FRCPath Part 2 Examination in Histopathology

Spring 2015

Short Cases

Commentary

Case 1

Male age 77. Dysphagia. Oesophagogastrectomy.

Diagnosis: basaloid squamous carcinoma of oesophagus.

Average mark: 2.43/5

This case was chosen to test candidates' knowledge of epithelial neoplasms of the oesophagus and to assess the ability of candidates to use histological clues to help in categorisation of neoplasms. The section is from oesophagus and includes clearly dysplastic squamous oesophageal mucosa with an underlying invasive neoplasm showing clearly basaloid features and a pattern of growth resembling adenoid cystic carcinoma. The invasive tumour is limited to submucosa.

Pass marks were awarded to candidates who gave a competent description of the lesion, noting full thickness squamous oesophageal dysplasia and an underlying basaloid neoplasm, and deriving the correct diagnosis of basaloid squamous carcinoma or a providing a differential diagnosis which clearly favoured basaloid squamous carcinoma.

Additional marks were awarded to candidates who provided added value in terms of staging (tumour being confined to submucosa), appreciation of the significance of squamous oesophageal dysplasia in arriving at the correct diagnosis or comment regarding the prognostic significance of this tumour type.

Candidates favouring a diagnosis of adenoid cystic carcinoma were given borderline fail marks. Candidates favouring benign diagnoses or metastatic disease would have been awarded a clear fail.

This case was answered well by many candidates. Many candidates offered significant added value, usually in the form of histological staging. Some candidates suggested immunohistochemical panels (probably not necessary in this case, but credit was given if the panels were appropriate and logical). A number of candidates noted the squamous oesophageal dysplasia but favoured adenoid cystic carcinoma despite this clue. A few candidates failed to note the presence of squamous oesophageal dysplasia.

Case 2

Female age 19. Missed miscarriage. Evacuation of products of conception.

Diagnosis: complete hydatidiform mole.

Average: 2.78/5

This case was regarded by examiners as a good example of a complete hydatidiform mole, and was chosen to assess the ability of candidates to distinguish between a complete mole, a partial mole and non-molar products of conception.

Pass marks were awarded to candidates who made a confident diagnosis of either complete mole or molar pregnancy NOS. Candidates who made a confident diagnosis of partial mole were awarded borderline fails. Candidates who added value were awarded additional marks. Generally candidates were able to add value by suggesting appropriate p57/kip2 immunohistochemistry to consider/exclude partial mole, understanding of the somatic genetics of molar pregnancy, and knowledge of the risk of choriocarcinoma and the need for referral and follow up.

Clear fails were awarded to any candidates who reported the case as normal products of conception, hydropic abortus or choriocarcinoma.

The case was answered well by many candidates, and supplemented by added value as indicated above. Some candidates were penalised slightly for over-confident diagnosis of partial mole.

Case 3.

Male, age 41. Soldier, returned from Afghanistan. 6 month history of enlarging lesions affecting both hands and left arm. Biopsy of lesion on arm.

Diagnosis: cutaneous Leishmaniasis.

Average: 2.7/5

This case was selected to assess the ability of candidates to interpret non-neoplastic skin disease and consider infective aetiology. Candidates were provided with a helpful and relevant history. In the opinion of examiners this was a good example of Leishmaniasis, with clearly visible organisms. Candidates had to look at all of the material to be sure of seeing the organisms, which were not visible in all of the slices. This is a reminder to candidates to look at all of the material provided on the slide.

Pass marks were awarded to candidates giving a good basic description, including the observation of histiocytes distended by micro-organisms. To gain a pass candidates had to see micro-organisms and recognise infective aetiology, without necessarily diagnosing Leishmaniasis. Higher marks were awarded to candidates favouring a diagnosis of Leishmaniasis and indicating the need for Giemsa stain. Further marks were awarded to candidates able to add value by indicating knowledge of the

natural history of Leishmaniasis, making appropriate clinical correlation with the history and indicating awareness of serological and molecular testing.

Borderline fails were awarded to candidates arriving at benign non-infective diagnoses. A fail mark would have been awarded to any candidate giving a malignant diagnosis. Only a few candidates failed to appreciate the infective aetology of the lesions.

This question was answered well by most candidates. Most candidates correctly identified micro-organisms, and a good proportion of candidates added value by correctly diagnosing Leishmaniasis. Only a few candidates mentioned the value of Giemsa stain or other ancillary tests.

Case 4

Female age 50

Lesion right breast

Diagnosis: low grade phyllodes tumour/ borderline phyllodes tumour/ phyllodes tumour of uncertain malignant potential.

Average: 2.7/5

This case was selected to assess the ability of candidates to assess fibroepithelial lesions of breast, and lesions of low grade malignant potential.

To gain a pass mark candidates had to give a reasonable description and arrive at a diagnosis of phyllodes tumour, NOS. Candidates could add value by giving a more detailed description, recognising the ill-defined margin, stromal cellularity and occasional mitotic figures and arriving at a diagnosis of phyllodes tumour of uncertain malignant potential.

