Tumour Pathology Past Examination Papers

1999 – 2009

Time allowed: 3 hours

There are a total of five (5) questions per paper

JULY 2009

Question 1

For renal cell carcinoma describe:

a) the histopathological subtypes.

b) the histopathological and clinical prognostic factors for survival.

Question 2

A 38 year old male was found to have an anterior mediastinal mass on CT scan following investigation of chest pain.

a) List the differential diagnosis. **(2 marks)**

b) A biopsy of the mass confirmed malignancy. Discuss how the following may assist you in determining the diagnosis:

   i) Clinical features. **(2 marks)**

   ii) Histopathological features. **(4 marks)**

   iii) Immunohistochemical stains. **(2 marks)**

Question 3

a) Describe the risk factors and the pathogenesis of endometrial cancer.

b) You are on a committee to develop a synoptic pathology report for surgical staging specimens received in the laboratory for endometrial cancer. List the essential factors required to assist with decisions on clinical management. Provide justification for your selection of factors.

Question 4

Describe the features that distinguish low grade glioma from glioblastoma multiforme under the following headings:

a) clinical features.

b) radiological appearance.

c) gross and microscopic pathological features.

Question 5

Write short notes on:

a) the clinical and histopathological features of inflammatory breast cancer.

b) the pathophysiology and histopathological features of radiation induced cardiotoxicity.

c) the macroscopic and microscopic features of medulloblastoma.

d) the clinical and histopathological features of mycosis fungoides.

FEBRUARY 2009

Question 1

a) Describe the morphological and histological features of lobular carcinoma in situ (LCIS) and ductal carcinoma in situ (DCIS).

b) Explain the significance of lobular carcinoma in situ (LCIS) and ductal carcinoma in situ (DCIS) in the development of breast cancer.

Question 2

With respect to both diffuse and intestinal subtypes of gastric carcinoma:

a) describe the morphological and histological appearance.

b) describe the differences in pathogenesis of each subtype.

Question 3

Many malignant tumours exhibit haematogenous spread.

a) Describe the sequential steps involved in this process.

Question 4

You are on a committee to develop a synoptic (summary) pathology report for the reporting of radical prostatectomy specimens.

a) List the pathological features required in the report to assist with further management decisions. Justify your answer.

b) Describe the Gleason grading and scoring system for adenocarcinoma of the prostate.

Question 5

Write notes on the following:

a) the histological features of liposarcoma.

b) the pathogenesis and time course of radiation damage to the small bowel.

c) the morphological and histological features of Wilms' Tumour.

d) the cytological features of malignant cells.

JULY 2008

Question 1

You receive a pathology report of a brain biopsy describing a papillary lesion. What further pathological information is required to form a working diagnosis?

Question 2

What aspects of a pathology report on a patient presenting with operable breast cancer help to determine the radiation therapy component of treatment?

Question 3

A patient with established follicular Non Hodgkin's Lymphoma Stage IV, developed one lymph node group that was increasing in size disproportionately to all other nodes.
Describe the possible pathological diagnoses and appropriate biopsy techniques.

Question 4
A patient with a past history of colon cancer presented with a single lesion in their lung.
What clinico-pathological features would help to determine their management?

Question 5
Write short notes on:
a) Granulosa Cell tumours of the ovary
b) Oncotyping in breast cancer management.
c) Radiation recall.
d) Beta HCG elevation in testicular tumours.

FEBRUARY 2008

Question 1
Regarding pleural malignant mesothelioma, describe:
a. aetiological factors.
b. patterns of tumour spread.
c. the value of cytology, histology, and special investigations in making a pathological diagnosis.

Question 2
Regarding cutaneous melanoma, describe :
a. the risk factors for development of cutaneous melanoma.
b. the growth patterns and morphology of the primary tumour.
c. the prognostic factors for survival

Question 3
A 70 year old woman presents with multiple bony lesions. A biopsy of one of the bone lesions shows malignancy. A primary tumour has not been identified following further investigations. Describe how the following may assist you in determining the primary site:
a. histological features.
b. immunohistochemical stains.
c. serum tumour markers.

