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1. SEVERE DYSPLASIA

A 25 year old female presented to the clinic for a routine smear test. The Pap smear report was as follows:
"Cellular changes associated with severe dysplasia of squamous cells is noted. Carcinoma - in - situ cannot be ruled out."
Classification of smear – High grade intraepithelial lesion.

QUESTIONS

a. Define dysplasia; what is the interpretation of the above results?
b. What is the significance in this young lady?
c. What is the aetiology of dysplasia in general?
d. What further investigations will you carry out in this patient?

2. PAP SMEAR - METHODS OF COLLECTION

a. List various procedures for obtaining specimens from the cervix, endocervix and vagina.
b. Describe the main advantages and disadvantages of each method.
c. How will you preserve the samples taken?
d. Why is it important for women to have pap smears done and how often should they be repeated?

3. CYTOPATHOLOGY - APPLICATIONS

a. What is cytopathology?
b. Discuss applications of cytopathology.
c. Discuss the accuracy of cytologic methods, limitations in diagnosis and sources of errors.

4. RESPIRATORY TRACT CYTOLOGY

A 71 year old retired clerical officer presented to the chest clinic with a 6 months history of increasing shortness of breath. He also had a productive cough and over the last 2 months had noticed flecks of blood in his sputum. He had smoked 30 cigarettes a day for the last 50 years. On further questioning, he also complained of weight loss and tiredness over the last 12 months.

QUESTIONS

a. What cytologic methods can be used in investigations of this gentleman?
b. What are the advantages and disadvantages of each of the method you mentioned?
c. Discuss risk factors associated in the development of cancers of the lungs.

5. OPPORTUNISTIC INFECTIONS

Discuss the role of cytopathology in the diagnosis of opportunistic infections of the respiratory tract in patients with Acquired Immunodeficiency Syndrome.

6. FINE NEDLE ASPIRATION

a. What is fine needle aspiration biopsy?
b. Describe the biopsy technique.
c. What is the role of fine-needle aspiration in diagnosis?
d. What are the contraindications and complications of fine-needle aspirations?

7. EFFUSION CYTOLOGY

a. List the main causes of transudates and exudates.
b. Describe the chemical and cytological differences in the two types of effusions.
c. Describe the main method of collection and preservation of effusions for cytologic examination
d. Discuss the role of cytology in diagnosis of benign and malignant diseases.

8. URINE CYTOLOGY

A 58 year old male has a 3 month history of haematuria. He works in a dye factory and smokes 30 cigarettes per day for the last 25 years. He denies taking alcohol.

a. Discuss the role of urine cytology in diagnosis of his condition.
b. What instruction will you give to the patient regarding collection of the urine and what precautions should be taken?
c. What type of bladder cancer is this gentleman likely to have and what are the predisposing factors? List other predisposing factors.
d. Discuss grading of bladder cancer.

9. INADEQUATE SMEAR

A 42 year old, Para 2 + 1 lady came for routine pap smear test which was reported as: -
'Inadequate smear due to pus obscuring cellular details and lack of endocervical cells.'

COMMENT: A repeat smear is recommended.

a. What is an adequate smear? (Give reasons)
b. What are the problems that may be presented by such smears?
c. What are the main aims of performing pap smears?
d. Discuss the sensitivity and specificity of Pap smear test.

10. PAROTID LESIONS

A 30 year old female presented with a mass around the parotid area, which was slow growing. Fine needle aspirate was reported as: -
'Clusters of benign epithelial cells and myxoid stroma are seen.
Features are consistent with Pleomorphic adenoma of salivary gland'
NOTE: Report was issued on the same day.

a. What was the usefulness of fine needle aspirate in this patient and in general?

b. Give a differential diagnosis of benign enlargement of salivary glands.
c. Give a list of malignant tumours of salivary gland.
d. Briefly discuss pleomorphic adenoma of salivary gland.

11. GASTRIC CYTOLOGY

A 60 year old man was seen by his GP complaining of tiredness and lethargy. The GP noted that he looked pale and had conjuctival pallor. On questioning he stated that the symptoms had been gradually getting worse for 9 months. He did not have any abdominal pain and gave no history of haematemesis of malema. His diet was well balanced although his appetite had deteriorated over the last few months. He had also lost weight.

a. What initial investigations will you order? Which of the tests are likely to be abnormal and why?
b. Endoscopy reveals an ulcer measuring 2cm. How will you collect material for cytology and what precautions should you take? What other examination can be performed on this ulcer?
c. Describe the likely gross and microscopic features of his ulcer.
d. What are risk factors for Gastric cancer and its complications?

12. SPUTUM CYTOLOGY

Discuss the role of sputum examinations in the diagnosis of opportunistic infections of the respiratory tract in patients with acquired immunodeficiency syndrome.

13. BREAST LUMP

A 63 year old woman who has recently noticed a firm lump in the upper outer quadrant of her left breast. She has been feeling well but 6 years ago, she had a hysterectomy for well-differentiated carcinoma of the endometrium. Family history is not significant.

a. What changes would you look for on physical examination?
b. What is your differential diagnosis?
c. How would you investigate the lesion?
d. Describe the likely mammographic, gross and histologic findings in this patient.
e. List prognostic factors in breast cancers.
f. List the various types of breast cancers.
g. What are the predisposing factors for breast carcinomas?

14. IRREGULAR BREAST LUMP

A 30 year old woman comes to your office. She has noticed a mass in the upper outer quadrant of her right breast and is concerned.

a. What questions should you ask the patient when taking her history?
b. What specific changes should you look for when examining the patient?
c. Suppose the lump in her breast feels as though it is cystic but there seems to be an ill-defined area of thickening adjacent to it. What is your differential diagnosis?
d. What is your next step?

e. What are the cytologic findings in fibrocystic disease of the breast?
f. What are the gross and microscopic features of fibrocystic disease of the breast?
g. What is the cause of this lesion? What is its significance?

15. CANCER OF CERVIX

A 42 year old divorcee presented to the clinic for a routine smear test. The smear was reported as suspicious but inadequate for assessment and a repeat smear was suggested. She re-presented a year and a half later for her repeat smear.
'Smear showed frankly malignant cells and severe human papilloma viral effect'

On further questioning, she revealed that she was a single mother living with her boyfriend. She gave past history of multiple sexual partners prior to her marriage and her first sexual contact being at the age of 16.

a. What further investigations should be done?
b. What are the risk factors and aetiology of HPV in carcinogenesis of cervical cancer?
c. List the various types of cervical cancers stating the frequency in each case.

16. EYE CYTOLOGY

Discuss the role of cytology in eye lesions, accessible for cytologic sampling.

17. CULDOCENTESIS

a. What is culdocentesis?
b. What are the indications?
c. What are advantages and disadvantages of this procedure?
d. Briefly discuss other methods which can be used in diagnosis of ovarian cancers.

18. INFLAMMATORY SMEAR

Discuss the inflammatory conditions which can be diagnosed in a pap smear.

19. SKIN CYTOLOGY

a. Discuss sampling techniques used in collection of cytologic specimens for diagnosing of skin lesion.
b. What are the common skin lesions that may be diagnosed on cytologic specimens?

20. RADIATION

Discuss the effects of therapeutic radiation on benign and malignant cells. What problems may such changes pose to the cytopathologist?

21. HUMAN PAPILLOMA VIRUS

A 42 year old lady presented to the clinic for a routine smear test. The smear was reported as inadequate for assessment and repeat was suggested. The patient was lost to follow up and represented a year and half latter for her smear, which now showed high grade squamous intra epithelial lesion (HSIL) with HPV effect. Histologic examination of biopsy taken at colposcopic examination confirmed HSIL but she also has a microscopic focus of invasion.

QUESTIONS

a. Discuss: what is an adequate pap smear and what problems are presented by such smears in such smears in this case?
b. Discuss the pathogenesis of HPV infections of uterine cervix and its sequelae.
c. What is the prognosis and management of your patient? (briefly)

22. BETHESDA CLASSIFICATION

a. Discuss the Bethesda classification for lesions of uterine cervix.
b. What are the advantages and disadvantages of this classification over the previous old classifications?

23. IMAGING TECHNIQUES

Discuss the role of imaging techniques in fine needle aspiration, its indications and complications.

24. CSF CYTOLOGY

a. Discuss the role of CSF in diagnosis of primary and metastatic tumours to the CNS.
b. What are the limitations?

25. MOBILE BREAST LUMP

A 30 year old woman comes to your office. She has noticed a mobile 2cm mass in the upper quadrant of her right breast and is concerned.

QUESTIONS

a. What questions should you ask the patient when taking her history?
b. What specific changes should you look for when examining the patient?
c. What investigations will you carry out?
d. Give differential diagnosis of this 2cm mass in this lady.

26. IMAGE ANALYSIS

Discuss briefly image analysis and its application to cytopathology.

27. PLEURAL EFFUSION

A 71 year old female presented with a pleural effusion. She had history of loss of weight and cervical lymphadenopathy. Thoracentesis was performed and results were as follows.

Protein 6g/dl
Leuokocytes 3 x 10^5/ml
Cellular make up 60% lymphocytes 40% neutrophils
LDH - high

Cytology showed malignant epithelial cells forming cell balls and papillary structure.

FNA of cervical node was done and also showed metastatic adenocarcinoma.

a. Discuss the value of cytologic and biochemical analysis on effusions in reference to your patient and in general.
b. What is the pathogenesis of pleural effusion in this patient?
c. Compare and contrast biochemical and cytologic findings in transudates and exudates using your patient as one example.

28. NIPPLE DISCHARGE

A 41 year old woman comes to see you because she has noticed a discharge from her nipple for the last 3 weeks. She examines her breasts regularly but has not detected any lumps. She has no past history of breast problems and has been generally healthy. She has had 2 uneventful pregnancies one occurring 8 years ago. Family history is non-contributary.

a. What questions should you ask the patient regarding the nipple discharge? What would you look for on physical examination?
b. What is the differential diagnosis of a nipple discharge?
c. What are you likely to see on cytology?
d. What changes will you see on excisional biopsy?
e. What is the significance of this lesion?

29. FNA - LYMPHNODES

Discuss the role of fine needle aspiration in evaluation of lymphadenopathy in an adult.

30. FNA - LIVER DISEASE

Discuss the role of fine needle aspiration in liver disease.

31. THYROID LESIONS

Discuss the role of fine needle aspiration in Thyroid lesions.

