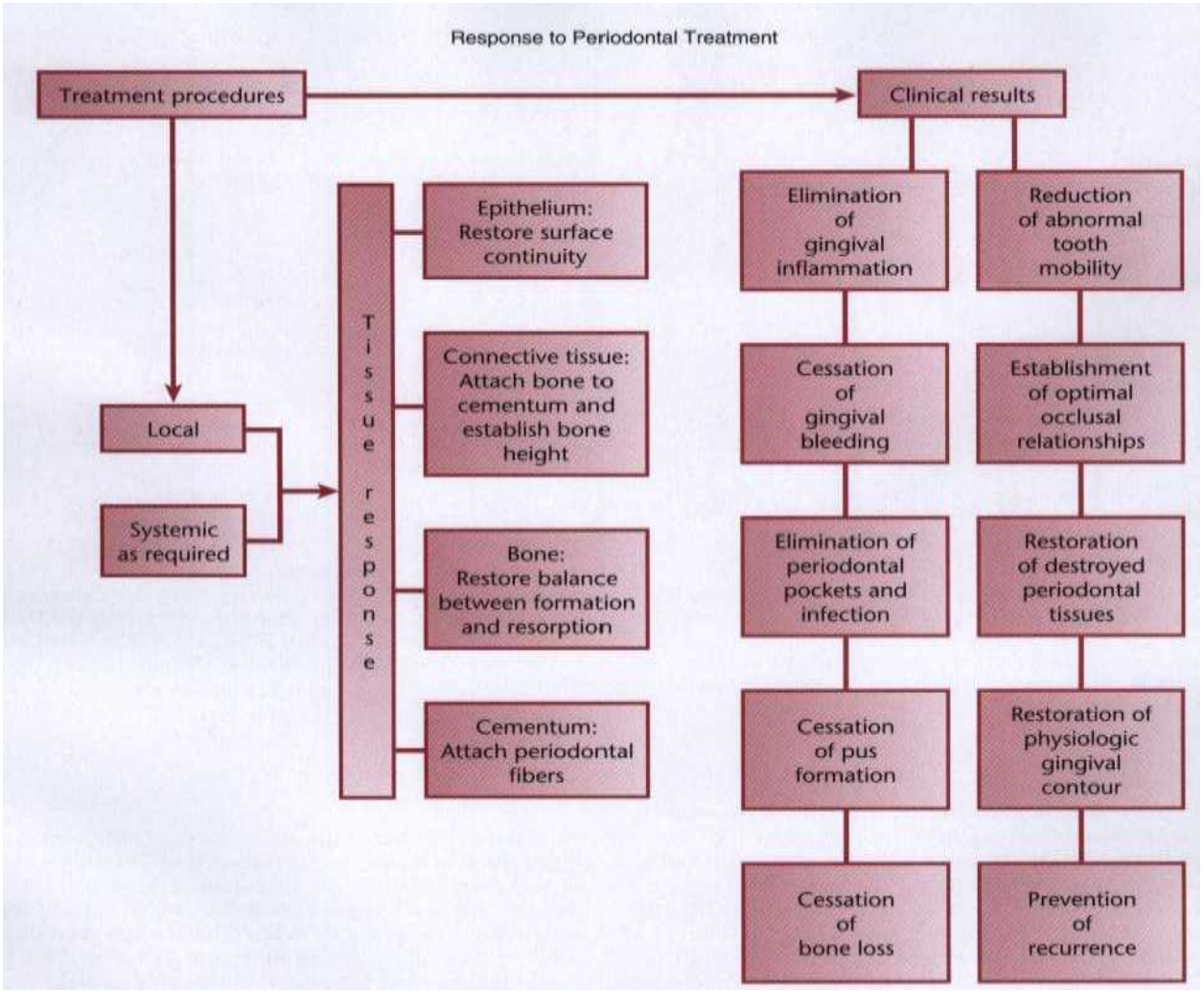
i. Local Factors
ii. Systemic Factors

- HEALING AFTER PERIODONTAL THERAPY

i. Regeneration
ii. Repair
iii. New Attachment

WHAT DOES PERIODONTAL THERAPY ACCOMPLISH?

