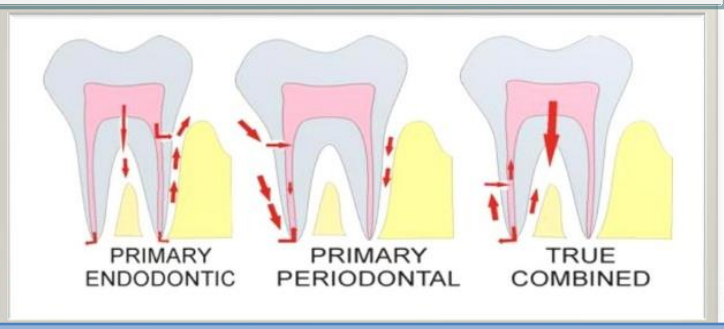
Al-Mustansiria University
College of Dentistry
Endodontics lectures
5th year

Perio-Endo lesion

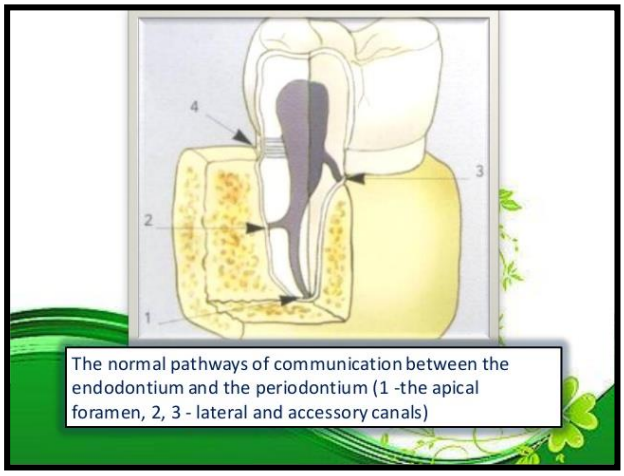
Lec.20



Prof. Dr. Iman Mohammed

THE HEALTH of the periodontium is important to the proper function of a tooth. The periodontium includes the gingiva, cementum, periodontal ligament (PDL), and alveolar bone. Disease that affects the periodontium usually is a result of the direct extension of pulpal disease or due to apical progression of periodontal disease. When the pulp becomes infected, the disease can progress beyond the apical foramen and inflame the PDL. The inflammatory process results in replacement of the periodontal ligament by inflammatory tissue. Without proper treatment, the inflammatory response can cause resorption of the alveolar bone, cementum, and dentine.

Besides going through the apical foramen, pulpal disease can progress through lateral canals. Lateral canals are seen mostly in the apical third of the root and in the furcation area of molars. Pulp disease may cause an inflammatory response of the PDL at the opening of lateral canals, resulting in a lateral radiolucency on the root. The inflammatory response at the lateral canals may extend along the lateral aspects of the root and ultimately involve the furcation or crestal area of the attachment apparatus. The effect of periodontal disease on the pulp is not as clear-cut as the effect of pulpal disease on the periodontium. Periodontal inflammation may exert a direct effect on the pulp through the same lateral canal or apical foramen pathways.



The normal pathways of communication between the endodontium and the periodontium (1 -the apical foramen, 2, 3 - lateral and accessory canals)

The endodontium and periodontium are closely related and diseases of one tissue may lead to secondary diseases in the other. The differential diagnosis of endodontic and periodontal diseases can sometimes be difficult but it is of vital importance to make a correct diagnosis so that the appropriate treatment can be provided. The problem that faces the clinician treating perio-endo lesion is to assess the extent of the disease and to decide whether the tooth or the periodontium is the primary cause. Only by carrying out a careful examination can the operator judge the prognosis and plan the

treatment. There are several ways in which perio-endo lesions can be classified; the one given below is a slight modification of the Simon, Glick and Frank classification.

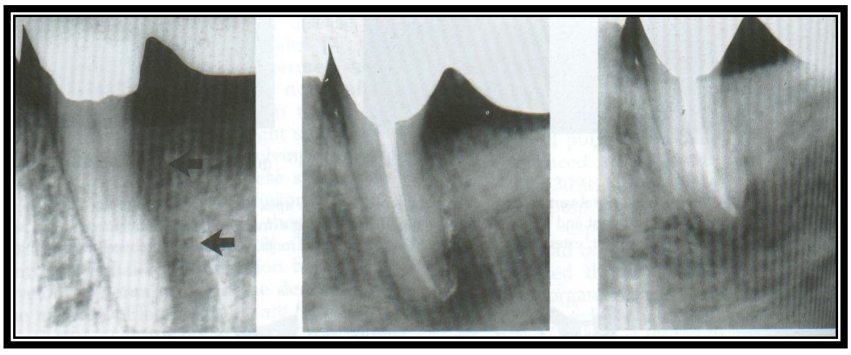
Classification of perio-endo lesions

Class 1: Primary endodontic draining through the periodontal ligament.

