

SYLLABUS

COURSE: DHCT 2206 General Oral Pathology
SEMESTER: Spring
CREDIT HOURS: 3.0

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GOAL

The purpose of this course is to provide the dental hygiene student a broad understanding of the general principles of pathology and to relate these principles to the specific disease that affects oral hard and soft tissue.

OBJECTIVES

I. CELL INJURY, CELL ADAPTATION, AND CELL DEATH

1. Identify the major components of a normal cell and briefly describe the function of each.
2. Define the terms “cell injury” and “cell death”.
3. Describe the causes and mechanisms of cell injury and cell death.
4. Identify reversible changes associated with cell injury and briefly describe their microscopic features.
5. Identify irreversible changes associated with cell injury and briefly describe their microscopic features.
6. Identify the major types of tissue necrosis and briefly describe their gross and microscopic features.
7. Identify the mechanisms by which cells adapt to changes in their environment and describe a specific example of each of these mechanisms.

II. INFLAMMATION AND REPAIR

1. Identify the major causes of the acute inflammatory response.
2. Identify the cardinal signs of inflammation and briefly describe the cause of each.
3. Describe the vascular changes associated with acute inflammation.
4. Describe the process of exudate formation and identify the components of exudate.
5. Identify the blood cells associated with acute inflammation and briefly describe their function.
6. Identify the principle chemical mediators of acute inflammation and briefly describe their action.
7. Identify the consequences of acute inflammation.
8. List and describe the five cardinal signs of inflammation.
9. For each of the cardinal signs of inflammation, describe the underlying microscopic events and explain the relationship of these underlying events to the clinical appearance.
10. Define and distinguish between the terms “tissue regeneration” and “tissue repair”.

III. FLUID AND HEMODYNAMIC DERANGEMENTS

1. Describe the process of edema formation and identify the causes and effects.
2. Describe the process of hyperemia and identify its causes and consequences.

3. Describe the process of congestion and identify its causes and effects.
4. Describe the process of hemorrhage and identify its causes and effects.
5. Describe the process of thrombus formation and identify the causes and effects of thrombi.
6. Describe the process of embolus formation and identify the causes and effects of emboli.
7. Describe the process of infarction.
8. Describe shock and identify its cause and effect.

IV. GENETIC AND NUTRITIONAL DISEASE

1. Differentiate hereditary disease from congenital disease.
2. Identify the structural unit of the cell which carries the individual's inherited traits.
3. Identify the functional unit of the chromosome.
4. State the normal male and female karyotype.
5. Define and compare the terms "autosomal dominant" and "autosomal recessive".
6. State the most common autosomal mutation, its karyotype and relationship the maternal age.
7. State the three most common sex chromosome disorders and their karyotypes.
8. Classify the three major types of single gene disorders and their inheritance patterns.
9. Differentiate the two major types of protein-calorie malnutrition.
10. State the disease and major manifestation of deficiencies of
 - a. vitamin A
 - b. vitamin D
 - c. vitamin K
 - d. vitamin B₁ (thiamine)
 - e. vitamin B₂ (riboflavin)
 - f. niacin
 - g. vitamin B₁₂
 - h. folic acid
 - i. vitamin C

V. IMMUNOLOGY AND RELATED DISORDERS

1. Define an antigen and antibody.
2. State the major cell in cell-mediated immunity.
3. State the major cell involved in humoral immunity.
4. State the five major classes of immunoglobulins.

5. State the immunoglobulin which crosses the placenta.
6. State the immunoglobulin which is found in the saliva.
7. Compare the speed and strength of primary and secondary immune response.
8. State the four major types of hypersensitivity and give an example of a disorder caused by each type.
9. State the etiology of autoimmune disease.
10. State two requirements for successful tissue transplantation.
11. State three major types of congenital immunodeficiency and the classification of infections found in each type.
12. State the etiologic agent of the Acquired Immune Deficiency Syndrome (AIDS).
13. Describe why the Human Immunodeficiency Virus causes AIDS.
14. State the major cause of death in AIDS.
15. State the major malignant neoplasm in AIDS.
16. State the major oral and head and neck manifestations of AIDS.

