# Periodontology- Fifth stage

# Second semester-Periodontics with other aspect of dentistry

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# Periodontal – Orthodontic Interaction



- The key element in orthodontic management of adult patients with periodontal disease is to eliminate or reduce plaque accumulation and gingival inflammation.

- This requires great oral hygiene instruction, appliance construction, and periodontal check-up throughout the treatment.

# Orthodontic tooth movement in adults with periodontal tissue breakdown

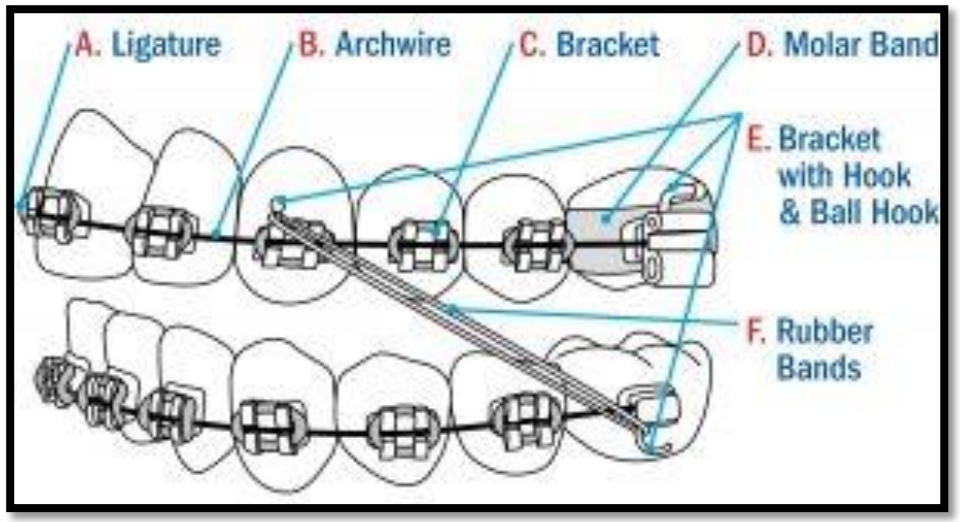


- ✓ Poorly executed orthodontic treatment in periodontal patients can certainly contribute to further periodontal tissue breakdown.
- ✓ In particular, the combination of plaque retention, orthodontic forces, and occlusal trauma may produce a more rapid destruction than would occur with inflammation alone.
- ✓ However, with properly performed treatment, extensive orthodontic tooth movement can be made in adults with a reduced but healthy periodontium without further periodontal deterioration.

# Factors enhancing plaque retention during orthodontic treatment



- Complicated appliance design
- Hooks
- Elastomeric rings associated with plaque retention more than stainless steel ligatures
- Excess bonding resin outside bracket base
- Banding of molars is associated with increased interproximal plaque accumulation than bonding.



# Orthodontic treatment considerations



- Oral hygiene instruction and motivation is made after placement of the orthodontic appliances.
- During the treatment period professional tooth cleaning by a dental hygienist or periodontist may be performed at 3-month intervals, or after regular examination updates at 6- and 12-month intervals, depending on the situation.
- Professional scaling may be indicated during active intrusion of elongated maxillary incisors, since orthodontic intrusion may shift supragingival plaque to a subgingival location
- After appliance removal, reinstruction in oral hygiene measures should be given. Otherwise, subsequent labial gingival recession may be risked due to overzealous tooth brushing, since cleaning is now easier to perform.

