

Pathology

GENERAL PATHOLOGY AND HAEMATOLOGY

1. Cell Injury

- Mechanism of Cell Injury, Reversible and irreversible Cell injury, Adaptation, Apoptosis, Intracellular accumulations (Lipid, protein and glycogen), Pigment and pigment disorders, Pathological calcification

2. Inflammation

- Acute inflammation – vascular phenomenon and cellular events, Chemical mediators, Morphological patterns of acute inflammation, outcome of acute inflammation. chronic inflammation and granulomatous inflammation

3. Repair, regeneration and healing

- Normal cell cycle, cutaneous wound healing, healing by first intention and second intention, fracture healing.

4. Hemodynamic disorder and Thromboembolism

- Hyperemia, congestion, Edema, thrombosis, types of embolism, infarction and its types, shock.

5. Genetic disorders.

- Mutations, Marfan syndrome, Ehlers Danlos syndrome, Lysosomal storage disorder, glycogen storage disorders, alkaptonuria, trisomies, genetics disorders involving the sex chromosome, diagnoses of genetic disorder.

6. Diseases of immunity

- Cells of immune system, mechanisms of hypersensitivity reactions, autoimmune diseases, immuno deficiency syndromes including AIDS, amyloidosis.

7. Neoplasia

- Tumor nomenclature, difference between benign and malignant neoplasms, mechanisms and types of metastasis, oncogenes, tumor suppressor genes, carcinogenesis (physical, chemical, biological), pre-neoplastic conditions, para-neoplastic syndromes, lab diagnosis of cancer.

8. Infectious diseases

- Tuberculosis, typhoid, leprosy, syphilis, fungal infections (candidiasis, maduramycosis), Actinomycosis, Rhinosporidiosis, Amoebiasis, malaria

9. Environment and nutritional disorder

- Radiation injury, PEM, Vitamin deficiency (A,B,C,D,K and E), Obesity, Alcoholism, Smoking.

10. Red blood cell disorders

- Classification of anemia, iron deficiency anemia, Megaloblastic anemia, pernicious anemia, hemolytic anemia (spherocytosis, sickle cell anemia, thalassemia, G6PD, PNH), aplastic anemia, Polycythemia.

11. White blood cell disorders

- Leucopenia and leucocytosis, leukemia (AML, ALL, CML, CLL), Multiple myeloma, Lymphoma, HL, NHL.

12. Bleeding disorders

- Bleeding due to vascular disorders, platelet disorders, coagulation factor deficiency (Hemophilia A, B and VWD), DIC, Lab diagnosis of bleeding disorders.

SYSTEMIC PATHOLOGY:

13. Blood vessels

- Atherosclerosis, Aneurysms, Tumors

14. Heart

- Congenital heart disease (ASD, VSD, PDA, Fallot's), Ischemic heart disease, Rheumatic heart disease, Infective endocarditis, Hypertensive heart disease, cardiomyopathy, myocarditis, tumors of heart. Pericarditis, pericardial effusion.

15. Respiratory system

- COPD (chronic bronchitis, Emphsema), Bronchial asthma, Bronchiectasis, Pneumonoconiosis (Asbestosis, Silicoses, Berylliosis), Tuberculosis, Lobar pneumonia, Bronchopneumonia, lung abscess, Tumors of lung and pleura, Pleural effusion.

16. Head and neck

- Precancerous conditions of the oral cavity, tumors of oral cavity, benign and malignant salivary gland tumors.

17. GIT

- Carcinoma of esophagus, gastritis, Peptic ulcer, benign and malignant tumors of stomach, Small intestine: Carcinoid, Mal-absorption syndrome. Crohns disease and Ulcerative colitis, Polyps of intestine, Tumors of colon and rectum, Appendicitis, tumors of appendix, Peritoneum (mesothelioma), peritonitis

18. Liver, gall bladder and Pancreas.

- Jaundice – Viral Hepatitis, Portal hypertension, cirrhosis, tumors of liver, Acute and chronic cholecystitis, cholelithiasis, Tumors of Gall bladder, acute and chronic pancreatitis, tumors of pancreas.