VI. NEOPLASIA

1. Define: tumor, neoplasm, neoplasia, and cancer.
2. Distinguish between hypertrophy and hyperplasia and describe an example of each.
3. Define and give examples of atrophy.
4. Distinguish between metaplasia, dysplasia, and anaplasia.
5. List three clinical characteristics of benign neoplasms.
6. List three microscopic characteristics of benign neoplasms.
7. List three clinical characteristics of malignant neoplasms.
8. List three microscopic characteristics of malignant neoplasms.
9. Define metastasis and list three routes by which metastasis can occur.
10. Name the benign and malignant neoplasms arising in the following tissues:
 - a. fibrous tissue
 - b. adipose tissue
 - c. bone
 - d. cartilage
 - e. squamous epithelium
 - f. glandular epithelium
 - g. skeletal muscle
 - h. smooth muscle

11. Describe how diet may be related to cancer.
12. Define cachexia, sarcoma, carcinoma, and adenocarcinoma.
13. Distinguish between grading and staging of malignant neoplasms.
14. Identify the most common malignant neoplasms found in the oral cavity.
15. Identify the most common cancer in males.
16. Identify the most common cancer in females.
17. List three chemicals or materials which are cancer-causing and name the cancer associated with each.
18. List three factors (other than chemicals) that are thought to be associated with each of those listed in objective 17.
19. Name three types of cancer treatment.

VII. PRINCIPLES OF DIAGNOSIS

1. List the major components of a complete history and physical examination relative to dentistry.
2. State the legal and ethical limitations of diagnosis as they pertain to dental hygiene.
3. Define "differential diagnosis".
4. List and define the common descriptive adjectives and nouns used to clinically describe lesions.
5. Compare subjective and objective information.

VIII. DIAGNOSTIC TECHNIQUES

1. State the role of biopsy in the diagnostic process.
2. List the contraindications for biopsy.
3. Compare excisional and incisional biopsy.
4. List the uses of frozen section biopsies.
5. List the uses of exfoliative cytology.
6. State the diagnostic limitations of exfoliative cytology.

IX. INFLAMMATORY HYPERPLASIA

1. Define inflammatory hyperplasia.
2. List the components of inflammatory hyperplasia.
3. Describe the relationship of inflammatory hyperplasia to the process of inflammation.

4. Describe the general clinical features of inflammatory hyperplasia.
5. Describe the clinical appearance, microscopic features, etiology and treatment of the specific inflammatory hyperplasias presented.

X. SALIVARY GLAND PATHOLOGY

1. Describe the usual location, cause, and tissue reaction to a mucocele and a ranula.
2. Describe the radiologic appearance, usual presentation and sequela of a sialolith.
3. Describe the usual location, usual age of occurrence and treatment of a pleomorphic adenoma.
4. Describe the clinical features of the salivary gland diseases presented in the handout as printed in the booklet.

XI. BONE PATHOLOGY

1. State the major clinical features of osteogenesis imperfecta and its relationship to dentinogenesis imperfecta.
2. State the major clinical and radiologic features of cleidocranial dysplasia.
3. State the major clinical features of Down's syndrome.
4. State the major clinical and radiologic features of Paget's disease.
5. State the major clinical and radiologic features of fibrous dysplasia.
6. State the major clinical and radiologic features of cherubism.

XII. CYSTS OF ODONTOGENIC AND NON-ODONTOGENIC ORIGIN

1. Define the term "cyst" and classify cysts of the oral regions as odontogenic and non-odontogenic.
2. Describe the clinical and radiologic features of the radicular cyst (periapical cyst) and state its relationship to the periapical granuloma.
3. Recognize the etiology, clinical features, radiologic findings, and treatment with each of the following odontogenic cysts:
 - a. primordial cyst
 - b. dentigerous cyst
 - c. eruption cyst
 - d. residual cyst
 - e. lateral periodontal cyst
 - f. gingival cyst
 - g. odontogenic keratocyst
4. Recognize the etiology, clinical features, radiographic features (when applicable), and treatment for all of the following non-odontogenic cysts:
 - a. nasopalatine cyst
 - b. median palatine cyst

- c. globulomaxillary cyst
- d. nasoalveolar cyst
- e. median mandibular cyst
- f. lymphoepithelial cyst (branchial cleft cyst)
- g. dermoid cyst
- h. thyroglossal duct cyst

XIII. ODONTOGENIC NEOPLASIA

1. Describe the clinical features, radiologic appearance, recurrence rate, and treatment of the following odontogenic tumors:
 - a. ameloblastoma
 - b. Pindborg tumor
 - c. odontogenic myxoma
 - d. periapical cemental dysplasia
 - e. cementifying fibroma
 - f. benign cementoblastoma
 - g. odontoma

XIV. BENIGN NEOPLASMS

1. Define benign neoplasm.
2. List the features for distinguishing between benign and malignant neoplasms.
3. Describe how benign neoplasms are classified.
4. Describe how benign neoplasms are named.
5. Describe the clinical appearance, microscopic features, etiology, and treatment of the specific benign neoplasms presented.