Properly performed, periodontal treatment can be relied on to accomplish the following:



Local Therapy

- Removal of plaque and all the factors that favor its accumulation is primary consideration
- Elimination of occlusal trauma

Systemic Therapy

- Systemic therapy may be employed as an adjunct to local measures.
- Chemotherapy
- Host modulation (Nyman, Schroeder and Lindhe 1979.)

FACTORS THAT AFFECT HEALING

- **Local Factors**

i. local factors, particularly **plaque microorganisms** are the most common deterrents to healing following periodontal treatment

ii. Healing is also delayed by **excessive tissue manipulation** during treatment, trauma to the tissues, the presence of foreign bodies, and repetitive treatment procedures that disrupt the orderly cellular activity in the healing process.

iii. **Inadequate blood supply** may develop areas of necrosis and delay the healing process.

- **Systemic Factors**

i. Healing capacity diminishes with age, probably due to **atherosclerotic vascular changes**, which are common in aging, and result in reduction in blood circulation.

ii. Healing is delayed in patients with generalized infections and in those with **diabetes** and other debilitating diseases.

iii. Healing is retarded by **insufficient food intake**.

iv. Healing is also affected by **hormones**.

HEALING AFTER PERIODONTAL THERAPY

- The basic healing processes are the same following all forms of periodontal therapy.
- They consist of the removal of degenerated tissue debris and the replacement of tissues destroyed by disease.
- **Regeneration, repair, and new attachment** are aspects of periodontal healing that have a special bearing on the results obtainable by treatment.

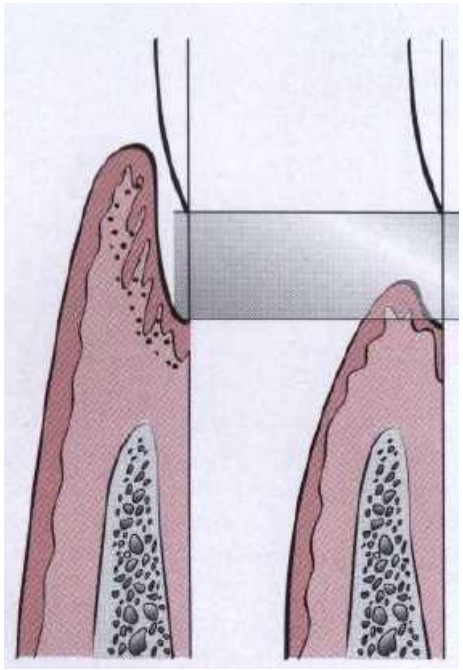
Regeneration

- Regeneration is ***defined*** as a reproduction or reconstruction of a lost or injured part in such a way that the architecture and function of the lost or injured tissues are completely restored . (Glossary of periodontal terms, 1992)

- Regeneration takes place by growth from the same type of tissue that has been destroyed or from its precursor.

- Regeneration of the periodontium is a continuous physiologic process. Under normal conditions new cells and tissues are constantly being formed to replace those that mature and die. This is termed ***wear and tear repair***."

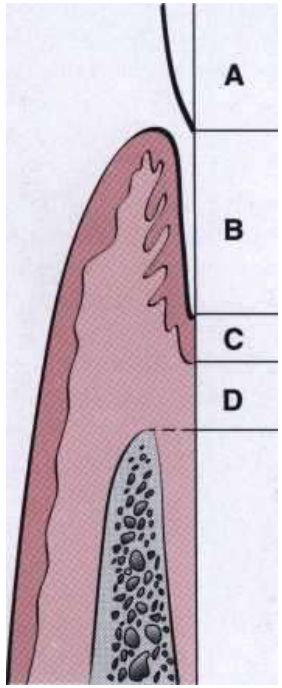
Repair



- Repair simply **restores the continuity** of the diseased marginal gingiva and reestablishes a normal gingival sulcus at the same level on the root as the base of the preexistent periodontal pocket. This process, called ***healing by scar***,

- Arrests bone destruction without necessarily increasing bone height.

