**PERIODONTAL DISEASE**

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Introduction

* Periodontal disease refers to a group of diseases that affect the tissues around teeth.
* Periodontal disease may range from a superficial inflammation of the gingiva to the destruction of supporting bone and the periodontal ligament.
* The alveolar crest appears indistinct, and bone loss is seen.
* Periodontal disease may result in severe destruction of bone and loss of teeth.

**Interpretation of Periodontal Disease**

* The dental radiographer must be familiar with the appearance of periodontal disease.
* Images should be evaluated for bone loss and examined for other predisposing factors that may contribute to periodontal disease.
* The amount of bone loss can be estimated as the difference between the physiologic bone level and the height of remaining bone.
* Bone loss can be described in terms of the pattern, distribution, and severity of loss.

**Bone Loss**

***Pattern***

* The pattern of bone loss viewed on a dental image can be described as horizontal or vertical.
* The CEJs of adjacent teeth can be used as a plane of reference in determining the pattern of bone loss present.
* With horizontal bone loss, the bone loss occurs in a plane parallel to the CEJs of adjacent.
* With vertical bone loss (also known as angular bone loss), the bone loss does not occur in a plane parallel to the CEJs of adjacent teeth.



***Distribution***

***Localized***

Localized bone loss occurs in isolated areas, with less than 30% of the sites involved.

***Generalized***

Bone loss occurs evenly throughout the dental arches, with more than 30% of the sites involved

***Severity***

* Bone loss viewed on a dental image can be classified as slight, moderate, or severe.
* The severity of bone loss is measured by the clinical attachment loss (CAL).
* The CAL is a measurement of the distance in millimeters from the CEJ to the base of the sulcus or periodontal pocket; CAL is measured by the calibrated periodontal probe.
* Slight bone loss: 2 to 4 mm
* Moderate bone loss: 4 to 6 mm
* Severe bone loss: 6 mm or greater

**Normal Anatomy**

* Alveolar crest corticated
* 1-1.5 mm from crest to CEJ
* Parallel to line between CEJ’s
* Crest is pointed anteriorly and flat posterioly

**Gingivitis**

* No bone loss
* No radiographic signs

Mild Adult Periodontitis

* The bone loss (mild or slight periodontitis) is mild crestal changes.
* The lamina dura becomes unclear and fuzzy and no longer appears to be a continuous radiopaque line.
* Horizontal bone loss, with the alveolar bone level approximately 3 to 4 mm apical to the CEJ.



Moderate Adult Periodontitis

* Horizontal or vertical bone loss, the distribution of the bone loss may be localized or generalized.
* The alveolar bone level is approximately 4 to 6 mm apical to the CEJs of adjacent teeth.
* Furcation involvement, or the extension of periodontal disease between the roots of multirooted teeth, When bone in the furcation area is destroyed, a radiolucent area is evident on the dental image.



Severe Adult Periodontitis

* The pattern of bone loss may be horizontal or vertical, and the alveolar bone level is 6 mm or greater from the CEJ.
* Furcation involvement is readily viewed on posterior images.
* Severe mobility



**Contributing Factors**

* Occlusal trauma
* Open contacts
* Overhangs, poor contours
* Calculus
* Post-extraction defects
* Systemic involvement (diabetes, blood disorders, hormonal changes, stress, AIDS)

**Calculus**

* Calculus is a stone like concretion that forms on the crowns and roots of teeth due to the calcification of bacterial plaque.
* Calculus appears radiopaque on a dental image. Although calculus may have a variety of appearances on dental images, it most often appears as pointed or irregular radiopaque projections extending from proximal root surfaces.
* Calculus may also appear as a ring like radiopacity encircling the cervical portion of a tooth, a nodular radiopaque projection, or a smooth radiopacity on a root surface.

**Defective Restorations**

* Faulty dental restorations act as potential food traps and lead to the accumulation of food debris and bacterial deposits.
* Dental images allow the dental professional to identify restorations with open or loose contacts, poor contours uneven marginal ridges, overhangs, and inadequate margins, all of which may contribute to periodontal disease.