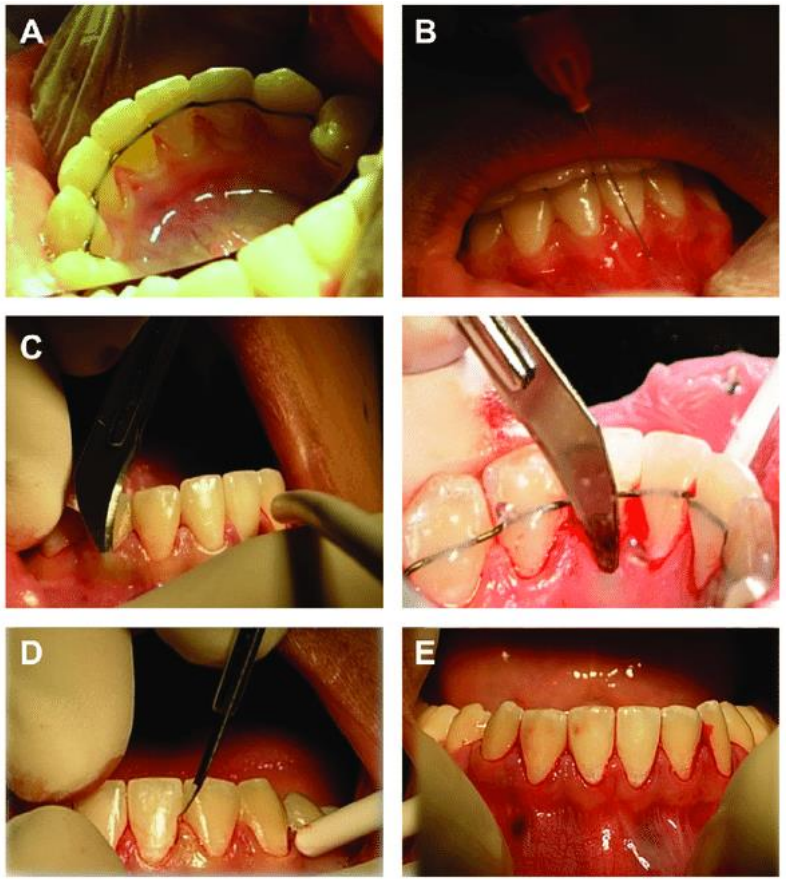
# Minor surgery associated with ortho therapy



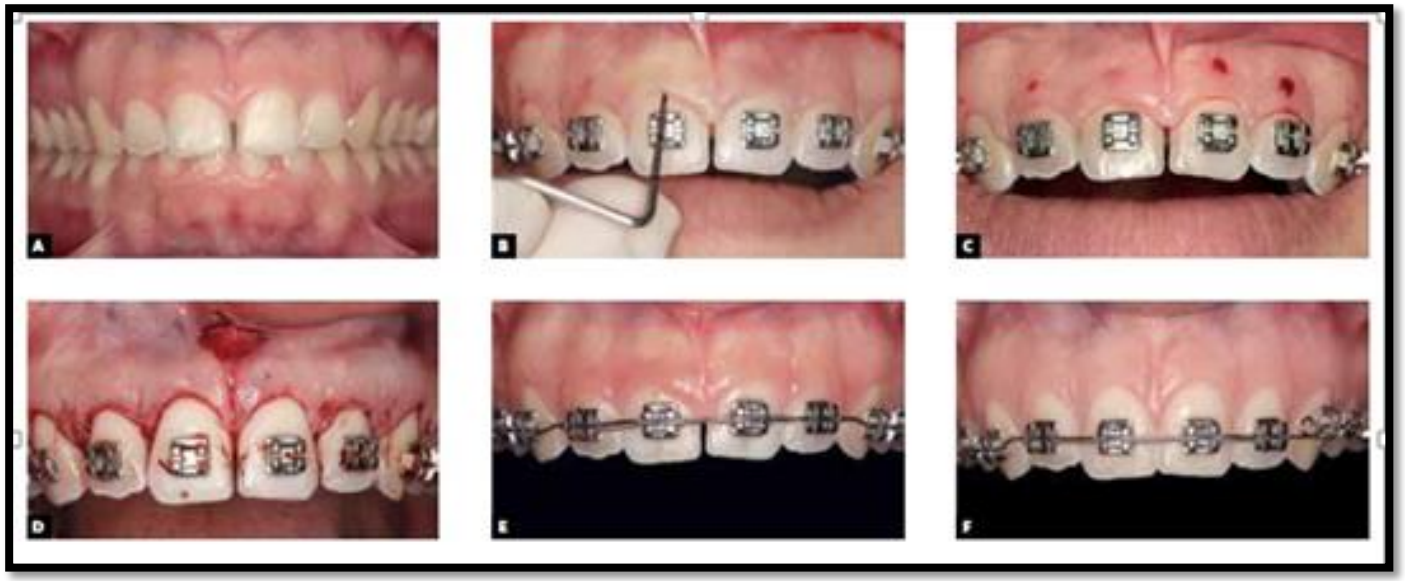
Several forms of minor periodontal surgery may be used to improved, or stabilize the results achieved by orthodontic treatment of malocclusion.