New Attachment

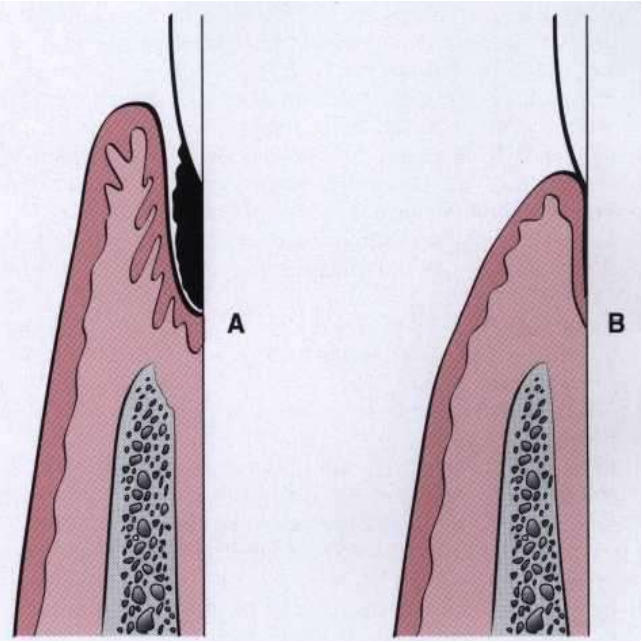


- New attachment is the embedding of new periodontal ligament fibers into new cementum and the attachment of the gingival epithelium to a tooth surface *previously denuded by disease.*

- Attachment of the gingiva or the periodontal ligament to areas of the tooth from which they may be removed in the course of treatment or during the preparation of teeth for restorations represents **simple healing or reattachment** of the periodontium

Epithelial adaptation

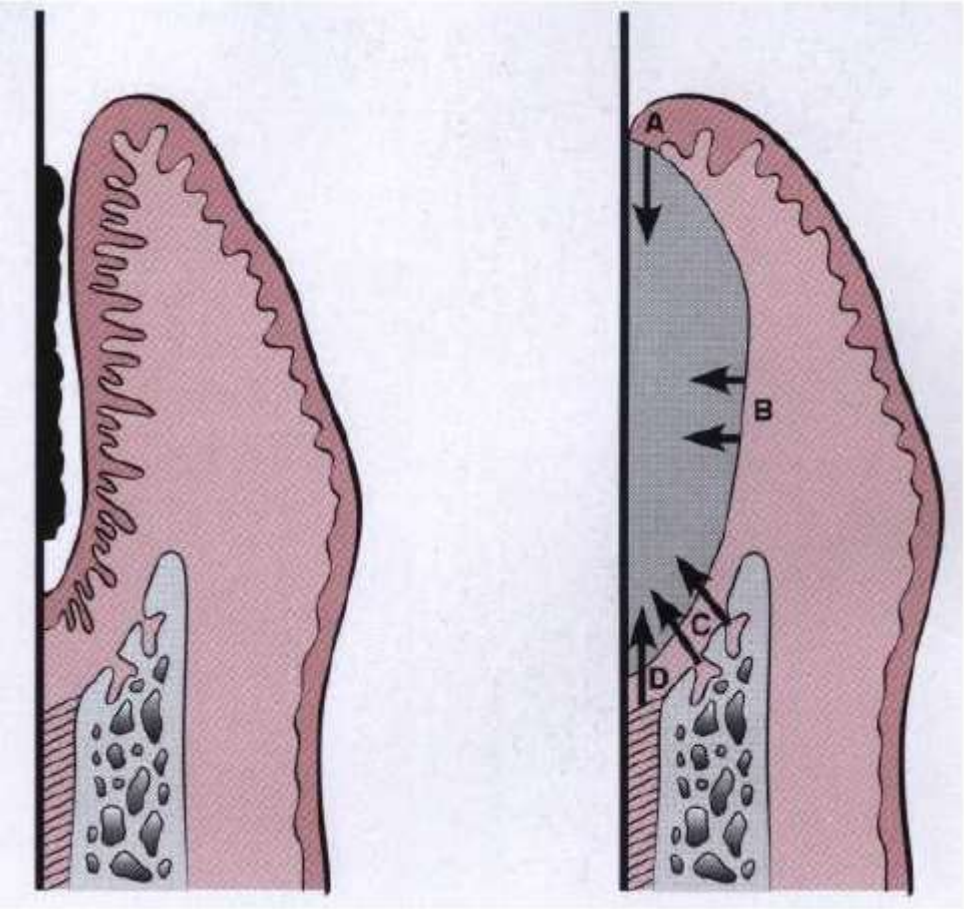
- It is close apposition of gingival epithelium to the tooth surface, with no gain in height of gingival fiber attachment.