32. PREMALIGNANT LESIONS

Briefly discuss the classifications used in the past for the premalignant lesions of uterine cervix. What were the disadvantages and advantages over the current Bethedsa system of classification?

33. SPUTUM - LUNG CANCERS

1. List various Neoplasms of the lung and their cell of origin.
2. What is the advantage and disadvantage in diagnosis of these tumours using a sputum sample?

34. SOFT TISSUE TUMOURS

a. Discuss the role of FNA in diagnosis of lesions of soft tissues and bones.
b. What are the limitations?

35. HORMONAL CYTOLOGY

Discuss the role of ~~vaginal~~ cervical smears in evaluation of endocrinologic conditions.

36. ENDOMETRIAL CYTOLOGY

a. Discuss sampling techniques of endometrium for cytologic evaluation. What are the advantages and disadvantages of these techniques?
b. Discuss sampling techniques for various lesions of vulva and vagina.
c. Give a brief discussion on lesions which could be accessible for cytologic evaluation of these sites.

37. ORAL LESIONS CYTOLOGY

a. Discuss methods of collection of specimens, from oral cavity lesions.
b. Discuss briefly the lesions which can be diagnosed on cytology and diagnostic accuracy in malignant oral lesions.

38. FLOW CYTOMETRY

Discuss role of flow cytometry in cytology.

39. IN-SITU HYBRIDIZATION

Briefly and simply discuss the role of in situ Hybridisation in cytology.

40. NATIONAL SCREENING PROGRAM

Discuss the advantages and disadvantages of National Screening Program. Use carcinoma of uterine cervix and Gastric cancers as two examples.

41. WOUNDS - GENERAL

Classify wounds in general and discuss the criteria for distinguishing the possible cause.

42. GUN SHOT WOUNDS

a. Describe the determinants for distinguishing a contact shotgun wound from a distant (beyond arms length) shot gun wound.
b. Discuss the samples obtained from the victim of a gunshot wound and the rationals for each step.

43. POISON INGESTION

a. Describe the specimens obtained in a case suspected to have ingested a poison orally.
c. Describe the preservation and transportation of samples obtained in cases of alcohol, chloroquine and pesticide poisoning.

44. SEXUAL ASSAULT

a. Describe the examination and sampling techniques in a case of sexual assault.
b. Describe how each of the samples obtained are preserved for transportation.
c. What are the limitations of forensic evidence collected?

45. WOUND BALLISTICS

a. Describe interior, external and wound ballistics in shotgun and velocity rifled guns.
b. Discuss in what way the wound ballistics help in estimation of the range of fire with specific reference to shotguns.

46. SUDDEN INFANT DEATH SYNDROME

a. Define sudden infant death syndrome.
b. What steps are carried out in post-mortems of suspected SIDS?

47. MEDICAL EXAMINER - SEXUAL ASSAULT

Discuss the role of a medical examiner in cases of sexual assault.

48. TOXICOLOGY

a. Discuss the role of toxicology in forensic medicine with specific reference to: -

(i). Fire deaths.
(ii). Drink Driving.
(iii). Intravenous drugs of abuse.
(iv). Chloroquine overdose.

b. List the samples obtained in each case and describe the preservation, transportation and storage methods.

49. FATAL SHOOTING

Following a fatal shooting incident, a distorted lead bullet was recovered from the body and an empty catridge case was found at the locus. Describe the principles of their forensic laboratory examination. What information will such examinations provide?

50. RAPE VICTIM - EXAMINATION OF STAINS

The police surgeon examining the victim of an alleged rape has detected a 20mm diameter dried white stain in the inside of her pants which she suspects is dried semen. How will this stain be examined in the laboratory and what may any results show?

51. CROSS CONTAMINATION

What possible sources of cross contamination exist in the forensic Science laboratory and what safeguards are necessary to minimise the problems?

HIT & RUN

52. FATAL ROAD TRAFFIC ACCIDENT

Fragments of glass and paint chips have been recovered from the scene of an unwitnessed fatal hit and run road traffic accident. What scientific tests should be performed and what information are they likely to provide?

53. FORENSIC MEDICINE

Discuss the history of forensic medicine.

54. FIBRES

Describe briefly how the physical and chemical properties of fibres are utilized by forensic scientists in the investigation of crime.

55. ROAD ACCIDENT

A schoolboy was severely injured in a hit and run road accident in which he was knocked from his bicycle by a speeding car. A metallic red Ford car, earlier reported stolen, was found abandoned in a town centre car park. There was obvious damage to the front nearside wing and light cluster.

QUESTION

science

1. What forensic investigations should be performed in an attempt to link the car with the earlier hit and run incident?
2. list the possible samples that would be obtained from the victim & the vehicle recovered.

56. GUN SHOT

A middle-aged shopkeeper has been shot dead in a bungled armed robbery. Several witnesses gave good descriptions of the robbers, enabling the police to arrest two suspects within a matter of hours. A 0.22 calibre hunting rifle was found at the home of one suspect. What forensic ballistic investigations should be performed in this case and what will they aim to demonstrate?

57. DRUG EFFECTS AND ABUSE

The effects and abuse of cannabis and amphetamines.

58. ILLICIT DRUGS

Planning a raid on an illicit drugs factory.

59. DRUGS - IDENTIFICATION

Techniques for provisional and definitive identification of street drugs.

60. DOCUMENT EXAMINATION

Principles and techniques used in document examination (except handwriting analysis).

61. MEDICAL ETHICS

Discuss the origins, basis and principles of medical ethics. What conflicts may arise in the physicians' roles as patient advocate, member of society and entrepreneur.

62. BLOOD STAINS

(a). The forensic characterisation of blood stains and blood grouping.
(b). The use of DNA evidence in court (I). For the prosecution.
(II). For the defence.

63. SIGNS OF DEATH

(a) Discuss signs of death and changes after death.
(b) what is the forensic importance of lividity, rigor & algor mortis & adipocere

64. CRIMINAL ABORTIONS

Discuss criminal abortions and causes of death.

65. DEATH - PRESSURE ON THE NECK

Discuss autopsy findings in death by pressure on the neck.

66. ADHESION MOLECULES

What are adhesion molecules? Discuss their clinical relevance of interactions and consequences of defective expression.

67. CYTOKINES

Discuss cytokines covering the following subtitles:

a. Definition,
b. Chemical nature
c. Functions
d. Effect on immune or inflammatory functions.

68. INFECTIOUS MONONUCLEOSIS

Discuss the pathology, pathogenesis and complications of infectious mononucleosis.

69. VIRAL STRATEGIES

Using specific examples, discuss viral strategies to evade the immune response.

70. IMMUNE EVASION

Discuss the mechanisms of immune evasion by bacteria.

71. IMMUNE REACTIONS

Using specific examples, discuss the mechanisms of diseases caused by immune reactions to bacterial antigens.

72. CEREBRAL MALARIA

Discuss the pathology and pathogenesis of cerebral malaria.

73. HELMENTHIC STRATEGIES

What are the normal immune responses to helmenthic infections? What are the ways in which helmenthis evade or modify the 'host' immunological attack?

74. HERPES SIMPLEX

Discuss the pathology and pathogenesis of herpes simplex infections.

75. IMMUNOGLOBULIN DEFICIENCY

A 48 year old man was diagnosed to have IgA and IG subclass deficiency. Discuss clues from his history that might make you suspect these clinical conditions. What investigations would you carry out to arrive at this diagnosis? What is the management of this patient?

76. FOOD ALLERGY

Discuss the topic food allergy and intolerance. How will you make a diagnosis and what is the management of a patient with this problem?

77. MONOCLONAL ANTIBODIES

Discuss the use of monoclonal antibodies as laboratory reagents aiding diagnosis.

78. IMMUNOHISTOCHEMISTRY

Give a general account of the uses and limitations of Immnohistochemistry in the histopathological diagnosis.

79. GUILLAIN-BARRÈ SYNDROME

Discuss Guillain-Barre syndrome using the following headings: -

a. Clinical symptoms and signs.
b. Immunopathology and pathogenesis.
c. Laboratory investigations and management.

80. AUTOIMMUNITY

Using specific examples, discuss 'What triggers autoimmunity?'

81. PEMPHIGUS VULGARIS

Discuss Pemphigus Vulgaris covering the following subtitles:

a. Clinical symptoms and signs
b. Immunopathogenesis and pathology
c. Laboratory investigations and management

82. POLYARTERITIS NODOSA

Discuss Polyarteritis Nodosa covering the following subtitles:

a. Clinical presentation
b. Immunopathogenesis and pathology
c. Laboratory investigations and management.
d. Complications.

83. AUTOIMMUNE HEPATITIS

Discuss autoimmune hepatitis covering the following subtitles: -

a. Clinical presentation
b. Immunopathogenesis.
c. Laboratory investigations and management
d. Complications.

84. BILIARY CIRRHOSIS

Discuss primary biliary cirrhosis covering the following subtitles: -

a. Clinical features.
b. Immunopathogenesis
c. Histologic findings
d. Laboratory investigations and management
e. Complications and associated syndromes.

85. IMMUNE COMPLEX DISEASES

What are the "immune complex diseases"? Discuss the pathogenesis and principle features of one of these disorders, with specific emphasis on the skin and kidney.

86. THYROID GLAND LESIONS

Inflammatory lesions of thyroid gland and laboratory investigations.

87. MACROPHAGES

Discuss the role of the macrophages in Tuberculosis and in malignant Neoplasm.

88. HLA SYSTEM

Discuss the role of the HLA system in health and in the pathogenesis of disease.

89. MAST CELL

Discuss the role of the mast cell in health and diseases.

90. HERPES SIMPLEX INFECTIONS

Discuss the pathology and pathogenesis of Herpes simplex infections.

91. ACUTE APPENDICITIS

A 24 year old man experienced periumbilical abdominal pain, nausea and vomiting. Over the next 12 hours, the location of the pain shifted to the right lower quadrant and was aggravated by cough on movement. There was rebound tenderness in the abdomen and tenderness on rectal examination. The patient's temperature was 38°C. His leukocyte count was 18,000 cells per cubic millimetre (normal =4300 – 10,000 cells/mm^3) and there was "shift to the left" (38% band forms, normally 0 – 21%; 4% metamyelocytes normally not present). An appendicectomy was performed.

