The relation of periodontics with different dental displines

Ortho-perio interaction

- Plaque represents the key element in orthodontic management of adult patients with periodontal disease, which needs to be eliminated or reduced to get rid of gingival inflammation
- This will need a great oral hygiene instruction
- Appliance construction design and periodontal check up through out the treatment period

The orthodontic appliance should have the following properties

1- It must provide stable anchorage
2- It does not cause tissue irritation
3- Aesthetically acceptable
4- Less plaque accumulation (the simplicity of the design such as avoid hooks and elastomeric rings, which is more plaque attractive than steel ties.

Management of patient with orthodontic appliance:

- Oral hygiene instruction and motivation after placement of ortho-appliance
- Periodic periodontal recall, which would include:
  1- Recording the probing depth
  2- Mobility
  3- Bleeding on probing
  4- Gingival recession
  5- Bone level

- **Professional scaling** may be indicated during active treatment especially in case of intrusion of elongated maxillary incisors

- If the there is no way to excellent oral hygiene, ortho treatment should be terminated
- After appliance removal re-instruction to oral hygiene measures should be given to avoid subsequent side effects as gingival recession

Periodontal-Restorative interaction

Margins of restoration

The location of restorative margins is determined by many factors

1- Aesthetic concerns
2- Need to increase retention form
3- Refinement of pre-existing margins
4- Root caries
5- Cervical abfraction
6- Root sensitivity

Margin placement and the biological width

Supra-gingival Equi-gingival Sub-gingival

Supragingival margin

- Least impact on the periodontium
- Preparation of the tooth and finishing of the margin are easiest
- Duplication of the margins with impressions can be easily done
- Fitness and finishing of the restoration and removal of excess material are easy
- Easy way to verify the marginal integrity of the restoration

Equi-gingival margin

Retains more plaque than supra and sub gingival margins, therefore it results in greater gingival inflammation

Subgingival margin

- Greatest biological risk
- Not as accessible as **supra** or **equi** for finishing procedures

Overcontoured restoration

- 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 a lack of contour since supra- and subgingival plaque accumulation may be enhanced by overcontoured margins

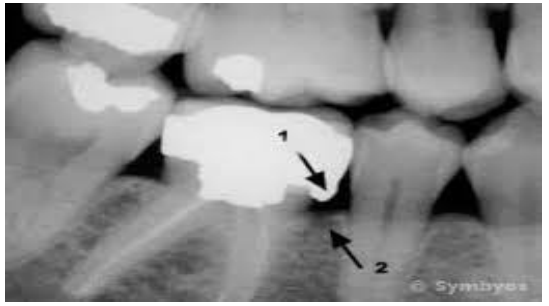
- The greater the convexity, the more difficult is to remove the plaque

- All the margins if possible would be better at supragingival especially in the posterior area

- However, for aesthetic reasons, in case of anterior region, the margins should be kept with the gingival margin

- Buccal and lingual surfaces must not be overcontoured

- The width of **the embrasure** area should be restored and matched to the size of the particular interdental cleaning device recommended to the patient



Interproximal contacts

- There should be a positive contact relation between one tooth with another in both dental arch

- The contact points should be located incisal or occlusal and buccal side

Restorative materials

Restorative material themselves are not injurious to the periodontal tissues

- The surface of restorations should be very smooth in order to limit plaque accumulation. Resins are highly polishable but have strength deficiency in addition to having porosity and wear

- Glass ceramics and zircon offer a clear advantage over any other type of restorative materials in th maintenance of the gingival health

Prosthetic and periodontic interaction

- A special instruction and motivation for the patients having prosthodontics to get a proper oral hygiene
- It is recommended to use chrome-cobalt partial denture rather than acrylic one in all cases except immediate one

Endodontic- periodontic lesions

Anatomic considerations

- There is an intimate relationship between the periodontium and pulpal tissues

- As the tooth develops and the root is formed, 3 main avenues for communication are created

  1- Apical foramen
  2- Lateral and accessory canals
  3- Dentinal tubules

Additional avenues of communication between the pulp and periodontium

- Developmental malformations, such as platogingival grooves of maxillary incisors, which are usually begin at the central fossa, cross the singulum and extend apically with varying distances
- Perforations which may result from extensive carious lesions, resorption or by operator error
- Vertical root fractures which can produce deep periodontal pocketing and localised destruction of alveolar bone. The fracture side provides a portal of entry for irritants for root canal to the PDL

Differential diagnosis of endon-perio lesions

Some classification system of this relation:

- Primary endodontic disease
- Primary periodontal disease
- Primary endo with secondary perio
- Primary perio with secondary endo
- True combined lesions