Question 4
Describe colorectal carcinogenesis outlining:
a. the genetic and molecular alterations.
b. the morphological precursor changes (including polyps).

Question 5
Write short notes on five (5) of the following:
a. the pathogenesis of radiation-induced lung fibrosis.
b. multiple endocrine neoplasia syndromes.
c. the histopathological features and immunohistochemistry of follicular lymphoma.
d. the macroscopic pathological features of malignant fibrous histiocytoma.
e. the histopathological features of Ewing's sarcoma.
f. pseudomyxoma peritonei.

JULY 2007

Question 1
a) List the aspects of a pathology report from a brain biopsy for a suspected neoplastic intracranial tumour (excluding pituitary) that help to determine treatment.
b) Give two (2) specific tumour examples from the above situation where the result of the pathology report impacts on treatment by radiation therapy.

Question 2
List the pathological features and compare and contrast these for rhabdomyosarcoma presenting in a patient who is:
a) 5 years of age
b) 20 years of age

Question 3
Describe the clinical, radiological and pathological features that distinguish benign from malignant renal lesions in adults.

Question 4
a) Describe pre-invasive neoplasia.
b) What is the significance of pre-invasive neoplasia to radiation oncologists regarding DCIS (Ductal Carcinoma-In-Situ) of the breast, CIN (Cervical Intraepithelial Neoplasia) and Bowen' disease?

Question 5
Write short notes on the pathological features of:
a) Ependymoma
b) Chordoma
c) Pregnancy associated choriocarcinoma
d) Plasmacytoma of bone

FEBRUARY 2007

1. Describe premalignant conditions of the large bowel.
2. Discuss the epidemiology, aetiology and pathological features of carcinoma of the cervix.

3. Describe the pathological features of neoplasms of the thyroid gland.
4. Give a classification and discuss the pathological features of thymic neoplasms.
5. Write short notes on:
   (a) Osteoradionecrosis of the mandible
   (b) Predisposing factors to development of melanoma
   (c) Eosinophilic granuloma
   (d) MALT lymphomas

August 2006

1. Discuss the pathology and clinical manifestations of ovarian epithelial neoplasms.
2. Discuss the pathology of Ductal Carcinoma-in-situ (DCIS) of the breast.
3. Give a pathological classification of bone tumours.
4. Discuss those features of the pathology report that influence treatment for a patient following a trans-rectal ultrasound (TRUS) guided biopsy of the prostate to investigate an elevated prostate specific antigen (PSA) blood test.
5. Write short notes on:
   a. Carcinoid tumours. b. Medulloblastoma c. Cervix Cancer Vaccines
   d. Granulocytic Sarcoma (chloroma)

February 2006

1. Compare and contrast squamous cell carcinoma and adenocarcinoma of the oesophagus, including predisposing factors.
2. Discuss the differential diagnosis and pathological features of tumours arising from retroperitoneal tissues.
3. Discuss the epidemiology, aetiology and pathological features of Hodgkin's disease.
4. A 25-year old male with left leg pain is found to have an osteolytic lesion in the distal femur on plain X-ray. Discuss the pathological differential diagnosis and prognosis of this patient.
5. Write short notes on:
   (d) Merkel cell carcinoma
   (e) Loss of heterozygosity (LOH)
   (f) Chordoma
   (g) Neuroendocrine tumours of the lung

August 2005
1. Discuss rhabdomyosarcoma.
2. Discuss the function, pathological testing, as well as pathological and clinical significance of Her-2-neu.
3. Discuss tumours of the pituitary fossa.