DISCUSS

a. Describe Gross and Histologic features of normal appendix.
b. Describe Gross and Histologic features of appendix from the patient.
c. What is the pathogenesis of acute appendicitis?
d. What are the possible sequelae of acute appendicitis?
e. What is the role of chemical mediators and cytokines in acute inflammation? (Refer to some of the features seen in the above patient).

92. TUBERCULOSIS

A medical graduate had a physical examination prior to beginning her internship. This examination included a chest X-ray. Intracutaneous injection of a protein fraction of *Mycobacterium tuberculosis* was followed in 48 hours by erythema and oedema at the site of injection. This test had been negative on entry into medical school and for an unknown reason the physician had never been vaccinated with BCG. Gastric washings and sputum repeatedly failed to grow *M. tuberculosis*.

DISCUSS

a. Which type of tuberculosis is the patient likely to have and what are the likely findings on her chest X ray?
b. What is the mechanism by which the positive tuberculin test is produced?
c. Discuss the role of the macrophage in Tuberculosis.
d. What are possible complications of this type of tuberculosis?

93. MYOCARDIAL INFARCTION

A 58 year old man was admitted with severe, blunt, centrally located chest pain extending to his left arm and difficulty in breathing. The pain had started suddenly when he was having his breakfast and had become gradually unbearable within the last 3 hours. It was constant and did not change with movement or breathing. He had been well until that morning though he had noticed that he had started getting very tired after climbing stairs or walking uphill within the last year. He had been overweight all his life and had smoked 20 cigarettes a day for the last 40 years. His father had died of heart disease at the age of 65.

On physical examination his pulse rate was 122 beats/min, the respiration rate was 28/min, the blood pressure 150/95mmHg. On auscultation his heart beat was regular though occasional extra beats were heard. His lung sounds were normal. There was no epigastric sensitivity. No other physical signs were present.

Blood chemistry showed increased creatinine levels at the time of admission and increased aspartate aminotransferase and lactic dehydrogenase levels were detected next day.

Blood count showed a mild leucocytosis and increased ESR. An ECG showed characteristic acute full thickness anterior wall infarction. CXR was normal. A Radionuclide assay showed anterior wall myocardial hypoperfesion.

DISCUSS

a. What are the risk factors in this patient and risk factors in general?

b. Discuss the pathology and pathogenesis of his condition, relating the various abnormal clinical and laboratory findings.

c. Discuss the current views on the relationship between lipids and atherosclerosis.

94. POST-STREPTOCOCCAL GLOMERULONEPHRITIS

A 12 year old boy developed pharyngitis during an outbreak of infection due to group A beta-hemolytic streptococci. He appeared to recover without treatment but 10 days later presented to his physician with periorbital oedema, malaise and fever. His blood pressure was elevated. Urinalysis revealed the presence of erythrocytes, protein, and granular casts in his urine. His blood contained antistreptococcal antibodies in high titre. The serum levels of C3 component of complement were low and levels of blood urea nitrogen were elevated. He recovered completely over the next month.

DISCUSS

a. What are the "immune complex diseases"?
b. Relate the various abnormal clinical and laboratory findings in this patient to your understanding of the pathogenesis of post-streptococcal glomerulonephritis.
c. How does the mechanism of this disease differ from that of Goodpasture`s disease?
d. Explain the immunohistochemical and electron microscopic findings in the kidney seen in this condition
e. Discuss the value of the renal biopsy in the diagnosis and prognosis of renal disease.

95. PEPTIC ULCER

A 40 year old business executive complained of epigastric pain, which was made worse by eating but relieved somewhat by antacids. His physician found a gastric ulcer on X-ray and by endoscopy. Medical treatment was undertaken but partial gastrectomy was considered necessary when the ulcer did not respond to medical management.

DISCUSS

a. The pathology, pathogenesis and complications of peptic ulcer disease.
b. The value of biopsy and cytology in the diagnosis of ulceration of the gastric mucosa
c. Discuss the role of Helicobacter pylori in peptic ulcer disease and gastrointestinal malignancy.
d. What are the complications of gastrectomy / partial gastrectomy.

96. KAPOSI'S SARCOMA AND AIDS

A 40 year old male homosexual presented to his physician with a history of malaise, fever and night sweats. Over the past several months, he had also noted the development of multiple skin nodules on his arm. These gradually increased in number, and spread to involve the trunk. These lesions bled easily.

DISCUSS

a. What are the risk factors for AIDS?
b. What is the current knowledge on the etiology and pathogenesis of this syndrome?
c. What are the clinico-pathologic manifestations of AIDS?
d. Discuss the pathogenesis of Kaposi's sarcoma? What are the Gross and histologic appearance of Kaposi's sarcoma?

97. CHORIOCARCINOMA

38 year old, Para 11+1 had per vaginal bleeding for 3months. Last pregnancy resulted in a threatened abortion at 16 weeks pregnancy. Pregnancy test was positive and Beta HCG levels were 102 783miu/ml (0 – 7miu/ml for non pregnant woman and pregnant 22 – 530m iu/ml)

a. Describe the gross and microscopic features of this condition.
b. What are the risk factors in this patient and in general?
c. Give an account of trophoblastic tumours.

98. CARCINOID TUMOUR

30 year old male presented with ileal obstruction. Part of the ileum was resected.

a) Describe the gross pathology of this tumour.
b) Describe the histologic and cytologic features of this tumour. What are the diagnostic pitfalls and solutions for an accurate diagnosis?
c) What are the differential diagnoses?
d) What are the clinical effects of these tumours?

99. ACUTE SALPINGITIS (BILATERAL)

31 year old female. Para 2 + 0 presented with per vaginal bleeding on and off, vomiting and lower abdominal pain for 4 days. She gave a history of dull ache on both sides of the lower abdomen 2 months ago. On examination there was guarding and the abdomen was slightly tense. Bowel sounds were normal. On pelvic examination, the adnexae were tender with palpable tender masses. The temperature was 38°C. He leukocyte count was 18 x 10^9/lcells, (n+ 10 x 10^9 cells/l. There was a 'left shift' 83% band forms (n + 0 – 21%) 4% metamyelocytes (n + 0) Hb log/dl. The widal was 1:160, PDT negative, MSU – increased pus cells in urine otherwise normal, high vaginal swab showed numerous pus cells – culture for N. Gonorrhoea was positive, LCR for chlamydia was also positive. C – reactive protein 60mg/l, stool examination showed *E. Histolytica trophozoites* and ultra sound showed bilateral salpingectomy and appendicectomy was done.

an adnexeal mass.

QUESTIONS

a. Describe the pathologic features (Gross and microscopic) of the acute salpingitis.

b. What is the pathogenesis of acute salpingitis and its possible sequelae?
Relate the clinical and laboratory findings in this case.

c. What features in this case indicate a systemic reaction to the inflammatory response? What are the mechanisms by which these features are produced?

d. What is the significance of the widal test findings in her case and what is the value of a widal test?

100. ULCERATIVE COLITIS (UC)

A 38 year old woman presented with a complaint of diarrhoea for the last one week. She had had a similar episode 6 months ago, which lasted for 3 weeks. This time she had noticed the presence of blood and mucous – like material in the stool and was concerned. The frequency of stool was also increased, reaching 15 on some days. She described lower abdominal discomfort and pain and felt generally weak and ill. On examination, she was dehydrated with increased skin turgor and dry mucous membranes. Her pulse was 110beats/min, temp 37.8°C, respiratory rate 18/min, blood pressure 110/60mm Hg. There was ill-defined lower abdominal sensitivity on palpation investigations – Haematology Hb 9g/dl HCT 30%, WBC 1.3 x 10^9/l, 80% neutrophils, ESR 62mm/hr microbiology, direct examination of stool – No parasites or amoebae identified, stool cultures negative. In absence of any microbiological explanation for the diarrhoea, a rectosigmoidoscopy was performed. This showed hyperamia in the rectal mucosa, loss of normal vascular pattern and numerous superficial ulcers and foci of bleeding several colonic biopsies were obtained.

QUESTIONS

a. Describe gross and histologic findings in ulcerative colitis, how do they differ from Crohn's disease?
b. Discuss the patient's laboratory findings.
c. What is the aetiology and risk factors of UC?
d. Discuss the pathology of this condition and possible sequelae.
e. What is the management of UC?

101. RHEUMATOID ARTHRITIS (RA)

A 48 year old woman had been troubled for 10 – 15 years with recurrent episodes of acute arthritis, each associated with generalized malaise, fever, joint swelling, and pain. The joints of her hands and feet were especially prone to these attacks. On one occasion, when a knee joint was involved, an effusion was aspirated prior to instillation of corticosteroids. This effusion contained 3.8 x 10 cells/ml, 67% of which were neutrophils. Cultures of this effusion failed to grow micro-organisms. Following repeated episodes, she developed marked deformity of her hands and muscle wasting. Subcutaneous nodules appeared on her arms. Later she developed ulceration of the skin of her legs and hands. She died suddenly of cardiac arrest. Throughout the course of her disease examination of her serum had demonstrated an elevated erythrocyte sedimentation rate, increased immunoglobulin levels, and antibodies specific for the Fc fragment of IgG (rheumatoid factor).

QUESTIONS

a. Review the pathogenesis of RA, making a point to explain the development of each of the lesions mentioned in her history.
b. Discuss the finding in the knee joint effusion.
c. What is erythrocyte sedimentation rate (ESR) what is the significance of raised ESR and what is its clinical usefulness.

102. HASHIMOTO'S THYROIDITIS

28 year old woman presented for evaluation of a thyroid nodule present for 6 months. Work up disclosed a cold nodule by scan and normal levels of FT3, FT4 and TSH :n the serum. The nodule failed to decrease over the next few months and the patient was re-investigated. A 2 x 2cm right thyroid mass was present which was cold on scan and solid by ultrasound examination.

QUESTIONS

a. What further tests can be done?
b. Describe gross and histologic features of Hashimoto's thyroiditis.
c. What is the pathogenesis of this condition?
d. List differential diagnosis of solitary thyroid nodule and describe the histologic features of each of the conditions you mention.
e. Give an account of inflammatory and inflammatory-like diseases of the thyroid gland.

103. GALL BLADDER STONES ×

A 48 year old obese woman presented with acute upper abdominal pain, fever and jaundice. Examination of the Murphy's sign was positive, ultra sound showed a distended gall bladder with possible stones.