Primary endodontic disease

- Endodontic lesions resorb the bone in an apical and destroy and lateral directions the attachment apparatus adjacent to the involved tooth

- It is widely possible for a chronic periapical lesion to drain through the PDL and sometimes to the gingival sulcus. In this case the clinical presentations mimic the presence of periodontal abscess or a deep periodontal pocket

- For diagnostic purposes, it is imperative trace the sinus tract by inserting a gutta-percha cone and exposing one or more radiographic x-rays to determine the origin of the lesion

- The sinus tract of endodontic origin is readily probed down to the tooth apex, where no increased probing depth would be otherwise existing around the tooth

- Primary endodontic disease will heal following a proper root canal treatment

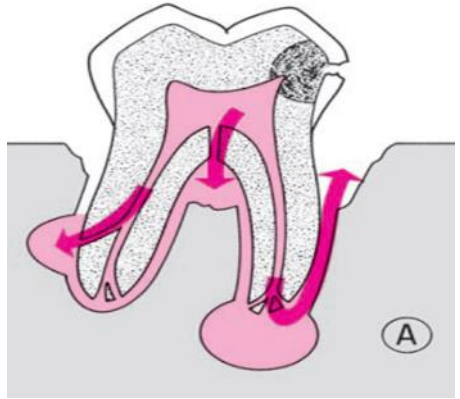
Primary endo with secondary perio

- Starts by dental caries, causing pulpitis and then flare up to periodontal region

- This may happen with the time, as a suppuration of primary endodontic disease when remains untreated and may become secondarily involved with periodontal breakdown

- Plaque forms at the gingival margin of the sinus tract and leads to a plaque-induced periodontitis in the area

- The treatment and prognosis are now different than teeth, having endo or perio disease



- The tooth here required both endodontic and periodontal treatments

- In case the endo treatment is adequate, the prognosis depends on the severity of the plaque-induced periodontitis and the efficacy of perio treatment

Primary perio with secondary endo

- Caused by periodontal pathogens

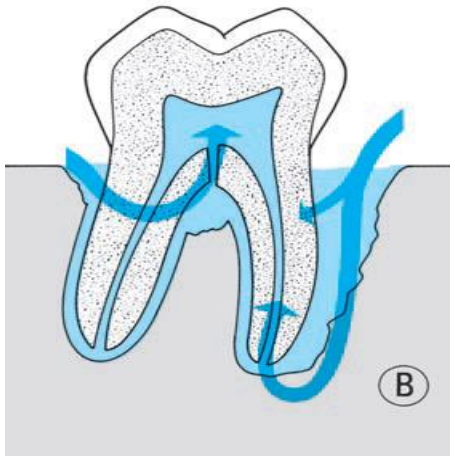
- It is a result of the progression of chronic periodontitis apically along the root surface

- Pulp tests yield a clinically **normal pulpal** reaction (vital pulp)

- The prognosis depends on the stage of periodontal disease

- The apical progression of the periodontal pocket continues until the apical tissues are involved

- The pulp may become necrotic as a result of infection, entering via the apical foramen



- In single rooted teeth the prognosis is usually poor, as the periodontal breakdown is very severe, which leads to tooth extraction

- In molar teeth, the prognosis may be better, since not all the roots may suffer from the same loss of periodontal support. Root resection may be considered as an alternative treatment

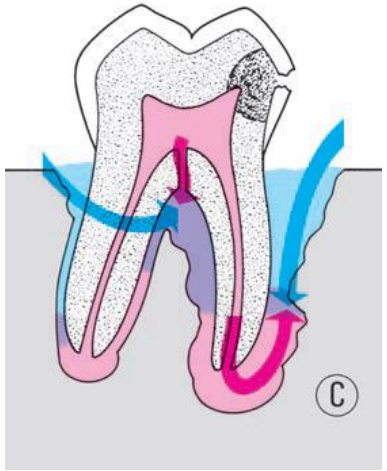
- In unusual cases, the treatment of periodontal disease (when removing the necrotic cement), lateral canals and dentinal tubules may be opened to the oral environment by scaling, root planning and surgical flap procedures

True combined disease

- It occurs less frequent than other endo-perio problems

- It is formed when an endodontic disease progressing coronally and join with an infected periodontal pocket, progressing apically

- The degree of attachment loss in this type of lesion is large and the prognosis is poor, particularly for single-rooted teeth



Diagnosis

- A thorough clinical and radiographical examination is mandatory for developing a proper diagnosis

- Data collection must include:
  1- Periapical radiographs, panoramic and cone beam computed tomography (CBCT)
  2- Pulp vitality test
  3- Percussion
  4- Palpation
  5- Pocket probing
  6- Sinus tracking
  7- Cracked tooth testing