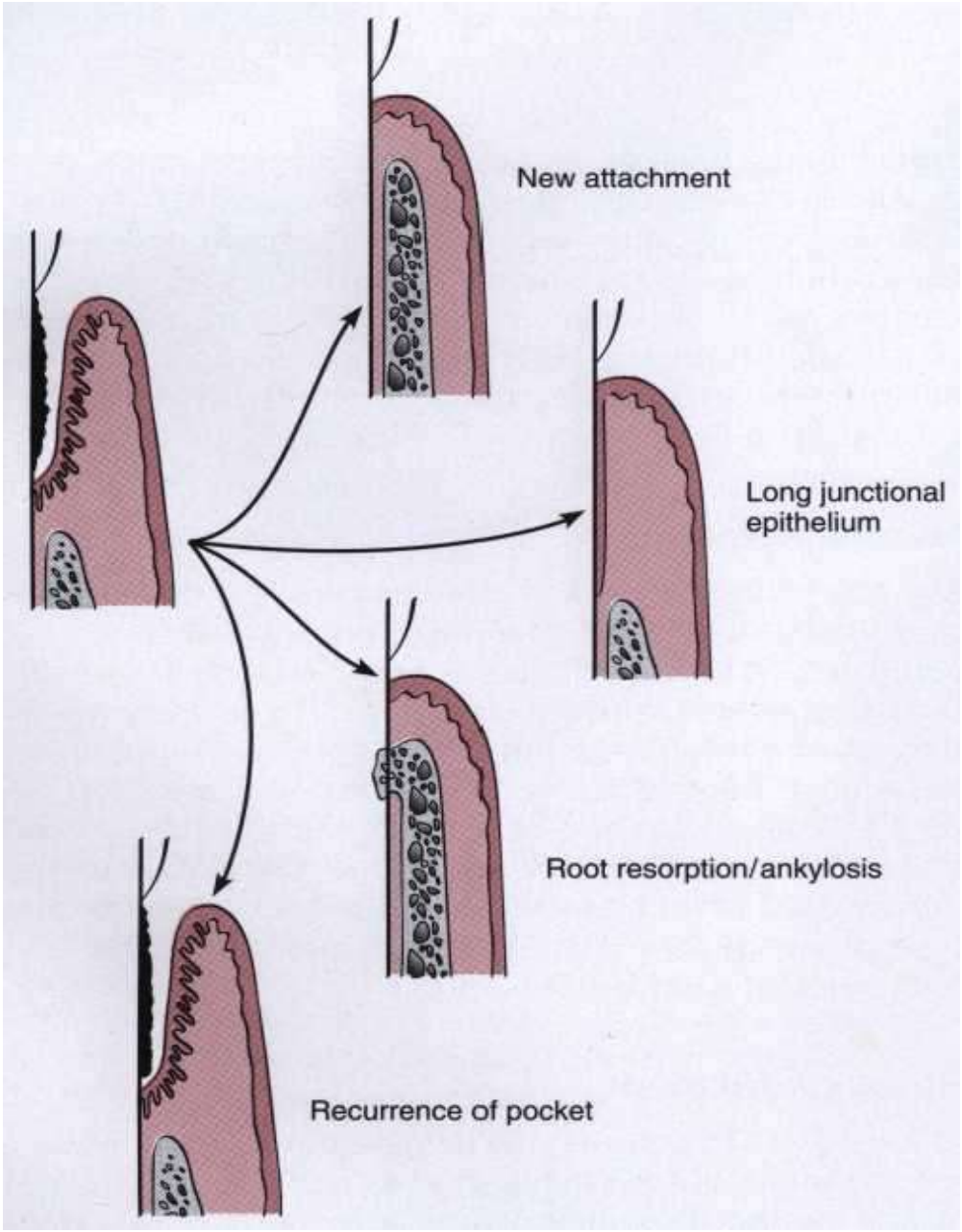
Periodontal Reconstruction

- It is refer to the process of regeneration which includes

I. Gain of attachment level
II. Formation of new periodontal ligament
III. Gain of alveolar bone height



Sources of regenerating cells in the healing stages of a periodontal pocket. Left, Intrabony pocket. Right After therapy, the
clot formed is invaded by cells from A, the marginal epithelium; B, the gingival connective tissue; C, the bone marrow; and D, the periodontal ligament.


New attachment
Long junctional epithelium
Root resorption/ankylosis
Recurrence of pocket

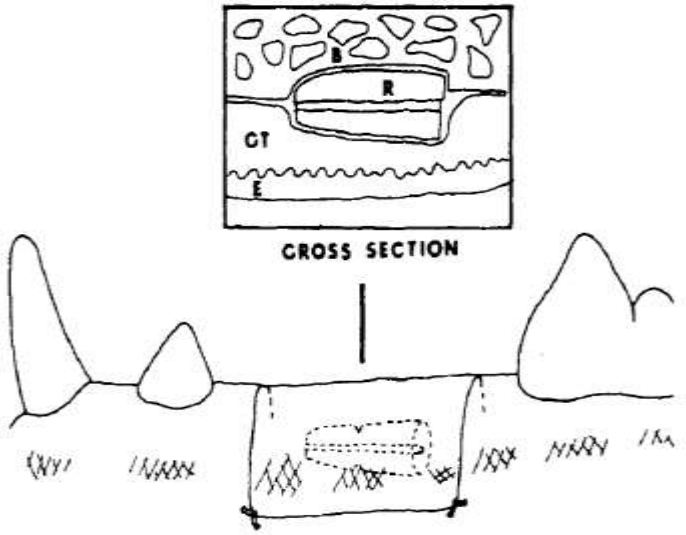
ROLE OF EPITHELIAL TISSUE

- **Caton et al (1980)** normally attachment that is occurs to a root surface after curettage or flap surgery, with or without grafting is long junctional epithelium.

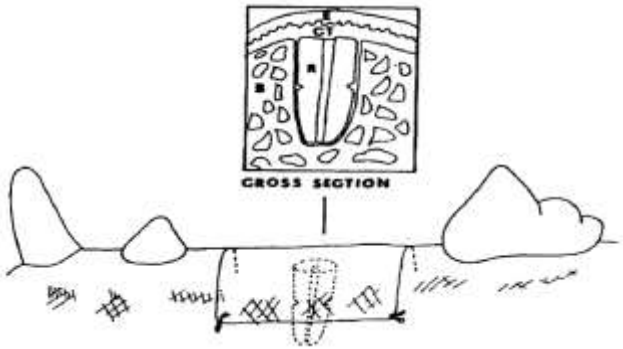
- For true connective tissue regeneration to occur, the gingival epithelium must be prevented from reaching the root surface.

GINGIVAL CONNECTIVE TISSUE

- Nyman (1980) when the gingival tissue reaches the root surface first after wounding, fibers parallel to tooth surface occurs.



BONE TISSUE



- Karring et al (1980) induce the periodontal tissue breakdown in beagle dog.
- Mucoperiosteal flap were raised, tooth thoroughly scaled and polished. The crown of the teeth were cut off and roots were carefully extracted and transplanted into surgically created alveolar defect.
- After 3 months of healing, connective tissue reattachment was found in apical parts of the roots, where a viable periodontal ligament was preserved whereas in coronal part where the roots had been exposed to periodontitis and the original periodontal ligament was removed, ankylosis and root resorption were dominant feature.