QUESTIONS

a. Her cholecystectomy – describe the gross features. Use museum specimen for demonstration
b. What biochemical tests can be useful?
c. Discuss the aetiology, pathology and complications of the condition.

104. THROMBOEMBOLISM

A 25 year old woman fell from the balcony of her alpine hotel following an apres-ski party, sustaining a compound fracture of the femur and a double fracture of the pubic ramus. There was no significant previous medical history and the combined oral contraceptive pill was her only medication. Immediate internal fixation of the femoral fracture was performed, but her postoperative course was complicated by bleeding from a branch of the femoral artery and wound infection. She was evacuated to the UK by air-ambulance.

Twelve hours after arrival, she experienced right-sided pleuritic chest pain. On auscultation a pleural rub was heard, allowing for the previous orthopaedic operation, examination of her legs was normal. Chest radiograph and electrocardiogram were normal. Chest radiograph and electrocardiogram were normal and there was no fever. Ventilation and perfusion scan showed multiple areas of hypoperfusion of lung parenchyma, without associated ventilatory defect.

A diagnosis of multiple small pulmonary emboli was made and she restarted anticoagulation with heparin, prophylactic heparin having previously been stopped after her episode of arterial haemorrhage. She made a slow but uneventful recovery except for one episode of haemoptysis. Oral anticoagulation with warfarin was prescribed until 3 months later when she was fully mobile. It was decided not to perform screening tests for THROMBOPHILIA.

QUESTIONS

a. Discuss the pathogenesis of thrombosis and thromboembolism in this case.
b. What is thrombophilia?

105. PNEUMONIA

An elderly male alcoholic who smoked 1 pack of cigarettes per day became ill during an influenza epidemic. He went to bed and remained there. Over the next few weeks he became febrile (temperature 39°) and developed shaking chills, tachycardia, chest pain, and a cough which produced rusty, mucoid sputum. Finally an ambulance was called and the patient, now moribund, was taken to hospital. He was found to be dehydrated, cyanotic, and short of breath. There was decreased air entry on the side of the chest. A chest x-ray was taken. The leukocyte count was 20, 000 cells/mm^3 with 2% metamyelocytes (normally not present) and 45% band forms (normal: 0 – 21%). Blood gases revealed hypoxemia, hypocarbia, and respiratory alkalosis. A gram-stained smear of sputum revealed numerous leuokocytes and many gram-positive diplococci.

Cultures of sputum and blood grew *Diplococcus pneumoniae* Type III. Treatment with penicillin, fluid and electrolytes was initiated. The patient later developed neck rigidity, followed by delerium and then coma. Lumbar puncture and examination of the cerebrospinal fluid revealed the following data:

	Case 8	Normal
Appearance	Cloudy	Clear
Cell count	250/mm^3	0 – 5/mm^3

Differential	**99% neutrophils**	**all lymphs**	
Protein		100mg/dl	14 – 45mg/dl
Culture		*D. pneumoniae*	No growth

In addition, daily physical examination showed the development of splenomegaly, a heart murmur, and petechiae on the fingers and toes. Despite further treatment the patient died.

QUESTIONS

a. Discuss the pathogenesis of pneumococcal pneumonia making a point to explain the development of the lesions mentioned in the patient's history. What features of this patients past medical history may have predisposed his lungs to bacterial infection?

b. Discuss the mechanisms responsible for the various laboratory findings listed above.

c. What are the features and mechanisms of an acute inflammatory process in this bacterial infection?

106. ACUTE PERITONITIS

A woman was admitted with acute abdominal pain. At laparatomy, she was found to have a perforated gastric ulcer. The peritoneal cavity contained 1 – 2 litres of cloudy and blood-tinged fluid.

Properties of the ascitic fluid:

Total cell content: 6×10^7 cells/ml

Differential cell count: Neutrophils 83%; Other 17%

Protein content: 4.2g/dl.

Lactic dehydrogenase: high

QUESTIONS

a. Discuss the pathogenesis and complications of gastric ulcer.
b. Comment on the character of the ascitic fluid findings in this patient.
c. Discuss the pathogenesis of exudates and transudates in general.
d. Briefly discuss the method of collection and preservation of effusions for cytologic examination and their role in cytodiagnosis.

107. HYPERTENSION

A persistently raised blood pressure in excess of 140/95 mmHg.

Case

A 45 year old man was referred to a cardiologist for investigation of hypertension following a routine medical examination of life insurance.
He had no symptoms related to his hypertension, and no family history of heart disease. He smoked 20 cigarettes per day but did not consume alcohol. He was a director of an advertising agency and described his job as 'very stressful'.
On examination, he was overweight. Weighing 102kg. His blood pressure, using a large sphygmomanometer cuff, was 170/110, with a pulse rate of 100 beats/min. There were no other physical findings of note and in particular, there was no abdominal bruits, and his retina did not show evidence of papilloedema or haemorrhage.
He was sent for blood tests, ECG, chest radiograph and abdominal ultrasound. Routine haematological and biochemical investigations and 24-hour urinary vanillylmandelic acid (VMA) levels were all normal.

Abdominal ultrasound: normal kidneys and renal vessels. Adrenals normal.
ECG: sinus rhythm, 95 beats/ Min. Left ventricular hypertrophy. No evidence of left ventricular strain.

The cardiologist treated the man with an antihypertensive calcium antagonist. His follow-up was satisfactory initially and he was discharged to the care of his general practitioner. He was subsequently defaulted and was lost to follow up.
Four years later while sitting in a business meeting, he developed severe headache and collapsed. He was rushed to hospital but was dead on arrival. Resuscitation was unsuccessful. A post-mortem examination was carried out.

QUESTIONS

a. Discuss the pathogenesis of hypertension in reference to this patient.

b. Explain the need to do the various tests that were carried out on this patient.

c. What were the likely post-mortem findings and cause of death?

108. CHRONIC GLOMERULONEPHRITIS

A 42 year old man had suffered for two and a half years from renal failure due to chronic glomerulonephritis and had been carrying out his haemodialysis at home. He was put on the list for a kidney transplant when one became available. Blood was taken for ABO and HLA typing and he was examined for any contraindications for transplantation. He was found to be blood group A and was HLA-A10, A25, B6, B27, Cw3, Cw5 and DR3, DR4. Three months later he was admitted for his transplant operation. He was given a cocktail of immunosuppressive drugs which included azathioprine, prednisone and cyclosporin A. The renal transplant was from a donor who had died from a fatal road accident and was typed as HLA=-A5, A11, B6, B11, Cw3, Cw6 and DR2, DR3 with the same blood group. A cross-matching test was done which was satisfactory. The surgery was successful and over the next few days his serum and urea levels of creatinine fell, indicating that the new kidney was functioning well. He returned home after a week and felt much better than he had for 3 years. Five weeks after the operation, he developed a fever, his urine output dropped to 23ml/h and his blood pressure increased to 140/115mmHg. He had mild interstitial oedema. He was admitted into hospital for a renal biopsy.

which showed a mononuclear infiltrate in the renal cortex. The patient was diagnosed as having acute rejection and was given parenteral prednisone. He began to improve on steroid treatment and was discharged. He was given cyclosporin A as a long-term treatment to prevent further rejection episodes.

DISCUSSION

a. Briefly review the structure of the major histocompatability complex.
b. What physiological role do MHC products on the cell surface play? How are the different classes of antigens recognized?
c. What mechanism is involved in transplant rejections in this case and what changes would you see in his kidney biopsy?
d. Discuss some of the methods used to enhance the survival of allographs. What deleterious effects may these have on the host?
e. Bone marrow transplants are now becoming the preferred therapy for certain leukemias and aplastic anaemia. What are some of the problems encountered with the transplantation of hematopoeitic cells?
f. Discuss the relevance of all laboratory tests done in this patient.

109. DISSEMINATED INTRAVASCULAR COAGULATION

A 50 year old man was running from police when he was hit by a bus. He was admitted to the hospital A&E department and was not able to give a history. On examination, blood pressure was 90/40mm Hg, pulse 110 beats/min and regular. Ausculation of his chest revealed absent breath sounds on the left side. The abdomen was distended and silent, with an uncoordinated pain response on palpation. There was clear closed fracture of the left
humerus. An intravenous infusion of saline was set up, followed by hydroxethylstarch. He was transferred to the radiology department but suffered a cardiac arrest in the lift. The cardiac arrest team was called and he was resuscitated with further intravenous fluids, external cardiac massage and a direct current shock for ventricular fibrillation. He was transferred to the intensive care unit where a chest drain was inserted and 2 litres of blood drained. Grouped –but – unmatched red cell transfusion was set up. The results of his investigations now became available. The blood count showed an elevated white cell count with neutrophilia and occasional nucleated red cells, a low platelet count of 13 x 10/l. The blood film showed fragmented red cells and helmet cells, and reduced platelets.

Coagulation screen: prothrombin time, 34 seconds (control 13 seconds); INR 4.1 APTT: 94 seconds (control 37 seconds) APTT on 50/50 mixture with normal plasma: 41 seconds. Thrombin time: 2 secodns (control 14 seconds). Fibrin degradation products (D- dimers): 4.0 (normal < 0.25mg/l)

QUESTIONS

a. Define disseminated intravascular coagulation (DIC)
b. What are the risk factors and aetiology of DIC in this 50 year old man?
c. What is the pathogenesis of DIC?
d. What are the post-mortem findings in a patient who dies from DIC?
e. What is the management?

110. ASTHMA

A 36 year old man suffered from repeated attacks of respiratory distress. Wheezing, expiratory difficulty and gradual over inflation of his chest would completely incapacitate him for several days. As an attack subsided he coughed up sticky sputum containing tubular casts and numerous eosinophils. As a child, he had been treated for eczema. The patient died during a severe attack, which had lasted several days. (Status Asthmaticus)

Discussion

a. Review the pathophysiology of asthma with special reference to the chemical mediators that are released by mast cells. How does it differ from allergy to penicillin?
b. What investigations can be carried out in diagnosis of Asthma?
c. What are the likely post-mortem findings?
d. What were the likely findings in cytologic examination of the sputum?

111. LYMPHOMA COMPLICATING IMMUNODEFICIENCY

An 11 month old girl presented to hospital with a pathological fracture of her left femur and a large pararenal mass. The bone lesion was biopsied and the mass was excised. Her past medical history included recurrent episodes of intractable bacterial and fungal infections. Immunologic investigations disclosed low numbers of circulating T cells. Her peripheral blood leukocytes showed no response to Pokeweed mitogen, Concanavalin A or Phytohemagglutinin. Her lymphocytes could stimulate but not respond in a mixed lymphocyte reaction.

