D H 305C: DENTAL RADIOGRAPHY III

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	2
Hours:	2 lecture per week (24 total per quarter)
Advisory:	Not open to students with credit in D H 68A.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU
Grade Type:	Letter Grade Only
Repeatability:	Not Repeatable

Student Learning Outcomes

- Students will be able to critically evaluate the presence or absence of caries using computerized contrast discrimination features on enamel and dentin against embrasure space.
- Students will be able to recognize and describe periodontal bone loss on a dental bitewing and periapical radiograph.

Description

The third in a series of dental radiology courses. Interpretation of intraoral and panoramic radiographs. Emphasis on normal, atypical and pathological structures. Identification of dental anomalies, dental materials and the interpretation of disease. Analysis of the progression of dental caries, periodontal disease, and periapical lesions. Intended for students in the Dental Hygiene Baccalaureate Degree Program; enrollment is limited to students accepted in the program.

Course Objectives

The student will be able to:
A. Analyze the appearances of normal radiographic landmarks, artifacts and shadows of the dentition and skull
B. Perform a radiographic interpretation of dental caries using the BWS
C. Analyze and describe the radiographic appearance temporary and permanent restorative materials used in dentistry
D. Identify and describe variations that can occur with normal pulp, periapical and periodontal tissues as a result of inflammation or neoplastic processes
E. Analyze and recognize common anatomic structures on a panoramic radiograph that can indicate child, teenage and mature dentition
F. Identify and describe the radiographic appearance of atypical root morphology
G. Recognize and correctly interpret dental caries on a radiograph
H. Recognize and correctly interpret periodontal bone loss on a radiograph
I. Identify technical and operator errors that occur with panoramic radiography

Course Content

A. Radiographic features of healthy teeth and periodontium
1. Enamel
2. Dentin
3. Pulp
4. Periodontal ligament space
5. Alveolar crest
6. Lamina dura
B. Bitewing radiography and dental caries
1. Principles and techniques of bitewing radiographs
2. Bitewing film holders
3. Bitewing horizontal and vertical angulations
4. Patient positioning
5. Equipment preparation
6. Film placement for premolar and molar exposures
7. Opening contacts
8. Radiographic examination of dental decay
9. Interproximal incipient, moderate and severe caries
10. Radiographic appearance of mesial/distal class II caries
11. Appearance of radiographic burnout
12. Class I occlusal, pit and fissure caries
13. Evaluation of overhanging and undercut restorations
C. Radiographic appearance of dental materials
1. Amalgam
2. Gold crowns/bridges
3. Porcelain bonded to metal crowns
4. Posts and pins
5. Single tooth implants and abutments
6. Composites/resins
7. Stainless steel crowns
8. Root canal materials and files
9. Cylinder, screw and supraperiosteal implants
D. Radiographic periapical lesions
1. Apical periodontitis
2. Apical abscess with and without fistula
3. Apical granuloma
4. Apical cyst
5. Osteomyelitis
a. Apical condensing osteitis
6. Trabeculation within radiolucent lesions
7. Cellular pathway of apical dental infections
8. Role of PMN's in host defense
9. Destruction of periodontal ligament fibers
E. Panoramic anatomical landmarks
1. Lingual foramen
2. Mental foramen
3. Mandibular canal
4. Submandibular gland fossa
5. Inferior border of the mandible
6. Internal oblique ridge
7. External oblique ridge
8. Genial tubercles
9. Mental ridge
10. Mylohyoid ridge
11. Coronoid process
12. Condyle
13. Median palatal suture
14. Incisive foramen
15. Lateral fossa
16. Maxillary sinus
17. Nasal cavity
18. Nasal septum
19. Anterior nasal spine
20. Zygomatic process of the temporal bone

21. Zygoma of the maxilla
22. Inverted 'y' septum
F. Radiographic evidence of atypical root morphology
1. Concavities
2. Furcations
3. Fusion and concrescence
4. Accessory roots
5. Hypercementosis
6. Cervical enamel projections
7. Enamel pearls
8. Dilaceration
G. Radiographic evidence of dental caries
1. Root caries
2. Recurrent caries
3. Incipient caries
4. Advanced caries
5. Severe caries
6. Occlusal caries
7. Interproximal caries
8. Demineralization process of enamel rods
9. Anisotropic nature of structural strength
10. Destruction of the organic dentin matrix
11. Dentinal tubules
12. Smear layer
13. Stannous fluoride benefits
14. Patient risk factors
a. Orthodontics
b. Salivary function
c. Xerostomia medications
d. Fermentable carbohydrates
e. Absence of fluoride
f. Hydroxyapatite crystal failure
g. Mother-child transmission
h. Snack frequency
i. Xylitol gum
15. International Caries Detection and Assessment System (ICDAS)
16. Progressive lesions up to DEJ
17. Influence of kVp on caries detection
18. Radiographic evidence of remineralization process
H. Radiographic evidence of periodontal disease
1. Normal radiographic appearance of the periodontium
2. Bone loss in the horizontal dimension
3. Bone loss in the vertical dimension
4. Bone loss of the cortical plate
5. Correlation of radiographic bone loss and clinical periodontal probe readings
6. 1-wall, 2-wall, 3-wall periodontal defects
7. Subgingival antibiotics for bone loss
I. Digital panoramic radiography
1. Reduction in radiation absorption
2. Indications
3. Patient safety features
4. Patient preparation and positioning
5. Film, plates, direct sensors
6. Static
7. Understanding the sharply depicted planes
8. Errors in panoramic radiography
a. Midsaggital error and results
b. Frankfort error and results
c. Anterior/posterior error and results
9. Ghost images
10. Excessive curve of Spee
11. Anatomical air spaces

Lab Content

Not applicable.

Special Facilities and/or Equipment

Multimedia classroom

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

Midterm
Final written exam
Radiographic interpretation exercises
Slide quizzes

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

Lecture
Discussion
Collaborative learning exercises

Representative Text(s) and Other Materials

Iannucci and Howerton. Dental Radiography, Principles and Techniques, 5th ed.. 2017.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

A. Students will create a grid to sort information into appropriate conceptual categories. This is done to have students notice and respond to intraoral features on processed films and to analyze and evaluate the content of what is read in each film. Analysis includes normal, atypical and pathological findings.

Discipline(s)

Dental Technology