Pathology 210

The course covers the basic principles of general pathology for dental students.

Course code: PATH210

Pre-requisites: first year

Credit Hours: 3

**Course Description:**

The course covers the following basic principles of pathology:


Growth disorders and neoplasia. Slides and specimens are studies to illustrate the common changes produced in tissues by disease.

**Aim:**

The program in general pathology is such that the student is expected to:

Learn the mechanism and principles of the basic pathological processes and then to apply these principles to the study of diseases in general and to the disease involving the oral cavity in particular.

Correlate the pathological changes with the clinical picture in disease processes.

Observe and analyze pathological changes at both the macroscopic and microscopic levels.

Appreciate the role of the dentist as a member of the health team, and be aware of the general or systemic disease states which may manifest themselves in the oral cavity or otherwise affect oral health.
Course Outline (Theoretical):

Introduction

Definition and scope of pathology
Causes of diseases, hereditary and acquired Diseases.
Subdivisions of pathology
Techniques in pathology
Diagnostic pathology (biopsies, cytology, autopsy)

Inflammation

Definition, causes and types.
General Effects of inflammation.
Dynamics of Inflammation - Function of fluid exudates; function of cellular exudates.
Chemical mediators
Types of Acute Inflammation - fibrinous, haemorrhagic and gangrenous inflammations.
Chronic inflammation
Wounds healing and repair.
Fracture healing

Cell injury:

Reversible cell injury
Irreversible cell injury, necrosis, gangrene.
Apoptosis
Degenerations - hydropic degeneration, fatty change.
Amyloidosis.
Pathological calcification - pigmentation.
Environmental and nutritional pathology:
Smoking
Radiation injury
Nutritional: malnutrition, obesity, Vitamin deficiencies

Haemodynamics and circulatory disorders:
Haemorrhage, thrombosis and embolism,
Ischaemia, infarction and oedema.
Haemorrhage, haemostasis.
Shock

Granulomatous Diseases:
Definition
Formation of granuloma and its causes
Tuberculosis
Actinomycosis

Growth disorders.
Atrophy, hypertrophy, hyperplasia, metaplasia, dyplasia and neoplasia.
Precancerous lesions, and carcinoma in situ.

Neoplasia :
Definition
Nomenculature
Examples of benign and malignant tumours.
Features of benign and malignant tumours.
Spread of tumours.
Etiology of tumours.
Molecular basis of cancer
Diagnosis
Course Outline (Practical):

This consists of studying the microscopic picture of the basis pathologic processes as seen in the histopathology slides and specimens.

Inflammation and Repair:

1. Fibrinous pericarditis.
3. Foreign body reaction.
4. Granulation tissue.

Degeneration and Infiltrations:

1. Fatty change of the liver
2. Amylosis of the kidney.
3. Dystrophic calcification of skin

Circulatory disorder:

1. Organizing thrombus
2. Myocardial infarction

Granulomatous inflammations:

1. Tuberculous lymphadenitis
2. Miliary tuberculosis of the lung

Hyperplasia:

1. Cystic hyperplasia of the endometrium
2. Cystic hyperplasia of the breast

Benign tumours:

1. Nevus
2. Leiomyoma – uterus
3. Chondroma
4. Haemangioma - skin.
5. Fibroadenoma of the breast.

Malignant tumours:

1. Basal cell carcinoma (skin).
2. Squamous cell carcinoma (skin).
3. Adenocarcinoma of the large intestine.
4. Mucoid carcinoma of the large intestine.
5. Fibrosarcoma.

**Required Text:**

List of recommended books for the General Pathology Course:

2. Robbins. Basic Pathology.

**References:**


**Method of Evaluation:**

The criteria of acquired competencies will be a cumulative grade of 60% or above in continuous assessment examinations (one written and one practical) and a final examination (written only).

The following percentage of total grades will be assigned to each:

1. Continuous Assessments Examinations: 20%
   
   One written Practical: 20%

2. Final examination: 60%

The continuous assessment and final examinations will measure the student's achievement of terminal objectives.

**Textbook Ref**

Syllabus

Define the terms sign, symptom, lesion, etiology, pathogenesis, prognosis, and diagnosis.