XV. MALIGNANT NEOPLASMS

1. Define and differentiate the following terms:
 - a. tumor
 - b. neoplasm
 - c. cancer
 - d. carcinoma
 - e. sarcoma
 - f. cachexia
 - g. metastasis
 - h. carcinogen
2. Discuss the paradox of oral cancer.
3. Identify the most common type of oral cancer.
4. Recognize and list several other types of oral cancer.
5. Recall the frequency of occurrence of oral cancer.
6. List the most common sites of oral cancer (in descending order of frequency).

7. Recall the usual age range of an oral cancer patient.
8. Discuss two local etiologic factors in oral cancer.
9. Discuss two systemic etiologic factors in oral cancer.
10. Define "grading" of squamous cell carcinoma.
11. Define "staging" of oral squamous cell carcinoma.
12. Recognize the TNM staging system.
13. Define and differentiate the following terms:
 - a. hyperkeratosis
 - b. dyskeratosis
 - c. dysplasia
 - d. anaplasia
 - e. erythroplakia
 - f. leukoplakia
 - g. carcinoma-in-situ
14. Discuss the most common cause of hyperkeratosis.
15. Recognize the clinical appearance of advanced intraoral squamous cell carcinoma.
16. Recognize the clinical appearance of advanced squamous cell carcinoma of the lip.
17. Recognize the clinical appearance of early asymptomatic intraoral squamous cell carcinoma.
18. Recognize the clinical appearance of early asymptomatic squamous cell carcinoma of the lip.
19. Identify the predisposing etiologic factors in lip carcinoma.
20. Indicate the most common location of lip carcinoma, on which lip it usually occurs, and the usual location.
21. List three warning signs and symptoms of oral cancer.
22. Discuss the proper steps to be taken in the diagnosis of an oral lesion which is suspected of being malignant.
23. Describe what is meant by a "high risk" patient.
24. Define malignant melanoma.
25. Define verrucous carcinoma.

XVI. DEVELOPMENTAL DEFECTS

1. Describe the types of cleft lip and palate and the development process leading to the disturbance.
2. Recognize and describe micrognathia and macrognathia and the cause of each.

3. Identify and describe the developmental lip disturbances including congenital and commissural lip pits and double lip.
4. Recognize the clinical significance of hereditary fibromatosis gingiva and its treatment.
5. Identify and describe developmental disturbances of the tongue including microglossia, macroglossia, ankyloglossia, bifid tongue, fissured or furrowed tongue, median rhomboid glossitis, benign migratory glossitis (geographic tongue), and hairy tongue.
6. Define and recognize the clinical significance of white sponge nevus, Fordyce granules, tori, and exostosis.
7. Differentiate among and identify the causes of attrition, abrasion, and erosion.
8. Differentiate between and recognize the significance of the developmental disturbances of the teeth including microdontia, macrodontia, gemination, fusion, concrescence, dilaceration, dens in dente, supernumerary roots and teeth, anodontia (complete/partial), natal/neonatal dentition, and mesiodens.
9. Describe and recognize the following tooth structure disturbances and the cause of each, if known: amelogenesis imperfecta, dentinogenesis imperfecta, enamel hypoplasia, Hutchinson's incisors, peg laterals, mulberry molars, hypocalcemia, and hypocalcification.

XVII. ORAL INFECTION

1. Explain the inter-relationship of streptococcal pharyngitis, rheumatic fever, rheumatic heart disease, oral streptococci, and bacterial endocarditis.
2. Describe the characteristic bacterial colonies of actinomycosis.
3. State the triad of clinical signs found in congenital syphilis.
4. State the three stages of acquired syphilis, the lesions associated with each and their clinical signs and symptoms.
5. State the major clinical signs and symptoms of primary herpetic gingivostomatitis.
6. State the major clinical signs and symptoms of recurrent herpes simplex, both extra-oral and intra-oral.
7. State the etiology and clinical presentation of herpes zoster.
8. State the four major types of viral hepatitis, their major differences, and the clinical signs and symptoms associated with each type.
9. State the major clinical signs and symptoms of oral candidiasis.