- **Frenectomy**: this type of surgery indicated in case of very hyperplastic type of frenum, with a fan like attachment, which may obstruct diastema closure so the frenum should be removed

**Fiberotomy**: include the removal of supra-crestal gingival tissues which seems to contribute to rotational relapse after orthodontic treatment.



3. **Gingivectomy**: it may be used to increase the clinical crown during or after ortho treatment and in case of gingival discrepancy is apparent.

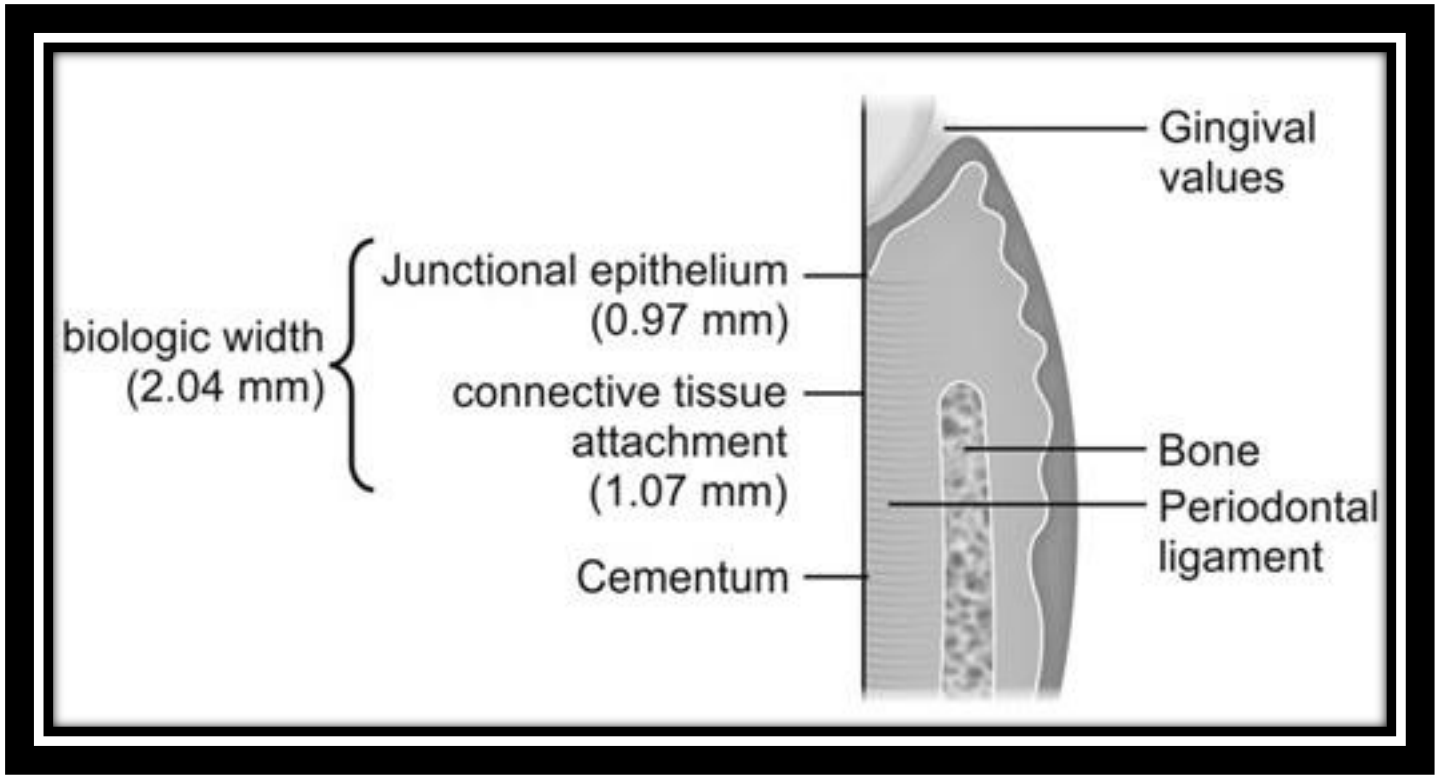


**4. Use of implants**: in orthodontic treatment, osseointegrated implant may be used. This technique is expensive and if this has to be done, close cooperation between orthodontist, periodontist, and oral surgeon is important for optimal treatment planning and implant positioning.

