Faculty of Medicine University of Ruhuna
Third Examination for Medical Degrees (Part II) – September 2020
Pathology   Paper I

Tuesday 8ᵗʰ September 2020   9.00 am to 11.00 am
                                                      Two hours

Answer **ALL SIX** questions.
Answer each part in a **SEPARATE** book.

Part A

1. A 50-year-old male was admitted to a surgical unit with features of intestinal obstruction and underwent exploratory laparotomy. The segment of bowel removed to relieve the obstruction revealed a stricture in the ileum. He had a past history of pulmonary tuberculosis and has been followed up at the clinic which he had discontinued on his own. In the recent past, he had evening pyrexia and a chronic cough. He was referred to the Chest Clinic.

1.1. How would you relate the past history of this patient to the intestinal obstruction? **(25 marks)**

1.2. List three other causes for intestinal obstruction. **(15 marks)**

1.3. Briefly describe the possible macroscopic appearance of his lungs. **(25 marks)**

1.4. Outline the clinical effects of the disease if it involves the other extra-pulmonary sites.

(20 marks)

1.5. Describe the characteristic histopathological appearance of tuberculosis. **(15 marks)**

Part B

2. A 57-year-old male underwent a major surgery for a cancer. On the 5ᵗʰ post-operative day, he collapsed and died. Postmortem revealed a large, saddle thrombus obstructing the pulmonary bifurcation.

2.1. What is the probable cause for his death? **(10 marks)**

2.2. List the risk factors for thrombosis in this patient. **(10 marks)**

2.3. Describe the pathogenesis of the condition mentioned in **2.1** in this patient. **(30 marks)**

2.4. If the thrombus was obstructing a medium sized pulmonary artery and the patient had compromised cardiovascular circulation, what is the expected lesion in the lung?

(10 marks)

2.5. Briefly explain the macroscopy of the lesion mentioned in **2.4.** **(20 marks)**

2.6. Outline how you would differentiate a postmortem clot from an ante mortem thrombus.

(20 marks)

Part C

3. A 30-year-old male who sustained multiple injuries in a road traffic accident was admitted to a hospital where he died on the 3rd day. The postmortem report revealed a watershed (border zone) infarct in the brain and a subendocardial infarct in the heart.

3.1. Explain the pathological basis of the findings stated in the postmortem report. *(25 marks)*

3.2. What is the most likely region in the brain which is susceptible to develop watershed infarcts?

(05 marks)

3.3. What is the pathological change which is expected in this patient's kidneys? *(10 marks)*

3.4. Describe the macroscopic features of the heart in this patient. *(15 marks)*

3.5. Describe the microscopic features of the heart in this patient. *(25 marks)*

3.6. Describe how the subendocardial infarct would heal if the patient had survived. *(20 marks)*

Part D

4. A 45-year-old male was investigated for iron deficiency anaemia. Colonoscopy examination revealed multiple polyps in the colon.

4.1. List **three** (3) non-neoplastic polyps in the colon. *(10 marks)*

4.2. List **three** (3) neoplastic polyps in the colon. *(10 marks)*

4.3. He defaulted follow up and five years later presented with vague ill health, loss of appetite and loss of weight. Colonoscopy examination revealed a fungating growth in the caecum. Following biopsy, he underwent right hemicolectomy.

4.3.1. What is the most likely diagnosis? *(10 marks)*

4.3.2. Briefly describe the microscopic appearance of the growth. *(20 marks)*

4.3.3. List **five** (5) important prognostic factors of the condition. *(20 marks)*

4.3.4. Name a commonly used staging system for his condition. *(10 marks)*

4.3.5. Explain the pathological basis of anaemia in this patient. *(20 marks)*

Part E

5. Chronic Kidney Disease (CKD) is a global health care problem.

   5.1. Define the term "Chronic Kidney Disease".   *(5 marks)*

   5.2. State **two** (2) systemic diseases which could cause CKD.   *(10 marks)*

   5.3. Estimated glomerular filtration rate (eGFR) is required to diagnose CKD.

          Outline how eGFR is estimated.   *(15 marks)*

   5.4. Name **four** (4) conditions in which eGFR cannot be applied.   *(20 marks)*

   5.5. A patient with CKD belongs to the Stage of G2A2.

          5.5.1. What is meant by G2?   *(10 marks)*

          5.5.2. What is meant by A2?   *(10 marks)*

   5.6. Explain the pathological basis of secondary hyperparathyroidism in patients with CKD.

                                                                                       (30 marks)

Part F

6. A patient presents with fever, pallor, purpura and hepatosplenomegaly. Acute leukemia is suspected.

   6.1. State the salient full blood count findings and blood picture findings expected
          in acute leukemia.   *(25 marks)*

   6.2. Outline the pathological basis for hepatosplenomegaly in acute leukemia. *(20 marks)*

   6.3. Explain the pathological basis for purpura in leukemia.   *(20 marks)*

   6.4. Explain why leukemic patients with sepsis do not show localizing signs and symptoms.

                                                                                       (15 marks)

   6.5. How would you confirm the diagnosis of acute leukemia?   *(10 marks)*

   6.6. List special tests which are useful to prognosticate and decide treatment in acute
          leukemia.   *(10 marks)*