4. Discuss urothelial transitional cell carcinoma.
5. Write short notes on the pathological aspects of:
   (h) the diagnosis of mesothelioma
   (i) hypercalcaemia
   (j) the diagnostic approach to ovarian cysts
   (d) microarray analysis

February 2005

1. Discuss the clinical features and aetiopathogenesis of paraneoplastic syndromes, illustrating your answer with examples.
2. A 45 y.o. female with chest pain and dyspnoea is found to have an anterosuperior mediastinal mass on CT. Discuss the pathological differential diagnosis and prognosis of this patient.
3. Discuss the classification and pathological features of epithelial neoplasms of the kidney.

4. Describe the clinical and pathological features of neoplasms of the salivary glands.
5. Write short notes on the pathological aspects of:
   (a) Radiation-induced liver disease
   (b) Tumour angiogenesis
   (c) Gastrointestinal stromal tumours (GIST)
   (d) Medullary carcinoma of the thyroid

August 2004

1. Discuss pathological factors predictive of outcome in primary brain malignancy.
2. Discuss the pathological features of carcinoma of the stomach.
3. Discuss small round blue cell tumours
4. Discuss malignant tumours of the testis
5. Write short notes on:
   (a) Gleason Score
   (b) Radiation Pneumonitis
   (c) Malignancy in the Retina
   (d) Epidermal Growth Factor (EGF)

February 2004

1. Discuss the classification and pathological features of neuroendocrine tumours.

2. Discuss the pathological classification of non-Hodgkin's lymphoma.
3. Write short notes on:
   (a) Ataxia-telangiectasia and its relevance to radiation oncology.
   (b) Hereditary non-polyposis colon cancer (HNPCC)
   (c) Microsatellite instability
   (d) Chondrosarcoma
4. Describe the pathology and prognostic factors associated with carcinoma of the prostate gland.

5. Outline the classification and pathology of nasopharyngeal malignancies.

July 2003

1. Discuss the clinical and pathological factors that predict outcome in cutaneous melanoma.

2. Discuss the classification of invasive and non-invasive breast cancer and compare the biological behaviours of the different sub-types.
3. Discuss the clinical significance of P53 in neoplasia. Illustrate your answer with potential applications.

4. Write short notes on:
   a) Synovial sarcoma
   b) Mantle cell lymphoma
   c) The identification of malignant cells of mesothelial origin in the lung
   d) Giant cell tumour of bone
   e) Desmoid tumours
   f) Pinealoblastoma
   g) Parameningeal rhadomyosarcoma

h) Dysgerminoma of the ovary

February 2003

1. Outline the pathology of gliomas.
2. Discuss the role of the environment in the development of neoplasms
3. Write short notes on:
   a) MALT lymphomas
   b) Bronchial carcinoid
   c) Hepatic metastases
   d) Colonic polyps
4. Discuss the presentation and pathological features of renal carcinoma (20 marks)
5. Write short notes on:
   a) The neoplastic cell(s) of Hodgkin's disease
   b) Epstein-Barr virus and neoplasia
   c) Kaposi's sarcoma
   d) Ewing's sarcoma

August 2002

1. Discuss how tumour pathological prognostic factors can be applied in clinical oncological practice.

2. Discuss the pathology of thyroid cancers under the following headings: classification
   macroscopic appearance
   microscopic appearance
3. Write an essay on meningiomas.
4. Write short notes on each of the following:
   • Tubular carcinoma of the breast
   • the aetiology of Kaposi's Sarcoma
   • Gleason scoring for prostate cancer
   • malignant sertoli tumour of the testis
   • spitz naevus
   • adenoid cystic carcinoma of the parotid
   • Retinoblastoma
   • Brenner tumour of the ovary

February 2002

1. A 50 year old man with a chronic cough is found to have an upper lobe lung mass and mediastinal lymphadenopathy on chest x-ray: Discuss the pathological differential diagnosis of this patient prognosis.
2. Outline the features of carcinoma of the ovary.
3. Write short notes on:
   a) Nodular sclerosing Hodgkin's disease.
   b) Carcinoid tumour.
   c) Lentigo maligna (Hutchison's melanotic freckle).
   d) Ependymoma.
4. Discuss the features of carcinoma of the thyroid gland.
5. Describe the role of precursors in the development of cutaneous malignancy.