# Periodontal – Restorative Interaction



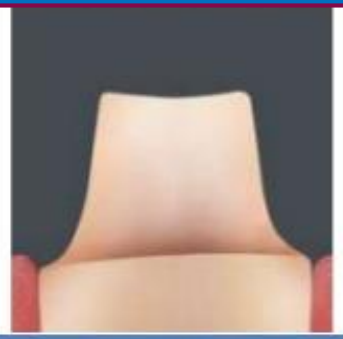
- The biological width is defined as the dimension of the soft tissue, which is attached to the portion of the tooth coronal to the crest of the alveolar bone.



# Restorative Considerations

- **Margin Placement Guidelines or Restorative Margin Location**

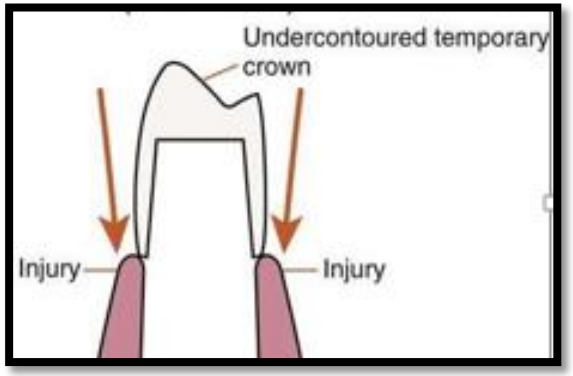
## Margin Placement


| Supragingival margin | Equigingival margins | Subgingival margin |
|---|---|---|
| Placed in non-esthetic area | At the crest of the marginal gingiva | Below the gingiva |
| Least impact on periodontium | More impact on the periodontium | Greatest biologic risk |
| | More plaque retentive | May violate gingival attachment apparatus |

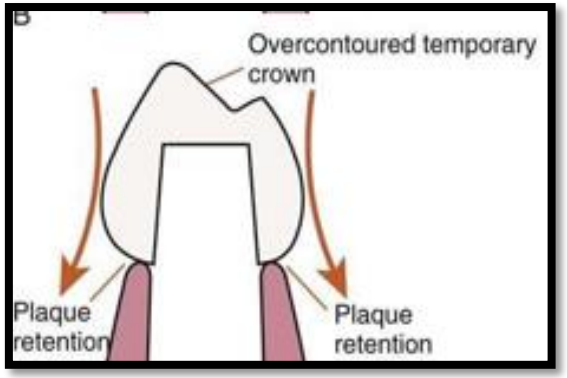
Subgingival margin should be considered a compromise, and supragingival margins are preferred. The marginal fit should be optimal because rough restorations or open margins lead to an accumulation of bacterial pathogens that are associated with inflammatory periodontal diseases.

## ❑ Crown Contour




✓ When the gingiva contacts a flat (noncontoured) tooth surface, there is a tendency to develop a thick free gingival margin

✓ Overcontouring of restorations or faulty placement of contour is a much greater hazard to periodontal health than is lack of contour, since both supra- and subgingival plaque accumulation may be enhanced by overcontoured margins.




## ❑ Interproximal Contacts and Embrasure Space

- ✓ Normally, there must be a positive contact relation mesially and distally of one tooth with another in each dental arch.