Name, describe and give examples of hereditary, congenital and acquired diseases.

List the various etiologic agents of disease.

Differentiate between cell death, autolysis and necrosis.

List types of necrosis.

Differentiate between dry and wet gangrene.

Describe causes of cellular degeneration.

Describe changes found in hydropic degeneration.

Describe changes found in fatty change.

Classify amyloidosis and outline main features of each.

Describe the effects of amyloid infiltration on: a) heart, b) kidney, c) liver.

Outline what is known about the composition of amyloid.

Differentiate between the dystrophic and metastatic calcification.

List the various types of pigmention and their important features.

Define inflammation, and differentiating points between acute and chronic inflammation.

List the causes of inflammations.

List the types of acute inflammation.

Name the cardinal signs of acute inflammation.
Discuss the general effects of inflammation on the body.

Describe the vascular changes of acute inflammation and relate these to the formation of inflammatory oedema.

Describe the cellular components of the inflammatory exudates and outline the mechanisms involved in their accumulation.

List the type of chemical mediators

List features of the different types of acute inflammation.

Define chronic inflammation.

Enumerate causes of chronic inflammation.

Understand role of healing in relation to the tissue reaction seen in chronic inflammation.

List differences between regeneration and repair.

Describe how an incised wound heals and compare it with the healing of skin wound with separated edges.

Define the term granuloma.

List important features and differentiating points of childhood tuberculosis and adult type of tuberculosis.

Diagnosis of tuberculosis.

Differentiate between true and false fungi.

List causes, and describe features and complications actionmycosis.

List investigations, diagnosis of actionmycosis.

Define ischaemia.

List causes and effects of ischemia on tissues.

Define hyperemia.

List causes and effects of hyperemia.

Define thrombosis and distinguish it from blood clotting.

Describe Virchow's triad.

Describe the possible fate of a thrombosis.
List the types of emboli.

List effects of embolism.

Macroscopic, and microscopic features of infarction.

Describe effects of acute haemorrhage.

Have an understanding of the basic principles of haemostasis.

Compare clinical features of syncope with those of secondary shock.

List important types of secondary shock and describe their pathogenesis.

List organs that are frequently damaged in shock.

List types and causes of generalized oedema.

List types and causes of localized oedema.

Compare and contrast hypertrophy with hyperplasia.

Define the terms metaplasia and dysplasia and list examples.

List various important precancerous lesions.

Define terms carcinoma in situ, invasive carcinoma, and metastasis.

Define a tumour.

List macroscopic and microscopic features of benign and malignant tumours.

Give a classification of tumours.

Define the terms: adenoma, papilloma, carcinoma, and sarcoma.

List examples of various carcinogenic agents, a) physical agents, b) chemical agents, c) living agents.

List human tumours in which there is a hereditary predisposition and preneoplastic syndrome

List the molecular changes which occur in tumors.

List investigations which aid in the diagnosis of tumors.

Identify the grade and stage of the neoplasm.
Know the value of cytology and biopsy in the diagnosis of tumours.

Laboratory syllabus

Differentiate between the main types of acute and chronic inflammatory cells.

Distinguish between the important features of acute inflammation as seen in various organs.

Identify various elements taking part in the formation of granulation tissue.

Recognize granulomas.

Recognize amyloid material deposited within the glomerulus and its effects on the cells within the glomerulus.

Identify changes taking place in the organizing thrombosis and the process of recanalization.

Identify important features of coagulation necrosis in the heart.

Recognize similarity of cells in benign tumours to the organ of origin.

Recognize features of nuclei in benign tumours.

Recognize main microscopic features of malignant cells.

Recognize feature indicating the cell of origin in a malignant tumour.

Pathology electronic sites

d.  http://www.pathweb.ubc.edu

e.  Virtual Slidebox:  http://www.path.uiowa.edu/virtualslidebo


g.  http://www.mic.ki.se/PATHOL.html


i.  http://www.objectivepathology.ca/PublicClientImages/


k.  http://pathorama.ch/

l.  http://www.oncolink.upenn.edu/

m.  http://www.afip.org/
n. http://www.cttr.org/