

Microbiology & General Pathology-1DS1010201

A. GENERAL MICROBIOLOGY:

1. History, Introduction, Scope, Aims and Objectives.
2. Morphology and Physiology of bacteria.
3. Detail account of Sterilisation and Disinfection.
4. Brief account of Culture media and Culture techniques.
5. Basic knowledge of selection, collection, transport, processing of clinical Specimens and identification of bacteria.
6. Bacterial Genetics and Drug Resistance in bacteria.

B. IMMUNOLOGY:

1. Infection - Definition, Classification, Source, Mode of transmission and types of infectious disease.
2. Immunity
3. Structure and functions of Immune system
4. The Complement System
5. Antigen
6. Immunoglobulins - Antibodies - General structure and the role played in defense mechanism of the body.
7. Immune response
8. Antigen - Antibody reactions - with reference to clinical utility.
9. Immuno deficiency disorders - a brief knowledge of various types of immuno deficiency disorders - A sound knowledge of immuno deficiency disorders relevant to dentistry.
10. Hypersensitivity reactions
11. Autoimmune disorders - Basic knowledge of various types - sound knowledge of autoimmune disorders of oral cavity and related structures.
12. Immunology of Transplantation and Malignancy
13. Immune haematology

C. SYSTEMATIC BACTERIOLOGY:

1. Pyogenic cocci - Staphylococcus, Streptococcus, Pneumococcus, Gonococcus, Meningococcus – brief account of each coccus - detailed account of mode of spread, laboratory diagnosis, Chemo therapy and prevention - Detailed account of Cariogenic Streptococci.
2. Corynebacterium diphtheriae - mode of spread, important clinical feature, Laboratory diagnosis, Chemotherapy and Active immunisation.
3. Mycobacteria - Tuberculosis and Leprosy
4. Clostridium - Gas gangrene, food poisoning and tetanus.
5. Non-sporing Anaerobes - in brief about classification and morphology, in detail about dental pathogens - mechanism of disease production and prevention.

6. Spirochaetes - Treponema pallidum - detailed account of Oral Lesions of syphilis, Borrelia vincentii.

7. Actinomycetes.

D. VIROLOGY:

1. Introduction

2. General properties, cultivation, host - virus interaction with special reference to Interferon.

3. Brief account of Laboratory diagnosis, Chemotherapy and immuno prophylaxis in general.

4. A few viruses of relevance to dentistry.

- Herpes Virus
- Hepatitis B Virus - brief about other types
- Human Immunodeficiency Virus (HIV)
- Mumps Virus
- Brief - Measles and Rubella Virus

5. Bacteriophage - structure and Significance

E. MYCOLOGY

1. Brief Introduction

2. Candidosis - in detail

3. Briefly on oral lesions of systemic mycoses.

F. PARASITOLOGY:

1. Brief introduction - protozoans and helminths

2. Brief knowledge about the mode of transmission and prevention of commonly seen parasitic infection in the region.

General Pathology

A. General Pathology –

1. Introduction to Pathology

- Terminologies
- The cell in health
- The normal cell structure
- The cellular functions

2. Etiology and Pathogenesis of Disease

- Cell Injury
- Types – congenital
- Acquired
- Mainly Acquired causes of disease
- (Hypoxic injury, chemical injury, physical injury, immunological injury)

3. Degenerations

- Amyloidosis
- Fatty change

- Cloudy swelling
- Hyaline change, mucoid degeneration

4. Cell death & Necrosis

- Apoptosis
- Def, causes, features and types of necrosis
- Gangrene - Dry, wet, gas
- Pathological Calcifications
- (Dystrophic and metastatic)

5. Inflammation:- Definition, causes types, and features

Acute inflammation

- The vascular response
- The cellular response
- Chemical mediators
- The inflammatory cells
- Fate

Chronic inflammation

- Granulomatous inflammation

6. Healing

- Regeneration
- Repair
 - Mechanisms
 - Healing by primary intention
 - Healing by secondary intention
 - Fracture healing
 - Factors influencing healing process
 - Complications