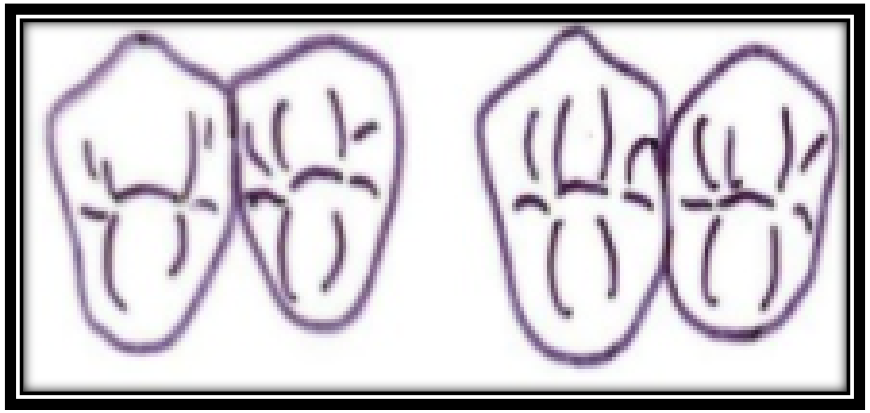
- ✓ Contact areas keep food from being trapped between the teeth and help to stabilize the dental arches by the combined anchorage of all teeth in either arch in positive contact with each other.

- ✓ In order to maintain the healthy gingiva in the interdental areas, the contact points should be located incisially or occlusally and buccally.

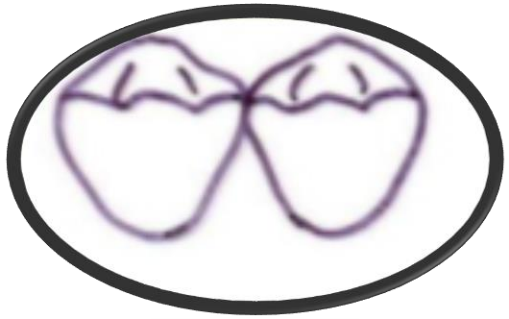
# Hazards of  contact when placed

- TOO BROAD CONTACT, BUCCO-LINGUALLY OR OCCLUSO-GINGIVALL

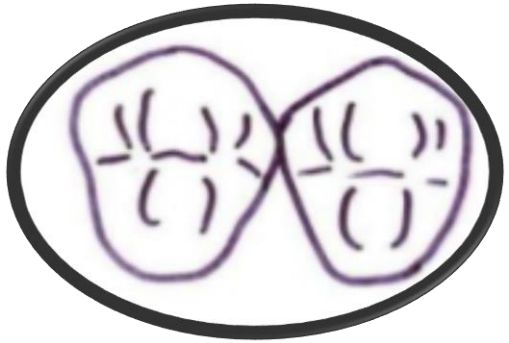
- TOO NARROW CONTACT, BUCCO-LINGUALLY OR OCCLUSO-GINGIVALLY



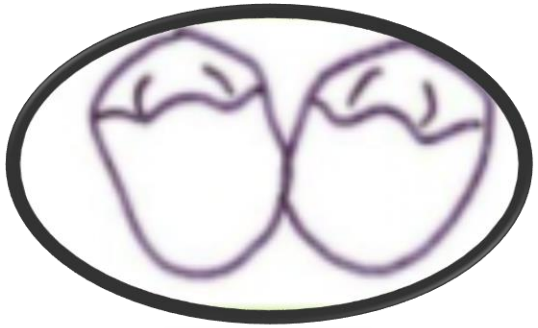
- CONTACT PLACED TOO OCCLUSALLY



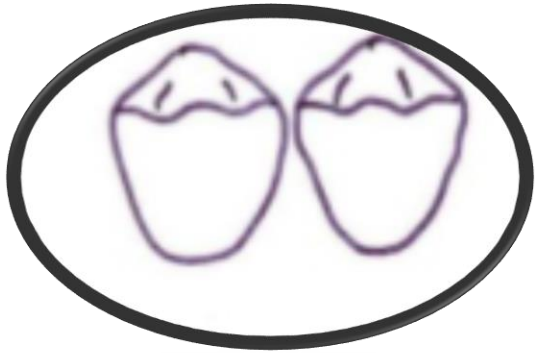
- CONTACT PLACED TOO BUCCALLY OR LINGUALLY