Class 1 lesions present as an isolated periodontal pocket or swelling beside the tooth. The patient rarely complains of pain, although there will often be a history of an acute episode.

The cause of the pocket is a necrotic pulp draining through the periodontal ligament the furcation area of both premolar and molar teeth may be involved.

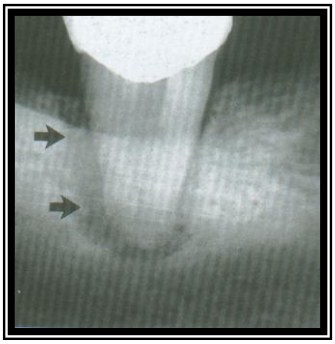
Class 2: Primary endodontic lesion with secondary periodontal involvement. If left untreated, the primary lesion may become secondarily involved with periodontal breakdown. A probe may encounter plaque or calculus in the pocket. The lesion will resolve partially with root canal treatment but complete repair will involve periodontal therapy.



In general primary endodontic disease, an acute exacerbation of a chronic apical lesion that has been caused by a necrotic pulp may result in temporary loss of alveolar bone, which can provide an avenue of drainage through the PDL into the gingival sulcus. Normally, this drainage is either not present or is seen as a sinus tract appearing in the attached gingiva. Radiographically, this condition may present as a periodontal problem, demonstrating severe bone loss. A so-called “pseudopocket” may form, with probing depths to or even past the apex of a root. The furcation of a multi-

rooted tooth may also be seen to be involved. Diagnostically, pulp testing must be performed, specifically with thermal stimulation. A “no response” is indicative of a non-vital pulp and is diagnostic for endodontic involvement. After establishing the reason the pulp became non-vital, conventional root canal therapy is performed. Removal of bacteria, bacterial by-products, materials from the root canal system, followed by proper obturation, allows surrounding bone to recover and heal normally, with resolution of all periodontal pockets.

Class 3: Primary periodontal lesions.



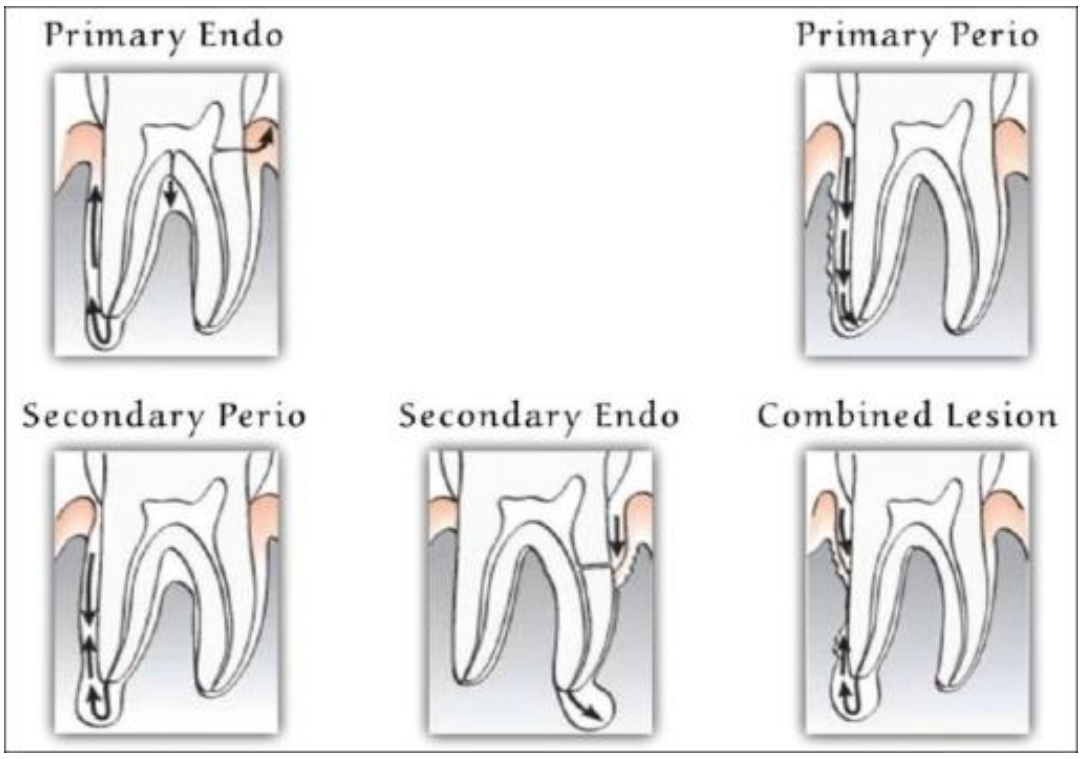
Class 3 lesions are caused by periodontal disease gradually spreading along the root surface. The tooth will remain vital; although in time there will be some degenerative pulpal changes. The tooth may become mobile as the attachment apparatus and surrounding bone is destroyed, leaving deep periodontal pocketing. There is usually periodontal disease involving other areas in the mouth, except where there is a local predisposing factor such as a defective restoration, poor proximal contact or a developmental groove.