7. Tuberculosis

- Epidemiology
- Pathogenesis (Formation of tubercle)
- Pathological features of Primary and secondary TB
- Complications and Fate

8. Syphilis

- Epidemiology
- Types and stages of syphilis
- Pathological features
- Diagnostic criteria
- Oral lesions

9. Typhoid

- Epidemiology
- Pathogenesis
- Pathological features
- Diagnostic criterias

10. Thrombosis

- Definition, Pathophysiology
- Formation, complications & Fate of a thrombus

11. Embolism

- Definition
- Types
- Effects

12. Ischaemia and Infraction

- Definition, etiology, types
- Infraction of various organs

13. Derangements of body fluids

- Oedema – pathogenesis
- Different types

14. Disorders of circulation

- Hyperaemia
- Shock

15. Nutritional Disorders

- Common Vitamin Deficiencies

16. Immunological mechanisms in disease

- Humoral & cellular immunity
- Hypersensitivity & autommunity

17. AIDS and Hepatitis.

18. Hypertension

- Definition, classification
- Pathophysiology
- Effects in various organs

19. Diabetes Mellitus

- Def, Classification, Pathogenesis, Pathology in different organs

20. Adaptive disorders of growth

- Atrophy & Hypertrophy, Hyperplasia, Metaplasia and Dysplasia

21. General Aspects of neoplasia

- Definition, terminology, classification
- Differences between benign and malignant neoplasms

- The neoplastic cell
- Metastasis
- Etiology and pathogenesis of neoplasia, Carcinogenesis
- Tumour biology
- Oncogenes and anti-oncogenes
- Diagnosis
- Precancerous lesions
- Common specific tumours, Sq papilloma & Ca, Basal cell Ca, Adenoma & Adenoca,
- Fibroma & Fibrosarcoma, Lipoma and liposarcoma

B. Systemic Pathology –

22 Anaemias

- Iron Deficiency anaemia, Megaloblastic anaemia

23. Leukaemias

- Acute and chronic leukaemias, Diagnosis and clinical features

24. Diseases of Lymph nodes

- Hodgkin's disease, Non Hodgkins lymphoma, Metastatic carcinoma

25. Diseases of oral cavity

- Lichen planus, Stomatitis, Leukoplakia, Sq cell Ca, Dental caries, Dentigerous cyst,
- Ameloblastoma

26. Diseases of salivary glands

- Normal structure, Sialadenitis, Tumours

27. Common diseases of Bones

- Osteomyelitis, Metabolic bone diseases, Bone Tumours, Osteosarcoma, Osteocalstoma,
- Giant cell Tumour, Ewing's sarcoma, Fibrous dysplasia, Aneurysmal bone cyst

28. Diseases of Cardiovascular system

- Cardiac failure
- Congenital heart disease – ASD, VSD, PDA
- Fallot's Tetralogy
- Infective Endocarditis
- Atherosclerosis
- Ischaemic heart Disease

29. Haemorrhagic Disorders

- Coagulation cascade

- Coagulation disorders
- Platelet function- Platelet disorders

Practicals-

1. Urine – Abnormal constituents

- Sugar, albumin, ketone bodies

2. Urine – Abnormal constituents

- Blood, bile salts, bile pigments

3. Haemoglobin (Hb) estimation

4. Total WBC count

5. Differential WBC Count

6. Packed cell volume(PCV,) erythrocyte sedimentation Rate (ESR)

7. Bleeding Time & clotting Time

8. Histopathology: Tissue Processing & Staining

9. Histopathology slides: Acute appendicitis, Granulation tissue, fatty liver

10. Histopathology slides: CVC lung, CVC liver, Kidney amyloidosis

11. Histopathology slides: Tuberculosis, Actinomycosis, Rhinosporidiosis

12. Histopathology slides: Papilloma, Basal cell Ca, Sq cell Ca

13. Histopathology slides: Osteosarcoma, osteoclastoma, fibrosarcoma

14. Histopathology slides: Malignant melanoma, Ameloblastoma, Adenoma

15. Histopathology slides: Mixed parotid tumour, metastatic carcinoma in lymph node