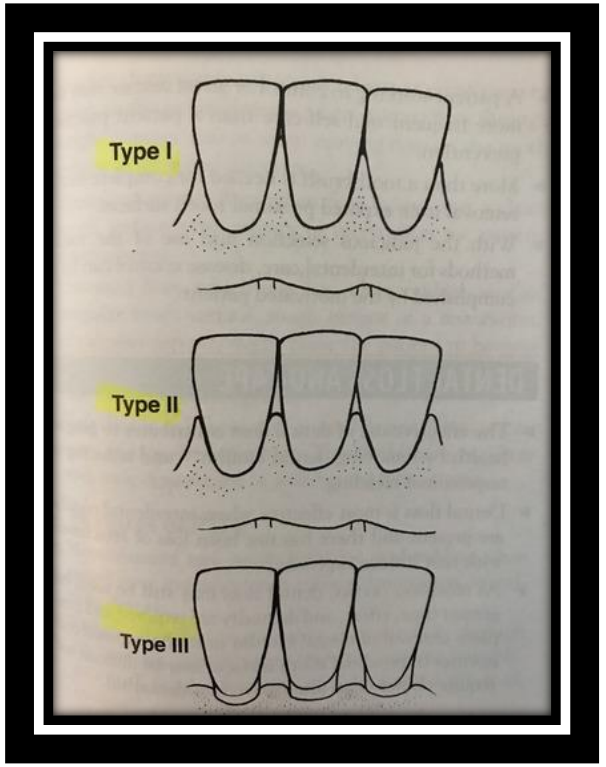
- CONTACTS PLACED TOO GINGIVALLY



- OPEN CONTACT AREAS



- Proper contact and alignment of adjoining teeth will allow proper spacing between them for the normal bulk of gingival tissue attached to the bone and teeth.
- Any change in shape or form of embrasure Change in height & form of the papilla. Food impaction, Accumulation of micro-organisms & Plaque accumulation




- Ideal Embrasure – Healthy & pointed Papilla.
- Narrow Embrasure – Inflammed Papilla.
- Too Wide Embrasure – Flattened & Blunt Papilla.

# ❑ Pontic Design

Pontic should be both esthetically and functionally replace lost teeth, and at the same time be nonirritating to the mucosa and allow effective plaque control.

✓ **Four options should be considered in evaluating pontic design:**

- ❖ Sanitary.
- ❖ Ridge lap.
- ❖ Modified ridge lap.
- ❖ Ovate designs.

| form | Pontic designs | disadvantages | advantages | Recommended location |
|---|---|---|---|---|
|  | Sanitary (hygienic) | Poor esthetics | Good access for hygiene | Posterior mandible |
|  | saddle or ridge-lap | Not amenable to oral hygiene | Esthetics | Not recommended |
|  | Modified ridge-lap | Moderately easy to clean | Good esthetics | Anterior teeth and premolars, some maxillary molars |
|  | Conical, Egg or heart shaped | Poor esthetics | Good access for oral hygiene | Molars without esthetics requirements |
|  | Ovate | Requires surgical preparation | Superior esthetics negligible food entrapment easy to clean | Maxillary incisor and premolars |

# ❑ Hypersensitivity to Dental Materials

The rougher, the surface of the restoration subgingivally, the greater the plaque accumulation and gingival inflammation. Non-Precious alloys show hypersensitive inflammatory response.

## Restorative Materials

- Whenever the material is smooth, its ability to retain plaque is less (but not less than enamel). Restorative materials are not themselves injurious to the periodontal tissues. The surface of restorations should be as smooth as possible to limit plaque accumulation.

- All restorations should be with no overhang or poor margins by using matrix retainer and good condensation.

# Sub-gingival debris

Leaving debris below the tissue during the restorative procedure can cause adverse PDL changes.

## ❑ Causes:

- Retraction cords
- Impression material
- Provisional material
- Cements - Temporary or permanent

# Prosthodontic and Periodontic interaction



- The acrylic partial denture is transient not permanent denture. It is made of acrylic which will become in intimate contact with the gingival tissues and it is documented that acrylic has a good ability for plaque retention so there will be increased in severity of gingival disease.
- Most of the forces applied by the partial denture is of lateral direction that cause PDL destruction. Thus, the new direction of knowledge now is toward the fixed bridge.
- It is recommended to use chrome-cobalt partial denture rather than acrylic one in all cases except immediate one.
- A special instruction and motivation for the patient is mandatory for proper oral hygiene.


Thank you!