19. Renal system

- Polycystic kidney, acute and chronic glomerulonephritis, nephritic syndrome, glomerular lesions in systemic disease, ATN, acute and chronic pyelonephritis, Urolithiasis, Tumors of kidney.

20. Lower urinary tract and male genital system.

- Urolithiasis, tumors of bladder, tumors of testis, granulomatous orchitis, benign enlargement of prostate, carcinoma of prostate.

21. Female genital tract

- Benign and malignant tumors of vulva, Cervical intraepithelial neoplasia, Carcinoma cervix, Endometriosis, adenomyosis, Endometrial hyperplasia, Carcinoma endometrium, leiomyoma and leiomyosarcoma of myometrium, Tumors of ovary, tumors of trophoblastic tissue.

22. Breast

- Benign and malignant tumors of breast, Cystosarcoma Phyllodes.

23. Endocrine system.

- Thyroid: Goitre, Hypo and hyperthyroidism, tumors of thyroid, thyroiditis – Hashimotos, Pancreas: Endocrine pancreas (Diabetes mellitus), Adrenals: Pheochromocytoma, Neuroblastoma, MEN.

24. Skin

- Pre-malignant conditions of skin, malignant tumors of epidermis - Basal cell carcinoma, Squamous cell carcinoma. Naevus, malignant melanoma, mycosis fungoides

25. Bones and joints

- Gout, Osteomyelitis, Benign and malignant tumors of bone – Ewings sarcoma, Osteoclastoma, Osteogenic sarcoma, Rheumatoid arthritis, synovial sarcoma.

26. Soft tissue

- Benign and malignant soft tissue tumors, Rhabdomyosarcoma, Duchenne muscular dystrophy.

27. Central nervous system

- Meningitis - types, CSF analysis, Tumors of meninges, CNS tumors – Glioma, astrocytoma, Oligodendroglioma, Ependymoma, Medulloblastoma. Peripheral nerve tumors – Schwannoma, Neurofibroma, Malignant tumors

28. Eye and ear

- Retinoblastoma, CSOM.

CLINICAL PATHOLOGY

1. Introduction to Clinical Pathology – Methods of sample collection
2. Hemoglobin estimation – Classification, methods, types, practical
3. Packed cell volume – demonstration discussion
4. Differential count – demonstration and practical
5. Peripheral smear study – staining and reporting
6. Erythrocyte sedimentation rate – demonstration and discussion
7. Blood indices – discussion
8. Blood grouping – cross matching
9. Bleeding time and clotting time – practical and discussion
10. Reticulocyte count – slide discussion
11. Platelet count – counting and morphology study
12. Osmotic fragility test – discussion and demonstration
13. Coomb's test – discussion
14. Bone marrow aspiration and biopsy – Indication, contraindication, staining, description, procedure and slide discussion
15. Sputum examination – discussion
16. CSF examination – demonstration of procedure and cell count and discussion
17. Seminal analysis – slide discussion
18. Pap smear, vaginal and cervical smear study
19. Exfoliative cytology, examination of body fluids (peritoneal, pleural, pericardial and synovial) – slide discussion
20. Tissue processing – demonstration
21. Special stains - discussion
22. Bone marrow charts – discussion
23. Instruments – demonstration
24. Examination of urine – Physical analysis, chemical analysis, microscopic examination – demonstration, discussion and practical.

Practical

1. Cell Injury

Introduction to Histopathology and cytology Laboratory & Museum. Cloudy swelling kidney – specimen & slide.

Fatty change – Liver specimen & slide

2. Inflammation

Acute appendicitis Specimen and slides

Chronic inflammation, Tuberculous granuloma, Foreign body granuloma slides.

3. Repair, regeneration and healing

Granulation tissue

4. Hemodynamic disorder and Thromboembolism

Venous thrombus specimen, Organisation of thrombus slides.

Practicals :

Filarial leg – specimen, CVC – Liver, Lung, Spleen – specimen and slides.

Embolus – Pulmonary – Specimen, Infarction – Heart, Lung, Specimen and Gangrene foot – Specimen.