PERIODONTAL LIGAMENT TISSUE

- Karring, Lindhe et al (1985) disease roots were scaled and placed but not transplanted.
- They were left in situ, and covered by the soft tissue flap. Under these conditions, a considerable quantity of new connective tissue attachment was observed in the coronal portion of the roots where the original attachment apparatus had been lost as a result of ligature induced periodontitis

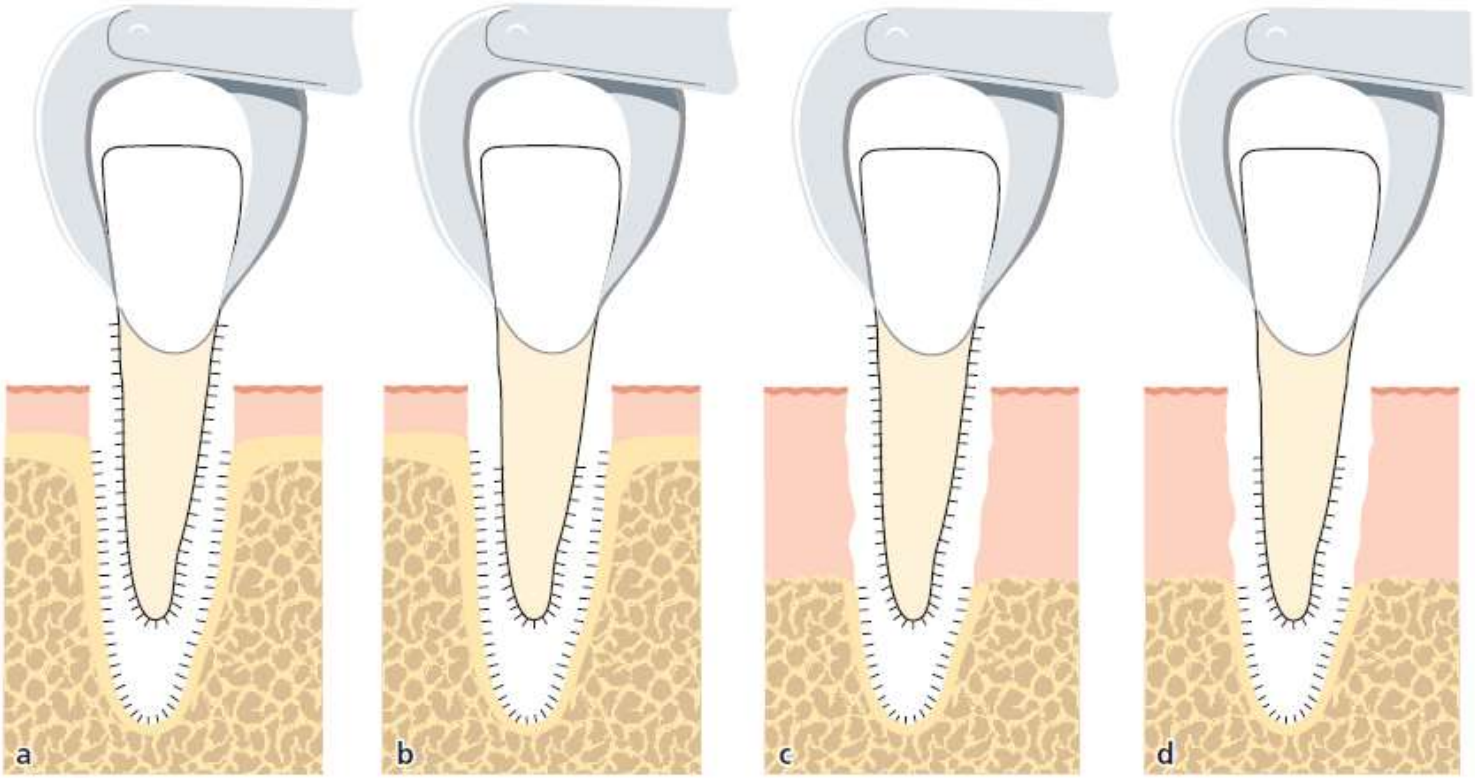


Fig. 25-4 Schematic drawing showing the four experimental conditions (a–d) under which experimental teeth were extracted and re-implanted in their own sockets.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