August 2001

1. Classify malignant tumours of the bladder. Discuss the pathogenesis of these cancers and the pathological factors that influence prognosis.
2. Write an essay on sarcomas of the uterus.
3. Discuss genetic disorders that are associated with malignancy illustrating your answer with selected examples.
4. Write short notes on:
   a) List frequently calcified lesions in the central nervous system.
   b) Her 2 Neu (c erb-2) in breast cancer.
   c) Gorlin's syndrome.
   d) Warthin's tumour.
   e) Loss of heterozygosity.
   f) Nasopharyngeal angiofibroma.
   g) Gastrointenstinal Stromal Tumours (GIST).
   h) Cadherins.

February 2001

1. Discuss the classification, spread and aetiopathogenesis of gastric carcinoma.
2. Outline the difficulties relating to pathology in establishing a diagnosis of carcinoma of the prostate gland.
3 Write short notes on the following:
   a) Borderline tumours of the ovary.
   b) Spitz naevus.
   c) Radiation induced lung injury.
   d) The aetiology of large bowel cancer.
   e) Atypical hyperplasia of the breast.
4. What is the role, if any, of Epstein-Barr virus in the induction of cancer; illustrate your answer with examples.
5. A 35 year old man presents with diplopia and a midline intracranial mass. Discuss the differential diagnoses.

August 2000

1. a) Classify benign and malignant tumours of the kidney.
   b) What factors are involved in the development of malignant tumours of the kidney
   c) What pathological prognostic factors exist for renal cell carcinoma.
2. Describe how the pathology of Ductal Carcinoma Insitu (DCIS) of the breast may influence the management of a patient with DCIS.
3. Discuss the pathogenesis of carcinomas of the oesophagus.
4. Write short notes on:
   a) atypical fibroxanthoma
   b) uterine serous papillary carcinoma
   c) aggressive fibromatosis
   d) significance of n-myc in neuroblastoma
   e) primary intracerebral lymphoma of brain
   f) primary alveolar soft part sarcoma
   g) aneurysmal bone cysts
   h) desmoplastic melanoma

February 2000

1. What are some of the precursor changes in the lung related to the development of lung cancer (excluding mesothelioma) and show how they relate to the current classification.
2. Describe the clinical and pathological features of carcinoma of the thyroid gland.
3. Write short notes on:
   a) The pathological staging of large bowel cancer
   b) Carcinoid tumour
   c) Mycosis fungoides
   d) The importance of dysplastic lesions of the cervix uteri
   e) Radiation induced sarcoma
4. Outline the significant prognostic features relating to the pathology of carcinoma of the breast.
5. What are the remote effects of cancer and its treatment on the kidney.

August 1999

1. Discuss the pathology of mesothelioma.
2. Describe tumours of the pineal gland under the following headings:

a) classification
b) microscopic features
c) patterns of spread
d) tumour markers and
e) prognosis.

3. Discuss the process of chemical carcinogenesis, giving examples.
4. Describe how the pathologist maybe of help in determining a primary site when a diagnosis of metastatic adenocarcinoma of unknown primary is made.
5. Write short notes on the pathological features of:
   a) acinic cell carcinoma of the salivary gland
   b) mycosis fungoides
   c) synovial sarcoma
   d) phylloides tumours of the breast

February 1999

1. What is your understanding of the current classification of lymphomas? Indicate how this is relevant to prognosis.
2. Discuss the aetiology classification patterns of spread and staging of cancer of the large bowel.
3. Write short notes on:
   a) Desmoplastic malignant melanoma.
   b) Helicobacter pylori-related cancer.
   c) Preneoplastic changes in the lung.
   d) Gardners Syndrome.
   e) Lobular carcinoma of the breast.

4. What is the relationship between immune deficiency and neoplasia?
5. Discuss the mechanisms involved in the induction of cancer by radiation. Illustrate your answer with examples.