Immunohistochemical studies revealed that the tumour cells contained IgG. The neoplasm was judged to be a monoclonal proliferation because only Kappa chains were present in the tumour cells.

Molecular hybridization studies were conducted and these disclosed presence of Epstein-Barr virus (EBV) genome in the tumour cells.

DISCUSSION

a. What role may the patient's immunodeficiency have played in the pathogenesis of the neoplasm?
b. What other neoplasmas and conditions are associated with the E BV? And what is the postulated role in pathogenesis of Burkitts lymphoma?
c. What other neoplasms occur in the immunocompromised host?
d. Give a brief classification of Lymphomas and the role of immunohistological techniques in establishing and refirming the diagnosis.

112. SARCOIDOSIS

A young black woman presented to her doctor in South Carolina with a history of weakness and fatigue. Physical examination revealed low –grade fever, and enlargement of the liver and spleen. Chest x-ray demonstrated bilateral hilar lymphadenopathy. Repeated attempts to isolate M. tuberculosis from sputum and gastric washings were negative. A mediastinal lymph node biopsy was performed. Four weeks after intracutaneous injection of a heat-sterilized suspension of human sarcoid tissues a papulonodular lesion was found at the injected site and was biopsied (Kveim test).

DISCUSSION

a. Describe the lesions seen in the lymph node and skin. How are these lesions different from those seen in tuberculosis?
b. What pathologic changes would you see in the skin at the site of intracutaneous infection?
c. What are the cellular mechanisms that result in the formation of a granuloma? What are the differential diagnoses?
d. Discuss the pathogenesis of sarcoidosis.

113. CHRONIC OSTEOMYELITIS

A 39 year old lady was struck by a car and sustained several fractures one of which was in the lower third of the left tibia. There was an attempt at a closed reduction of this fracture and the limb was supported in a cast. Ten days later, a side plate with screw was inserted. This resulted in much better reduction of the fracture. Examination three months later demonstrated delayed union. One year later a chronic draining ulcer was seen at the position of the pin. Her doctor felt that bone union was complete and the side plate was removed one month later. Thereafter, the draining ulcer persisted and re-examination over the next eighteen months demonstrated the development of chronic osteomyelitis with extensive sclerosis and sequestrum formation.

QUESTIONS

a. Discuss the pathology and complications of acute and chronic osteomyelitis, making a point to explain development of chronic osteomyelitis.
b. What are the complications of osteomyelitis.
c. Why is chronic infection more likely to occur in osteomyelitis than in furuncle?

114. SYSTEMIC LUPUS ERYTHEMATOSIS

A 28 year old woman presented to her doctor with a 1 month history of intermittent fever, joint pains, puffiness of her face, hands and feet, and a malar rash which was more severe on exposure to sunlight Other symptoms included intermittent abdominal pain and pleuritic chest pain.
She also noted bleeding of her gums after brushing her teeth and bruising of her skin. Physical examination disclosed enlarged non-tender lymph nodes and spleen. A faint pericardial friction rub was present Examination of the urine revealed moderate to severe proteinuria and occasional red and white cells in the sediment. Laboratory investigations of the serum revealed hypoproteinemia, a reversed albumin/globulin ratio, hypocomplementemia, and antenuclear antibodies (ANA) to double stranded DNA. Examination of the blood film revealed low numbers of platelets, neutrophils and a normochromic normocytic anaemia. LE cells were seen in a special preparation.
The patient was given high doses of prednisone which caused a dramatic remission of the signs and symptoms. She was maintained on lower doses to keep her symptom free. "Flare-ups" responded well to higher doses of prednisone. She felt reasonably well for several years on this regimen but then became progressively unresponsive to the therapy. Toward the end of the course of her illness she developed signs of right ventricular hypertrophy on her EKG and a heart murmur was heard.
A chest x-ray revealed the presence of patchy interstitial infiltrates. An open lung biopsy was performed.

From your knowledge of this disease, discuss the pathogenesis and significance of the clinical and laboratory findings.
Why are the lymph nodes and spleen enlarged? What histological changes would you expect to find on a lymph node biopsy?

DISCUSSION

a. What is known about the aetiology and pathogenesis of SLE?
b. Autoimmune diseases may be best viewed as a breakdown of tolerance to "self". What are some of the suspected mechanisms of this breakdown? How may these relate to SLE.
c. A kidney biopsy was performed; discuss the likely findings and histologic staging criteria.

115. LOBAR PNEUMONIA - YOUNG ADULT

A 27- year old homeless male presented to casualty with rigors and a productive cough with blood-stained sputum. He also complained of a sharp pain on the right side of his chest, which was worsened during breathing. He had a high temperature and was tachypnoeic. On examination he had signs of consolidation of the right side of the chest with decreased movement of the chest. Auscultation revealed crepitations with the presence of a pleural rub and bronchial breath sound over the right lower lobe.

Haematology: Hb 13g/dl:WBC 27 000 x 106/l; polymorphs 80%
Radiology: lobar consolidation in right lower lobe
Chemistry:Po_2 8.5 kPa: $Pc0_2$ 5.5 kPa; pH 7.4; HCO_3 23mmol/l
Microbiology: Strep. Pneumoniae isolated from the sputum and blood culture.

A diagnosis of community acquired Lobar Pneumoniae was made.

QUESTIONS

a) Discuss the aetiology, risk factors and pathology of Lobar Pneumoniae.
b) Discuss the pathogenesis of clinical and laboratory finding in this patient.

c) What is the management of your patient?

116. COELIAC DISEASE

A 4 year old boy is brought to you with a history of failure to grow, anaemia, general wasting and soft loose bulky stools. He has a brother, 2 years older than him who is well. You suspect coeliac disease.

a. What is the aetiology, pathogenesis and complications of this disease?
b. What investigations will you carry out?
c. What is the management?
d. Give differential diagnosis of malabsorption in this 4 year old boy.
e. What is the role of biopsy in evaluation of malabsorption syndrome.

117. TUBERCULOSIS IN A DIABETIC

46 year old male, works as a Clinical Officer in southern Sudan, and is diabetic with essential hypertension since 1995. He developed pleural effusion which was treated with chest tube insertion and anti-TB therapy in a Nursing Home. A month later, he presented with weight loss, dyspnoea, poor air entry on left side of chest and a discharging sinus at the site where chest tube was inserted. He was readmitted and CXR showed left hydrothorax, collapsed lung, Tracheal displacement and multiple Lucencies in the left lung.

Other investigations done were HIV Elisa – negative, HB – 8.4g/dl, WBC count – 9.2×10^9/l with 80% neutrophils and 20% lymphocytes, Thoracentesis was done and pleural fluid, which was pus-like grew *Klebsiella spp*. Blood sugar was 19.5mmol/l at admission but stabilised. Later, decortication of thickened pleura was done which failed to expand the lung and air leak continued. Pneumonectomy was done two weeks after this readmission. Histology of thickened pleura and open lung biopsy showed necrotizing granulomatous inflammation consistent with Tuberculosis.

a) Discuss the aetiology, risk factors, pathogenesis and complications of tuberculosis in this patient.
b) Discuss the mechanisms responsible for the various laboratory findings listed above.
c) Describe the Gross features of the Pneumonectomy specimen and histologic findings.
d) Discuss the aetiology and pathologic consequences of Diabetes Mellitus.

118. CUSHING'S SYNDROME

A 45 year old shop assistant presents at your clinic with complains of progressive muscle weakness and headaches. He also noticed that he was drinking a lot of fluids and urinating more frequently. On examination, he was obese, with flushed face. He had proximal muscle wasting and abdominal striae. His blood pressure was 190/110 mmHg. You suspect Cushing's Syndrome.

a. What laboratory investigations will you do and what would be the expected results in a patient with Cushing's Syndrome?
b. Discuss the aetiology, risk factors, clinical findings and pathogenesis of Cushing's syndrome.

119. COLORECTAL CANCER

A 56 year old lady presented to surgical outpatients with a 3-month history of rectal bleeding. She had noticed fresh blood in her stools on a number of occasions but there was no pain associated with opening her bowels. She was otherwise well and had no other symptoms. Her husband and children were all alive and well and there was no family history to note.
On systemic examination, the surgeon could not find any abnormalities and rectal examination did not reveal any masses. A sigmoidoscopy was carried out which revealed a 2cm ulcerated lesion within the proximal sigmoid colon and a biopsy was taken from the edge of the lesion. She was sent for blood tests and radiography.
Routine blood tests showed an Hb of 11.1g.l. Other haematological tests were normal. Biochemistry, including tests for liver and renal function, was normal. Chest and abdominal radiographs were unremarkable. Abdominal ultrasound was also normal. She underwent a left hemicolectomy. She remained well for 6 months at which stage she began to complain of weight loss and lethargy. She was found to have an enlarged liver on palpation.
CT scan of the liver showed multiple lesions in the parenchyma consistent with metastases. Liver biopsy revealed metastatic adenocarcinoma consistent with origin from a colonic primary. She died 3 months later.

a. Discuss the aetiology, risk factors, pathogenesis and complications of colorectal cancer.
b. Discuss the molecular basis of carcinogenesis in colorectal cancer.
c. Describe the gross and histologic findings of colorectal cancer.
d. Discuss Dukes classification for staging of colorectal cancer.

120. GOODPASTURE SYNDROME

A young man presented with cough, mild shortness of breath, and hemoptysis. His sputum contained iron-laden macrophages. His urine contained red blood cells and large quantities of protein. Serum complement and immunoglobulin levels were normal but the serum contained an antibody to renal glomerular basement membrane. A renal biopsy was taken.

DISCUSSION

a. Summarize the features of this case that lead to a diagnosis of Goodpasture's disease.
b. How do these clinical features relate to the pathogenesis of the disease?
c. Plasma exchange is used to treat these patients. How does this work?
d. What components of the lesions

121. ACUTE PANCREATITIS

A 43 year old woman presented to the casualty department with a history of severe abdominal pain radiating to her back. The pain had started the night before and gradually worsened. She had developed nausea and vomiting within the last 6 hours. She had a history of vague abdominal discomfort in the right upper quadrant for the last year; otherwise her past medical history and family history were unremarkable.