XVIII. PERIAPICAL PATHOLOGY

1. Describe a periapical abscess.
2. Describe a periapical granuloma.
3. Describe and define a periapical cyst.

4. Explain why pain is present in a periapical granuloma/abscess and is usually absent in a cyst.
5. Define a sinus tract (fistula) secondary to an abscessed tooth.
6. Describe other sequela (other than periapical granuloma, abscess or cyst) that can occur from pulpitis.

XIX. PHYSICAL AND CHEMICAL INJURIES

1. Describe the etiologic agents of physical and chemical injuries of teeth and oral soft tissues.
2. Recognize and describe the clinical appearance, and radiologic appearance when appropriate, of the physical and chemical injuries of teeth and oral soft tissues.
3. Discuss appropriate treatment of the physical and chemical injuries of teeth and oral soft tissues.

XX. PIGMENTED LESIONS

1. Describe the exogenous agents that can cause pigmentation of the oral mucosa.
2. Describe the endogenous agents that can cause pigmentation of the oral mucosa.
3. Discuss appropriate treatment of the pigmented lesions presented.

XXI. MUCOCUTANEOUS DISEASES

1. State the major clinical features of ectodermal dysplasia.
2. State the major clinical features of lichen planus.
3. State the major clinical features of erythema multiforme.
4. State the major clinical features of pemphigus.
5. State the major clinical features of cicatricial pemphigoid.
6. State the major clinical features of lupus erythematosus.

XXII. SYSTEMIC DISEASES

1. Define anemia.
 - a. State the laboratory tests generally used to determine the presence of anemia.
 - b. List the three major etiologic mechanisms of anemia.
 - c. State the clinical features, oral manifestations, and essential treatment, for each of the following:
 - 1.1 pernicious anemia
 - 1.2 folate deficiency anemia
 - 1.3 aplastic anemia
 - 1.4 iron-deficiency anemia
 - 1.5 sickle cell anemia

- d. Define leukemia.
 - e. Classify leukemia as to cell type and clinical prognosis.
 - f. Differentiate between lymphocytic and myelogenous leukemias.
 - g. State the general clinical features of leukemias.
2. Briefly review the physiology of the thyroid gland.
 - a. State the etiology and clinical manifestations of hyperthyroidism and hypothyroidism.
 - b. List features of proper dental management in patients with these conditions.
 3. Briefly review the physiology of the parathyroid gland.
 - a. State the etiology and clinical manifestations of hyperparathyroidism and hypothyroidism.
 - b. List the features of correct dental management in hyperparathyroidism and hypothyroidism.
 4. Define Cushing's syndrome.
 - a. State the clinical and oral manifestation of Cushing's syndrome.
 - b. State the importance of the dental management in patients with Cushing's syndrome.
 5. Define the term osteoporosis.
 - a. List the oral manifestation of osteoporosis, both clinical and radiographic.
 6. State the four general periods of life in which an imbalance of female hormones may produce oral symptoms.
 - a. Describe the oral manifestations associated with puberty, menstruation, pregnancy, and menopause.
 - b. State the significance of avoiding unnecessary dental treatment or drug therapy during pregnancy.
 - c. Describe the oral manifestations of the use of oral contraceptives.
 - d. List conditions in pubertal males associated with oral manifestations of hormonal imbalance.
 7. Characterize the basic mechanism in the etiology of diabetes mellitus.
 - a. Differentiate between adult onset, juvenile, and gestational disease.
 - b. State the genetic and environmental factors in etiology of each type.
 - c. List the general clinical features of diabetes mellitus.
 - d. State the oral manifestations of diabetes mellitus.
 - e. State the significant features of the following conditions of states in a diabetic patient: surgical procedures, infections, exercise, hypoglycemia, pregnancy.
 - f. List the features of systemic chronic complications of diabetes mellitus.
 8. Define chronic obstructive pulmonary disease (COPD).
 - a. State the significant clinical features of each of the following: chronic bronchitis, emphysema, bronchial asthma, bronchiectasis, and atelectasis.
 - b. State the significance of pulmonary infarction and embolism.
 - c. Define pneumonia.

- d. State the etiological and clinical features of the following: Legionnaires disease, pneumocystis pneumonia.
 - e. State the etiological and clinical features and typical oral manifestations of tuberculosis and the deep mycoses.
 - f. State the essential features of dental management of patients with the previously mentioned conditions and diseases listed in objective 7 through 7f.
9. Define the clinical syndrome of congestive heart failure.
- a. Compare features of left and right-sided heart failure.
 - b. Define and state the significance of the following terms: ischemic heart disease, angina pectoris, chronic ischemic heart disease, myocardial infarction.
 - c. Define hypertension.
 - d. Compare essential features of primary and secondary hypertension.
 - e. State the important features of primary and secondary hypertension.
 - f. State the important features of dental management of patients with heart disease and/or hypertension.