Class 4: Primary periodontal lesions with secondary endodontic involvement.

A Class 3 lesion prognosis to a Class 4 lesion with the involvement of the main apical foramina or possibly a large lateral canal. It is sometimes difficult to decide whether the lesion is primary endodontic with secondary periodontal involvement (Class 2), or primary periodontal with secondary endodontic involvement (Class 4), particularly in the late stage. If there is any doubt, the necrotic pulp should be removed; any improvement indicates Class 2.

As opposed to endodontic disease, periodontitis is normally considered to be a chronic process. (The exception, of course, is an acute periodontal abscess caused by the introduction of a foreign body. In that case alone, once the offending material is removed, the periodontium recovers.) Clinical examination usually reveals multiple areas of bone loss, which can be mild, moderate, or severe, and either generalized or localized. Pocket depths can vary widely and are not localized to one specific area of any

given tooth or teeth. True lesions of periodontal origin do not involve the apex of the roots, as may be found in lesions of endodontic origin. While endodontic problems are immediately resolved with successful root canal treatment, successful periodontal therapy is ongoing for the life of the patient and involves care from both patient and provider. Pulp testing a periodontally-compromised tooth suspected of endodontic involvement that returns a positive response immediately rules out a lesion of endodontic origin. Since lesions of endodontic origin only develop when a non-vital pulp is present, any vitality demonstrated from an involved tooth indicates that root canal therapy would not change the prognosis of the periodontal situation. However, surgical intervention and bone grafting can result in satisfactory healing of the periodontium.



Prognosis

The prognosis of each classification has been discussed along with aetiology. To assist in their comparative understanding, each will be repaired in this summary:

Primary endodontic lesion

Treatment – Root canal treatment.
Prognosis – Good.

Primary periodontal lesion

Treatment – Periodontal treatment.
Prognosis – Depends on periodontal treatment and patient response.

Primary endodontic lesion and secondary periodontal involvement

Primary periodontal lesion and secondary endodontic involvement

Treatment – Endodontic and Periodontal treatment.
Prognosis – Depends on periodontal treatment and patient response

Root removal and root canal treatment

To prevent further destruction of the periodontium in multi-rooted teeth, it may be necessary to remove one or occasionally two roots. As this treatment will involve root canal therapy and periodontal surgery, the operator must consider the more obvious course of treatment, which is to extract the tooth and provide some form of fixed prosthesis. As a guide, following factors should be considered before root resection:-

1-Functional tooth: The tooth should be a functional member of the dentition.

2- Root filling: It should be possible to provide root canal treatment which has a good prognosis. In other words the tooth canals must be fully negotiable.

3- Anatomy: The roots should be separate with some interradicular bone so that the removal of one root will not damage the remaining root(s). Access to the tooth must be sufficient to allow the correct angulations of the handpiece to remove the root. A small mouth may contra-indicate the procedure.

4- Restorable: Sufficient tooth structure must remain to allow the tooth to be restored. The finishing line of the restoration must be envisaged to ensure that will be cleanable by the patient.

5-Patient suitability. The patient must be a suitable candidate for the lengthy operative procedures and be able to maintain a high standard of oral cleanliness around the sectioned tooth.