On examination, she was febrile with a temperature of 38.7°C. Her pulse was 120 beats/min, blood pressure was 90/50 mmHg, respiratory rate was 25/min. Her skin was dry and skin turgor was increased. On palpation, there was sharp abdominal tenderness limited to the epigastric region. Her liver and gall bladder were not palpable and the right upper quadrant was relatively free of pain. On auscultation, the intestinal sounds were diminished.
A plain film of the abdomen showed localized ileus involving the jejunum (sentinel loop).
Ultrasonographic examination of the abdomen and abdominal CT scan showed oedema and enlargement of the pancreas as well as multiple small stones in the gall bladder but no evidence of a perforated viscus.

Blood count and chemistry: Hb 13.5g/l, Hct 41% ESR 40mm h,
WBC 1.8 x 10^9/l serum amylase; 2000 units/l. Liver and kidney function tests were within normal limits.

QUESTIONS

a. What is the aetiology, risk factors and pathogenesis of acute pancreatitis in this patient? What are other causes of acute pancreatitis?
b. Discuss the laboratory findings in this case.
c. What are the complications of acute pancreatitis?

122. INSULIN-DEPENDANT DIABETES MELLITUS

A 45 year old man attended the medical clinic complaining of deteriorating vision. He was a known insulin-dependant diabetic (IDDM) and had been using insulin injection since the age of 6 years. He had been well recently and did not complain of any other symptoms. On direct questioning, however, he did admit to mild numbness of his feet (sensory neuropathy) and to being tired. He also admitted that over the last 12 months, he had not paid enough attention to monitoring his blood sugar and on one occasion, had to be admitted to hospital with hyperglycaemic ketoacidosis.
On examination, he was overweight and his weight had gone up by 6kg in 12 months. His pulse was 100beats/min and his blood pressure
145/100 mm.Hg. His apex beat was displaced laterally. Auscultation of his chest was normal but he had mild pitting oedema of his legs. Formal neurological examination confirmed a mild sensory deficit in his hands and legs. Ophthalmoscopy revealed that he had an early cataract in his right eye but in addition, there was evidence of oedema (soft exudates) and neovascularization in both eyes.
Blood tests showed normal haematological indices but a raised urea and creatinine. Blood sugar was raised at 16mmol/l. Urine testing revealed proteinuria and glycosuria. His chest radiograph confirmed left ventricular hypertrophy. A renal biopsy was carried out.

a. Discuss the causes and pathological consequences of diabetes mellitus. Explain the development of each lesion mentioned in the patient's history.
b. What are the indications of Glucose tolerance test? What is the role of evaluation of HBIAC in Diabetes Mellitus?

c. Discuss the laboratory findings.
d. Discuss the pathology of the kidney in diabetes mellitus

123. CEREBROVASCULAR DISEASE

A 50 year old man was seen in the clinic following an episode of 'paralysis' in the night. He was woken from his sleep by a strange dream. When he tried to get up to go to the bathroom, he almost fell to the ground. He managed to get himself back into bed and discovered that he had difficulty moving the left side of his body. After the initial panic had settled, he managed to alert his wife but the weakness began to disappear within a few minutes and they decided to wait till the morning to see the doctor.
This was the first such episode. He had been diagnosed as having hypertension 3 years previously and he was on regular medication. His father had died of a 'stroke' at the age of 63 years.
On examination, his pulse was 80 beats/min and blood pressure
130/90 mm.Hg. His apex beat was displaced to the left. Auscultation revealed normal heart sounds but a carotid bruit was heard on the right side.
An urgent referral was made to the cardiologist, but 2 days later he was admitted to A&E with a left-sided hemiplegia. Examination revealed complete loss of movement with extensor plantar response. He continued to deteriorate over the next 2 days and died. A post-mortem examination was requested.

a. What is the aetiology, risk factors and pathogenesis of cerebrovascular disease in this patient?
b. What are the likely post-mortem findings (gross and microscopic) in the brain, heart and major blood vessels? Look for examples in the museum.
What is the cause of death?

124. SICKLE CELL DISEASE

An 18 year old man from Western Kenya was visiting his relatives with his bride to be. His brother took him to Carnivore (Nairobi) where he overindulged in alcohol. Approximately an hour after returning home, he developed abdominal and back pains. An ambulance was called and he was brought to the hospital A&E department at 5a.m. There was no significant medical or family history and he was taking no medication. On examination he was found to be sweating and anxious. In his abdomen a generalized tenderness with guarding was found. Bowel sounds were normal. The duty surgical registrar reviewed him at 6a.m. and ordered some investigations and preparations were made for an exploratory laparotomy.

The blood count revealed:
WBC 8.6 x 10^9/l
RBC 2.81 x 10^{12}/l; Hb 8.5g/dl; Hct (ratio) 0.253
MCV 89.9fl; MCH 30.4pg

Plt 417 x 10^9/l MCHC 33.7 g/dl; RDW 15.4%

The white cell differential count was normal but examination of the blood film showed sickle cells, and Howell-jolly bodies. A sickle solubility screening test was positive. He was given an injection of pethidine for his abdominal pain and a dextrose-saline infusion was set up. Further investigations included haemoglo-binopathy screening by HPLC, which showed haemoglobin S predominant, with HbA_2 3.2%, HbF 6.5%. The reticulocyte count was 6.2% (normal <2%).
A diagnosis of sickle pain crisis in homozygous sickle cell anaemia was made and he was treated with intravenous fluids and opiate analgesia. The proposed laparotomy was cancelled and his pains became

more generalized but settled over the next week. Haemoglobinopathy screening of his fiancee was normal.

QUESTIONS

1. Discuss the aetiology, risk factors and pathogenesis of sickle cell disease making a point to explain patient's clinical presentation.
2. Discuss the mechanisms responsible for various laboratory finding.
3. What are the complications of sickle cell disease.

125. BACTERIAL ENDOCARDITIS

A 21 year old intravenous drug user complained to his GP of night sweats, malaise and weight loss. The patient had poor dentition and had visited his dentist several times over the past year. He gave a history of rheumatic fever as a child. On examination, the doctor noted that the patient had splenomegaly and a heart murmur and was pyrexial (38°C). He also had splinter haemorrhages and proteinuria, with both leucocytes and erythrocytes in the urine. The doctor, suspecting bacterial endocarditis, took three sets of blood cultures within the space of an hour and organized an echocargiogram.

Microbiology: all six blood cultures yielded streptococcus aureus. Echocardiogram: evidence of a valvular vegetation seen. See museum specimen also. Haematology: Hb 10.1 g dl; WBC 18 000 x 16⁶ l; differential 80% polymorphs; ESR 90mm/h.

Shortly after starting treatment, the patient developed a right hemiplegia.

QUESTIONS

a. Discuss the aetiology, risk factors and pathogenesis of Bacterial endocarditis. (Use museum specimens to appreciate the gross findings).
b. Discuss the pathogenesis of the clinical and laboratory findings in this patient.
c. What are the complications of SBE?

126. DOWN'S SYNDROME

Discuss the aetiology, risk factors, pathogenesis, clinical features and complications of Downs Syndrome.

127. LIVER CIRRHOSIS

A 48 year old man visited his general practitioner with increasing pruritis. The doctor noticed that he was mildly jaundiced. On further enquiry, he said that the pruritis had got worse over the last few months. He had no other symptoms. He stated that he drank 'socially' but in direct questioning admitted to drinking 8 pints of beer in addition to half a bottle of whisky a day, since he was a businessman and had to entertain customers regularly. He denied taking any medication and had been using topical moisturizer for the pruritis.

On examination, he was jaundiced and had pallor of his conjunctiva. A number of 'spider naevi' were seen on his neck and upper trunk. Examination of the heart and lung did not reveal any abnormalities. His abdomen was distended and it was difficult to palpate his liver. The doctor felt that he had chronic liver damage and referred him to a gastroenterologist.

Blood tests at the hospital showed a haemoglobin of 10g/l and platelet count of 300 x 109/l. Coagulation studies revealed a mild increase in clotting time. His urea and creatinine were mildly raised. Liver function tests revealed raised levels of alkaline phosphatase, AST and ALT. A chest radiograph was unremarkable. A liver biopsy was performed.

a. Discuss the aetiology, risk factors and pathogenesis of liver cirrhosis.
b. Discuss the pathogenesis of clinical and laboratory findings in your patient.
c. Discuss the histological features found in the liver in alcohol-induced disease.

128. PROSTATIC CANCER

A 67 year old man presented with difficulty in starting urination, frequency, urgency and nocturia. He was otherwise healthy. On physical examination his vital signs were normal. Rectal examination revealed an enlarged prostate and a hard solid nodule in the right lobe. Transrectal ultrasonography showed an area consistent with carcinoma in the right lobe. The tumour was limited to the prostate. The serum prostate specific antigen (PSA) level was elevated to 15ng/ml (normal <4ng/ml). Multiple transrectal trucut biopsies were performed to confirm the diagnosis.

Histology: the trucut biopsies of the prostate showed an adenocarcinoma, Gleason grade 3 + 3 =6. Some of the prostatic glands next to the invasive tumour contained foci of prostatic intraepithelial neoplasia (PIN).

CT scan of the pelvis and radionuclide bone scans did not show evidence of disease beyond the prostate. The patient was treated by radical prostatectomy and pelvic lymph node dissection.

Histology: the radical prostatectomy specimen showed a prostatic adenocarcinoma identical to that observed in the needle biopsy. Adjacent glands showed PIN. The tumour was limited to the prostate and excision was complete. No tumour was found in the pelvic lymph nodes.

Postoperatively, the patient recovered without complications. Serum PSA levels fell to normal limits and the patient remains free of disease.

a. Discuss the aetiology, risk factors and pathogenesis of prostatic cancer.
b. What is PSA and discuss its value in diagnosis and follow up of this type of cancer.
c. Discuss Gleason's method of grading of this tumour.

129. COMBINED IMMUNODEFICIENCY

A 16-month old male infant suffered from recurrent respiratory infections and poor physical growth since the age of 8-months. He had one sister who died at the age of 8 months with *Pneumocystis Carinii* pneumonia. His protein electrophoresis showed evidence of hypogammaglobulinemia. Immunologic investigations revealed a borderline lymphocyte count and marked depression of IgG and IgM. He also showed inadequate delayed hypersensitivity reactions and was unable to reject a homograft. A lymph node biopsy showed lymphohypoplasia with inadequate secondary lymphoid follicle formation. During a prolonged hospitalization, he was found to suffer from *Pneumocystis carimni* infection and was treated with pentamidine. Runting became manifest at the age of 1 year, when, despite intensive replacement therapy with gamma globulin and a thymic transplant, his immune mechanisms remained inadequate. He died at the age of 16 months.