5. Genetic disorders.

PRACTICAL(CHART): Karyotyping-Down's,Klinefelter's,Turner's

6. Diseases of immunity

Amyloid – Liver, Spleen, Kidney Specimens

7. Neoplasia

Benign – Lipoma, Leiomyoma, capillary and cavernous angioma schwannoma. Cystic Teratoma – Ovary, Squamous papilloma, Villous papilloma, Adenomatous polyp – Intestine, Chondroma.

Malignant – squamous Cell carcinoma, Chondrosarcoma, Osteosarcoma, Malignant Melanoma – All specimens and slides. Metastatic Deposit – Lymphnode, Cytology – Malignant Cells.

8. Infectious diseases

Actinomycosis, Maduramycosis Specimens and slides. Syphilis – Gumma.

Tuberculous lymphadenitis Tuberculosis – Lung primarycomplex and adult Tuberculous. Leprosy – Lerpomatous & Tuberculoid.

Amoebic abscess (LIVER) and ulcer intestine, Malarial – Spleen, Specimens.

9. Environment and nutritional disorder

10. Red blood cell disorders

Perform

Hb, R.B.C. Count

Iron deficiency anaemia view the slide & record

Macrocytic anaemia view the slide & record

Megaloblastic marrow view the slide & record

Aplastic marrow, Peripheral smear study, view the slides & record

11. White blood cell disorders

Total W.B.C. count

Differential count

Neutrophilia

Eosinphilia

AML, ALL, CML, CLL

12. Bleeding disorders

Platelet counts

13. Blood transfusion reactions – grouping and crossmatching

Blood group & RH Factor

14. Lymphoreticular system – HL, NHL, splenomegaly.

Lymphomas – specimen

Lymphomas – slides

Secondary deposits (specimen) & slide

SYSTEMIC PATHOLOGY:

15. Blood vessels

Atherosclerosis – Aorta – Specimen and slide. Aortic Aneurysms – Syphilitic and Atherosclerotic – Specimen.

16. Heart

Rheumatic mitral stenosis, Bacterial endocarditis, Myocardial Infarction, Hypertensive Cardiac Hypertrophy – Specimens.

17. Respiratory system

Lobar pneumonia – Red & Grey hepatization, Bronchiectasis Lung abscess, pulmonary tuberculosis, Emphysema – specimen & slide, Bronchogenic carcinoma, Secondary deposit lung – specimen.

18. Head and neck

Mixed Tumors – salivary gland specimen & slide, carcinoma oesophagus – specimen

19. GIT

Gastric ulcer and carcinoma – specimen & slide Ulcers of the small intestine – typhoid Chron's large intestine amoebic ulcer, carcinoma small & large intestines.

20. Liver, gall bladder and Pancreas.

Cirrhosis – liver specimen with slides

Hepatoma – specimen with slides

Gall stone - specimen

21. Renal system

Contracted kidney specimen

Chronic nephritis specimen

Chronic pyelonephritis specimen & slides

Transitional cell carcinoma specimen and slides

22. Lower urinary tract and male genital system.

Carcinoma penis – specimen and slides

Seminoma specimen and slides

B.H.P. specimen and slides

23. Female genital tract

Carcinoma – Cervix specimen, fibroid uterus slides

Carcinoma endometrium slide

Endometrium proliferative / slide

Endometrium secretory / slide

Serous cystadenoma – specimen & slide

Mucinous cystadenoma specimen & slide

Papillary serous carcinoma specimen

Dysgerminoma

Dermoid cyst

24. Breast

Fibroadenoma breast specimen & slide
Infiltrating ductal carcinoma specimen & slide

25. Endocrine system.

Colloid goitre specimen / slide
Toxic goitre specimen / slide
Follicular adenoma specimen / slide
Papillary carcinoma specimen / slide

26. Skin

Basal cell carcinoma specimens and slides
Squamous cell carcinoma specimens and slides
Malignant melanoma specimens and slides.

27. Bones and joints

Osteogenic sarcoma, giant cell tumour, Ewings sarcoma - Specimens and slides.

28. Soft tissue**29 Central nervous system**

CSF in meningitis – chart.

30. Eye