RESOURCES

I. Media resources

1. Printed media

A. Textbook requirements

Ibsen and Phelan
Oral Pathology for the Dental Hygienist, Fourth Edition; 2004
W.B. Saunders

Neville, Damm, Allen and Bouquot
Oral and Maxillofacial Pathology, Second Edition, 2002
W.B. Saunders Co.

II. Human resources

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STUDY PLAN AND REQUIREMENTS

Attendance and Punctuality

Attendance is required at all lectures. Emergencies requiring a student to be absent should be reported to the course director. It is the **student's responsibility** to obtain any information or materials that were presented during lectures which the student was not present. Absences will affect your course grade.

Reading assignments

All reading assignments should be completed before the corresponding lecture session.

Academic Success

The student should review his/her course progress periodically. Any student receiving a grade below 70 on any examination given during the course must make an appointment for a conference with the course director.

**DHCT 2206 GENERAL ORAL PATHOLOGY
2007 Spring Semester Lecture Schedule**

Sessions: Tuesday, 9-9:50; Wednesday, 1-2:50 pm
Lectures: Room 446; Exams: Room 132

Date	Lecture Topic	Instructor
Tue, Jan 2	Principles of diagnosis	Abramovitch
Wed, Jan 3	Diagnostic techniques	Abramovitch
Tue, Jan 9	Odontogenic Cysts	Abramovitch
Wed, Jan 10	Odontogenic Neoplasms	Abramovitch
Tue, Jan 16	EXAM I Room 132	Abramovitch
Wed, Jan 17	Genetic and nutritional diseases	Vigneswaran
Tue, Jan 23	Neoplasia: General concepts	Vigneswaran
Wed, Jan 24	Immunology and related disorders	Lou
Tue, Jan 30	Cell injury, cell adaptation, cell death	Vigneswaran
Wed, Jan 31	Cell injury, cell adaptation, cell death Inflammation and repair	Vigneswaran
Wed, Feb 7 9-9:50 am	EXAM II Room 132	Faculty
Wed, Feb 7	Inflammatory lesions	Vigneswaran
Tue, Feb 13	Salivary Gland diseases	Vigneswaran
Wed, Feb 14	Bone Pathology	Vigneswaran
Tue, Feb 20	Inflammation and repair	Vigneswaran
Wed, Feb 21	Fluid and hemodynamic derangements	Vigneswaran
Tue, Feb 27	Review	
Wed, Feb 28 9-9:50 am	EXAM III Room 132	Faculty
Wed, Feb 28	Benign Neoplasia	Vigneswaran
Tue, Mar 6	Malignant Neoplasia	Vigneswaran
Wed, Mar 7	Malignant Neoplasia Developmental Defects	Vigneswaran
Tue, Mar 13	Developmental Defects	Vigneswaran
Wed, Mar 14	Oral Infections	Vigneswaran
Mar 19-23	<i>Spring Break</i>	
Tue, Mar 27	EXAM IV Room 132	Faculty
Wed, Mar 28	Physical and Chemical Injuries	Servos
Tue, Apr 3	Periapical Pathology	Thomas
Wed, Apr 4	Pigmented Lesions	Abramovitch
Tue, Apr 10	Mucocutaneous diseases Course Evaluation	Abramovitch
Wed, Apr 11	Systemic diseases	Vigneswaran
Tue, Apr 17	EXAM V Room 132	Faculty

EVALUATION METHODS

1. Grades possible: A, B, C, D, and F.
2. Grade requirements:
 - A = 93-100 average on examinations
 - B = 84-92 average on examinations
 - C = 75-83 average on examinations
 - D = 70-74 average on examinations
 - F = below 70 average on examinations
3. Overall requirements
 - a. The course grade will consist of five examinations, each comprising one-fifth of the final grade. The examinations will be primarily composed of objective-type questions (multiple-choice).
 - b. If an examination is missed, the reason for missing the examination must be satisfactory to the Director of the School of Dental Hygiene. After the reason for the absence is approved, the student must make an appointment with the course director as soon as possible to schedule a remake examination.
 - c. Any student receiving a grade below 70 on any examination must make an appointment for a concurrent conference with the Director of Dental Hygiene and the course director for resolution of the problem(s) and assistance or remedial work.
 - d. If a student has any questions concerning his/her progress during the course, he/she should make an appointment for a conference with the course director.