Post-mortem examination revealed generalized lymphohypoplasia a hypoplastic thymus with absence of Hassal's corpuscles and severe runting. Histologic examination of the lungs showed no residual infection by *Pneumocystis carimii* but he had a severe necrotizing inflammation in the upper lip and the upper respiratory tract. Histology of the skin graft showed no signs of rejection, and no readily identifiable plasma cells were found in the lymphoid tissues or in the bone marrow. His tonsils and adenoids were small, the Peyer's patched of the small intestine were very scanty and no secondary follicles were observed in the spleen.

DISCUSSION

a. What features in this case suggest that this child had a <u>combined immunodeficiency</u>?
b. Briefly classify and discuss the primary immunodeficiencies.
c. What are some of the treatment modalities for primary immunodeficiency disease?

130. CHRONIC GRANULOMATOUS DISEASE.

A group of rare congenital immunodeficiency diseases in which phagocytes fail to produce reactive oxygen intermediates on activation, resulting in failure to control certain infectious organisms.

<u>*Case*</u>

A 6-month-old boy, underweight for his age, presented with discharging abscesses in the inguinal and axillary regions. He had a healthy sister but an elder brother had died from osteomyelitis. On examination, he was febrile and his spleen, liver and several lymph nodes were enlarged. He was admitted to hospital, where his abscesses were drained and microbiological culture revealed Staphylococcus aureus. His blood count showed slight anaemia (11.0g/dl and a marked neutrophil leuococytosis (total white cells, 25×10^9/l:80% neutrophils). His immunoglobulin levels were raised, particularly IgA (2.8g/l) and IgG (19.5g/l). Further investigation of neutrophils by the NBT test showed that his neutrophils were incapable of giving a respiratory burst, and in an in vitro assay using Staph. Aureus, intracellular killing was markedly impaired.

He was treated with systematic flucloxacillin. Two months later he was readmitted with a further abscess in the leg, again staphylococcal. Subsequently, he developed repeated infections with bacteria and fungi (Candida albicans). Now aged 5, he receives prophylactic antibiotic therapy, but continues to suffer from repeated infections.

QUESTIONS

a. Discuss the aetiology, Pathogenesis and complications of chronic granulomatous disease.
b. Discuss clinical and laboratory findings in this patient.
c. Compare and contrast clinical and laboratory findings in a patient who may have deficiencies of complement factors.

131. BURKITT LYMPHOMA

A B-cell lymphoma mainly affecting young children and found most commonly, but not exclusively, in tropical countries (especially East Africa).

Case

An 8 year old boy visited his doctor in a village outside Kisumu complaining of recent headaches, nausea and vomiting. He also had a swelling on the left side of his face. On examination, the mass appeared to be associated with his maxilla but his cervical nodes were not enlarged. A blood test was taken and from the blood film he was diagnosed as having malaria. A fine needle aspirate of the swelling showed cells of Burkitt Lymphoma.

QUESTIONS

a. Discuss aetiology, risk factors, pathogenesis and complications of Burkitt's Lymphoma.
b. What are the gross (use museum specimens) and histologic features of this tumour?
c. What other tumours and infections are linked with EBV?
d. Give a brief classification of Non Hodgkin's lymphoma.
e. Discuss briefly the management of Burkitt's lymphoma.

132. MENINGOCOCCAL MENINGITIS

Case

A 22-year old man was complaining of a headache and said that the light hurt his eyes. His GP was called and observed that the patient was pyrexial and disorientated and that he had a stiff neck. A provisional diagnosis of meningococcal meningitis was made. He gave the patient an injection of benzylpenicillin and arranged for his admission to hospital. On admission to hospital it was noted that the patient had developed a petechial rash that did not blanch on pressure and that he was hypotensive. Blood was taken for culture and a full blood count. As there was no evidence of papilloedema, a lumbar puncture was performed.

Haematology: Hb 13 g/dl; WBC 18 000 X 10^6/l;
Polymorphs 80%; Plt 120 X 10^9/l.
Fibrinogen: 1 g/l.
Microbiology: CSF WBC 1000/cm^3; polymorphs >90%; RBC 0-2/cm^3/ protein 0.6 g/l; glucose 2.0 mmol/l with a blood glucose of 5.3 mmol/l.

Benzylpenicillin was continued whilst awaiting the results of microbiology.

Gram-negative intracellular diplococci were seen. Neisseria meningitidis was grown from blood and CSF culture.

QUESTIONS

a. Discuss briefly the aetiology, risk factors and pathology of meningo-coccal meningits, making a point to explain the development of each of the clinical signs and symptoms.
b. Discuss the laboratory findings in this patient.
c. What are the complications of meningitis?

133. HAEMOLYTIC DISEASE OF THE NEW BORN

Case

A 30 year old female had an abortion at 25 weeks. The foetus on examination was severely anaemic, had pleural effusions and ascites (hydrops foetalis). The first baby is alive and well but on questioning the mother indicated that the child was very 'yellow' at birth. Her blood group is O Negative. Her husband is A Positive. For some unknown reason, prophylactic anti-D injection was not given during her first pregnancy or immediately after delivery.

QUESTIONS

a. Discuss the Pathology of the Haemolytic disease of the New born and to complications in your patient
b. What are the causes of hydrops foetalis?
c. What are other causes of haemolytic disease of the New born?

134. GASTRO INTESTINAL MALIGNANCY

Discuss the role of the helicobacter pylori in gastrointestinal malignancy.

135. OESOPHAGITIS

Discuss the pathology and pathogenesis or oesophagitis.

136. EFFECTS OF IRRADIATION

Discuss short term and long term effects of irradiation on tissues.

137. GRANULOMATOUS INFLAMMATION

Discuss the pathology and pathogenesis of granulomatous inflammation of the liver.

138. SUBCUTANEOUS FUNGAL INFECTIONS

Discuss the pathology, pathogenesis and complications of subcutaneous fungal infections.

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139. HODGKINS LYMPHOMA

Discuss the pathology, pathogenesis and complications of Hodgkin's Lymphoma. Briefly discuss the management of these patient's and prognosis.

140. ADDISON'S DISEASE

Discuss the pathology and pathogenesis of Addison's disease. What laboratory tests would you carry out? What are the complications?

141. ALCOHOLIC LIVER DISEASE

Discuss the pathology, pathogenesis and complications of alcoholic liver diseases.

142. AMYLOIDOSIS

Discuss the pathology, pathogenesis and complications of Amyloidosis.

143. EFFECTS OF VIRUSES

Discuss pathological effects of viruses on the nervous system.

144. PULMONARY HYPERTENSION

What are the causes of pulmonary hypertension? Describe the pathological changes which are seen in the lungs.

145. GOUT

a. What is gout?
b. Describe the macroscopic and microscopic appearances of the lesions of primary gout and discuss their pathogenesis.
c. What are the complications of these lesions?

146. HEPATITIS B VIRUS ✓

a. Give an account of the possible effects on the liver of infection with hepatitis B virus. What laboratory tests are useful in diagnosis of this condition?

b. What are the complications of this disease?

147. RENAL NEOPLASMS

Give an account of renal neoplasms and their effects.

148. PRIMARY TUMOURS - LIVER

Discuss the pathogenesis of primary tumours and tumour-like lesions of the liver.

149. LYMPHOMAS

Discuss briefly the classifications of lymphomas and the role of immunohistological techniques in establishing and refining the diagnosis. What is the role of cytogenetics in these tumours?

150. ATHEROSCLEROSIS

Discuss the pathogenesis of atherosclerosis.

151. SOLITARY THYROID NODULE

Discuss the pathology and investigations of clinically solitary thyroid nodule.

152. BREAST CANCERS

Give an account of various types of breast cancers and discuss the relevant prognostic factors.

153. CHRONIC PYELONEPHRITIS.

Discuss the possible autopsy findings in patient who has died from chronic pyelonephritis.

154. HYPERCALCAEMIA

a. What are the causes of hypercalcaemia?

b. What are the clinical presentations?

c. What processes underlie hypercalcaemia which may occur in association with malignant neoplasms?

d. What are the complications?

155. CONGENITAL MALFORMATION

Discuss the aetiology of congenital malformations.

156. NON-NEOPLASTIC LYMPH NODE ENLARGEMENT

Discuss the common causes of non-neoplastic lymph node enlargement. What laboratory investigations are useful in differential diagnosis of this condition?

157. ADULT SHOCK LUNG SYNDROME

Describe the pathological features of the adult shock lung syndrome and discuss their pathogenesis.

158. NEONAL DEATH

Discuss the value of autopsy in the investigation of neonal death.

159. INRTRACRANIAL HAEMORRHAGE

Discuss the pathogenesis of intracranial haemorrhage and describe the relevant post-mortem appearances.

160. FOCAL GLOMERULONEPHRITIS

Discuss the renal changes and the aetiology of focal segmental glomerulonephritis. What factors determine prognosis?

161. RHEUMATIC HEART DISEASE

28 year old female, a known case of rheumatic heart disease was being followed up in cardiology clinic since 1996. She was diagnosed to have mitral valve disease and tricuspid stenosis. On examination, she had fever, splenomegaly, heart murmur and petechiae on the fingers and toes. Her WBC count was 25,000 x 10^9/l. She died 3 days after admission.

QUESTIONS

Discuss autopsy findings, cause and mechanism of death.

162. DIABETES MELLITUS

66 year old female was admitted with acute on chronic renal failure for dialysis. She was a known diabetic for several y ears. At admission, her blood sugar was 19.9mmol/l, BP 200/120, BUN 29.2mmol/l. While in the ward, she developed weakness of all limbs and mild facial palsy. Her level of consciousness deteriorated suddenly and she died.

QUESTIONS

Discuss the autopsy finding, cause and mechanism of death in this patient.

163. HYPERTENSIVE DIABETES

57 year old male admitted on 14/02/99 at 1.45pm with difficulty in breathing and cough. He had been on adalat for hypertension and diabetes tab, one day for the past 2 years. Patient drinks (4 –5 bottles of beer and 2 – 3 tots of whisky daily). He also smoked. BP on admission was 120/90. AT 3.20pm – 4.45pm the same day, he developed wheezing. C X R showed left pleural effusion and mediastinal shift. He had not passed urine.

He was mildly jaundiced, with bilateral pitting oedema. There was gross abdominal distension. A number of 'spider naevi' were seen on his neck and upper trunk. Investigations done at admission were Hb 9.3mg/dl, WBC 2800 x 10^9, platelets 300x 10^9/l, Differential – Neutrophils 44 %, lymphocytes 54%, monocyte 2%. MCV was 104.5 and ESR 51mm;hr, electrolytes were normal. Blood sugar was 12.2m, mots/l.

Liver function tests – Total Bilirubin 83.4mol/l, alkaline phosphatase 278u/l, SGOT 71u/l, SGPT 76u/l, Gamma GT120u/l. Blood gases – Ph 7.23, PCO_2 37mmHg, PO_2 42mmHg.

The patient while in the ward became increasingly confused, had a bout of hematemesis and died.

QUESTIONS

Discuss the autopsy findings, cause and mechanism of death.

164. HYATIDIFORM MOLE

A 46 year old female presented with headaches and blindness for 3 weeks. She also had per vaginal bleeding for 3 months. He last pregnancy ended in an abortion at 16 weeks, when a diagnosis of Hydatidiform mole was made. At admission, her HCG levels were 102700iu/ml (normal 0 – 7 non pregnant state). Unfortunately, she died 24 hours after being admitted.

QUESTIONS

Discuss autopsy findings, cause of death and mechanism of death in this patient.

165. C.O.A.D

A 67 year old man presented to his doctor complaining of increasing shortness of breath (SOB) over the previous 2 months. His exercise tolerance had dropped to walking 50m. He had a history of chronic with copious production of sputum. There was no family history of cardiac or respiratory disease and he was not on any medication. He admitted to smoking 30 cigarettes per day since the age of 18 years. On examination, he was breathing though pursed lips and was tachycardiac, tachypnoiec and severely cyanosed. His blood pressure was normal. Examination of the chest revealed a resonant percussion note with decreased air sound. He was admitted for further investigations. Chest radiograph showed hyperinflated chest with decreased vascular markings. There was cardiomegaly with pleural effusion and pericardial effusion. Blood gases: - PO_2 7kpa, PCO_2 8kpa, PH 7.2, HCO_3 30mm0l/l. Respiratory function test showed decreased vital capacity (VC) and forced expiration volume (FEV) with reduced FEV/VC ratio congestive. While in the ward, he developed cardiac failure and died despite medical treatment.

QUESTIONS

Discuss autopsy findings, cause of death and mechanism of death in this patient.

166. SHOCK

a. What do you understand by shock and what are the main types?

b. A 65 year old man dies in an intensive care unit following Gram negative septicaemia from a pericolic abscess.

QUESTIONS

Describe the likely pathological changes in major organs (except the pericolic abscess) resulting from septic shock and discuss the pathogenesis of such changes.

167. VIRAL AETIOLOGY

Outline the criteria necessary to establish viral aetiology for tumours and discuss these in respect of human carcinogenesis.

168. AORTIC ANEURYSMS

Discuss the pathology, pathogenesis and complications of aortic aneurysms.

169. DEMENTIA

What are the causes of dementia? What are likely pathological findings in a patient with this condition?

170. BRONCHIECTASIS

What are pathogeneses of Bronchiectasis? Describe the gross and microscopic features and pathological consequences of this condition.

171. SPLEEN

Briefly discuss the normal morphology of the spleen and outline the pathological processes which may affect this organ.

172. RENAL DISEASES IN PREGNANCY

Discuss the pathology of renal diseases occurring in pregnancy.

173. CARCINOGENESIS

Discuss the part played by non-biological environmental factors in the aetiology of human cancer.

174. ACUTE LEUKAEMIA

Discuss the necropsy findings in a young man who has recently been intensively treated for acute leukaemia.

175. VIRUSES AND NEOPLASIA

Discuss the possible role of viruses in neoplasia in man.

176. ARTERITIS

Discuss the causes, pathology, pathogenesis and complication of arteritis.

177. FIBROSING ALVEOLITIS

a) What are the causes of pulmonary fibrosing alveolitis?

b) Describe the gross and microscopic features.

c) Discuss the pathogenetic mechanisms.

178. KARYOTYPE

a) What is a karyotype?

b) Discuss the visible abnormalities of human karyotype and their relation to disease.

179. AORTIC VALVE

Discuss the pathology, pathogenesis and complications of Rheumatic and non-rheumatic lesions of the aortic valve.

180. DEFECTIVE COLLAGEN SYNTHESIS

Discuss the lesions that may arise in a man from defective collagen synthesis.

181. MULTIPLE MYELOMA

Describe the necropsy findings in an untreated case of myelomatosis and discuss their pathogenesis.

182. CEREBRAL TRAUMA

Discuss cerebral trauma and its complications

183. NEUROLOGICAL TUMOURS - BRAIN

Discuss the classification, pathology, pathogenesis, clinical presentation and complications of neurological tumours of the brain.

184. INFRATENTORIAL TUMOURS OF CHILDHOOD

Discuss the classification, pathology and pathogenesis of infratentorial tumours of childhood. What is the clinical presentation of these tumours? How would you make a diagnosis?

185. THYROID NEOPLASMS

Briefly discuss thyroid neoplasms.

186. ADRENAL MEDULLA TUMOURS

Discuss tumours of adrenal medulla under the following headings:

a) Clinical presentation

b) Aetiology and risk factors

c) Pathology and patogenesis

d) Complications

187. NON-HODGKINS LYMPHOMA

Discuss classification of non-Hodgkins lymphoma, comparing current classification with previous classifications.

188. CHRONIC LYMPHOCYTIC LEUKAEMIA

Discuss chronic lymphocytic leukaemia under the following headings:

a) Clinical features

b) Pathophysiology

c) Chromosomal abnormalities and diagnosis

d) Prognosis and management

189. BONE TUMOURS

Discuss benign and malignant tumours of the bone.

190. GOUT

Discuss Gout and Gouty arthritis.

191. HYPERTENSION

Discuss the laboratory investigation of a 35-year-old patient with hypertension.

192. BONE PAIN

Your advice is sought on the investigation of a man of 60 years who has presented with bone pain. What tests would you propose and why?

193. ACID BASE DISORDERS

What laboratory tests are useful in the investigation of acid-base disorders? What changes might you expect to find in obstructive airways disease?

194. LIVER FUNCTION

Discuss the clinical value of the biochemical tests that are commonly employed in the investigation of liver function.

195. NEONATAL JAUNDICE

Discuss the differential diagnosis of jaundice in neonatal period and indicate which biochemical investigations are likely to prove helpful. Why is jaundice of particular importance at this age?

196. CEREBROSPINAL FLUID

Describe briefly the process of formation of cerebrospinal fluid. How is the chemical composition altered in:

(a) Meningitis
(b) Multiple sclerosis
(c) Subarachnoid haemorrhage

197. SPLENOMEGALY

Discuss the differential diagnosis of massive splenomegaly in an adult. Describe in detail how you would undertake the investigation of such a patient.

198. HAEMOLYTIC URAEMIC SYNDROME - CHILDREN

Define "Haemolytic Uraemic Syndrome of Children". Discuss the aetiology, diagnosis and treatment of this condition.

199. BLOOD COAGULATION DISORDERS

Discuss the disorders of blood coagulation which may arise in neoplastic conditions.

200. PRENATAL DIAGNOSIS

Give a discussion on prenatal diagnosis of diseases.

201. PARANEOPLASTIC SYNDROMES

Discuss paraneoplastic syndromes and multiple hormone production by tumours.

202. LAWS IN MEDICAL PRACTICE

Discuss briefly important laws in medical practice.

203. MEDICAL DECISION-MAKING

Discuss medical decision-making under the following sub headings:

a) Medical interview and physical examination
b) Process of differential diagnosis
c) Selection and interpretation of diagnostic tests
d) Uncertainty and probability in medicine
e) Consent as the basis of medical treatment

204. THERAPEUTIC SUBSTANCES

Discuss medico-legal aspects of therapeutic substances and control of drugs.

205. ORGAN TRANSPLANTATION ✓

Expound on the ethical, legal and moral issues on organ transplantation in the Human being.

206. MALPRACTICE - MEDICINE AND DENTISTRY

Discuss malpractice and criminal acts in the practice of medicine and dentistry.

207. HEAD INJURY

Discuss the pathology of brain in acute and chronic head injury.

208. RENAL FAILURE

Discuss pathophysiology of renal failure.

209. FUNGAL INFECTIONS

Discuss the pathology of superficial and subcutaneous fungal infections.

210. PRE-ECLAMPSIA

Discuss the clinical features, pathology, pathogenesis and complications of pre-eclampsia.

211. DEGENERATIVE JOINT DISEASE

Discuss the pathology, pathogenesis and management of degenerative joint disease.

212. UNCONCIOUSNESS

Describe what investigations you will request for in an unconscious patient.

213. HYPOTHYROIDISM

Discuss the laboratory investigations you will carry out on a patient with suspected hypothyroidism.

214. RAISED ALKALINE PHOSPHATASE

How would you investigate the cause of a raised alkaline phosphatase found in a man over 60 years old?

215. ORAL CONTRACEPTIVES

What are the undesirable side effects of oral contraceptives? How may the results of serum analysis in the clinical chemistry laboratory be changed by their administration?

216. RECURRENT RENAL CALCULI

Discuss laboratory investigations of a 30 year old male patient with recurrent renal calculi. What are the risk factors, pathogenesis and complications of renal calculi.

217. RAISED URATE LEVEL

Discuss the circumstances in which a raised level of urate may be present in the plasma. What is the pathology, pathogenesis and complications of this disorder.

218. CORTISOL LEVEL

Discuss the factors that may affect the plasma cortisol level in health and disease.

219. THALASSAEMIA

What do you understand by the term 'thalassaemia'? Classify the disorder and discuss the pathogenesis and complications of this disorder.

220. IRON DEFICIENCY

An adult male is found to have iron deficiency. Describe the investigations which you would wish to carry out to elucidate the cause.

221 Immunobullous diseases

Classify Immobullous Diseases

222 Scaly lesions of the skin

Classify and describe the diagnostic workup of scaly lesions of the skin.