Borderline fails were given to candidates giving broad differential diagnoses including phyllodes tumour NOS, but not categorically favouring phyllodes tumour, or favouring fibroadenoma or benign phyllodes tumour. Clear fails were awarded to candidates offering a confident diagnosis of fibroadenoma or malignant phyllodes tumour.

The lesion included areas of epithelial hyperplasia of usual types. Interpretation as in situ lobular neoplasia was marked leniently, but candidates who regarded this as ductal carcinoma in situ had marks deducted.

This case was answered very variably by candidates. The majority of candidates achieved pass marks, but some candidates lost marks by failing to note the borderline nature of the lesion, or diagnosing fibroadenoma. A few candidates over-interpreted the epithelial hyperplasia as ductal carcinoma in situ.

Case 5

Male age 64. 7 mm diameter pearly nodule anterior aspect left shoulder. Excised.

Diagnosis: Malignant melanoma.

Average 2.46/5

This case was selected as an example of a clinically unexpected malignant melanoma, as can be encountered by any pathologist in routine practice. The case assessed the ability of candidates to diagnose and stage malignant melanoma, or initiate investigations to make an appropriate diagnosis. There was no appreciable intraepidermal component in the sections, and the lesion was minimally pigmented.

Pass marks were awarded to candidates confident to make a diagnosis of malignant melanoma on histological grounds alone, or favour melanoma in a differential diagnosis. Candidates who indicated the need for immunohistochemical investigations to confirm the differential diagnosis were also awarded a pass mark, provided that the immunohistochemical panel considered the possibility of melanoma.

Additional markers were awarded to candidates adding value by offering appropriate staging information (Clark level and Breslow thickness), comment on growth phase (vertical), staging, mitotic count, lack of intra-epidermal component hence the need to consider metastasis, appropriate subtyping as nodular melanoma, or awareness of the relevance of BRAF immunohistochemical staining in order to consider chemoresponsiveness. Other relevant added value was also considered on its merits.

Borderline fail marks were given to candidates giving a broad differential diagnosis including but not favouring melanoma.

Fail marks were awarded to candidates offering benign diagnoses, or confident diagnoses of other malignancies, without considering melanoma.

This case was answered variably by candidates. The majority of candidates gained pass marks by indicating the possibility of melanoma, supplemented by appropriate immunohistochemical stains. There were a few very good answers with considerable added value. A few answers were awarded borderline fails, by favouring other differential diagnoses, but suggesting appropriate immunohistochemical stains to consider melanoma. Only a few candidates made egregious errors, favouring inappropriate lesions.

Case 6.

Female age 52. Colonoscopy to investigate rectal bleeding. Single 5mm diameter polyp in distal sigmoid colon.

Diagnosis: ganglioneuroma.

Average: 2.77/5

This case aimed to consider the ability of candidates to diagnose an unusual but well recognised lesion encountered at routine colonoscopy. Although relatively uncommon, any pathologist in routine practice in a District General Hospital might encounter this lesion.

To gain a pass mark candidates had to give a competent description of the lesion and make a diagnosis of ganglioneuroma or a differential diagnosis favouring ganglioneuroma. Additional marks were awarded to candidates suggesting appropriate immunohistochemical staining (S100, NSE and other neural markers), and awareness of the potential association of multiple lesions with neurofibromatosis or MEN syndromes.

Borderline fail marks were awarded to candidates making diagnoses of other benign neoplasms or conditions. Fail marks were given for candidates offering malignant diagnoses or other egregious benign diagnoses, including ischaemic colitis.

Most candidates approached this question very well, making a correct diagnosis and offering useful comment as to how to confirm the diagnosis and other associations. A few candidates offered inappropriate benign diagnoses or favoured malignant diagnoses.

Case 7.

Female age 49. Previous breast surgery, now axillary lymphadenopathy. Lymph node biopsy.

Diagnosis: silicone lymphadenopathy and metastatic breast cancer.

Average: 2.44/5

This case aimed to assess the ability of candidates to assess an important double diagnosis in what is now a common clinical context. This lymph node biopsy showed features typical of reaction to silicone released from a leaking breast implant as well as metastatic carcinoma. Candidates had to review all of the material on the slide to make both diagnoses, emphasising the need for candidates to consider all of the material on the slide before committing to a diagnosis. Both diagnoses were represented in all of the slides provided to candidates.

To gain a pass mark candidates had to give an adequate description of the lesions and identify both silicone lymphadenopathy and metastatic breast carcinoma. Additional marks were awarded to candidates adding value by suggesting appropriate confirmatory immunohistochemistry, recognising the need to determine oestrogen receptor and HER2 status, and recognising the need to make comment regarding the presence of macrometastatic disease or macrometastatic disease.

Borderline fail marks were given for answers recognising metastatic carcinoma but making no comment as to silicone lymphadenopathy, or equivocating as to the presence of metastatic carcinoma.

Clear fails were awarded to candidates who did not observe the metastatic adenocarcinoma, or who misinterpreted the silicone lymphadenopathy as a malignant process in its own right.

More than half of the candidates passed this question and some added significant value to their answers. Some candidates failed to comment on the presence of silicone related changes and a small but significant proportion failed to make the important diagnosis of metastatic carcinoma, or offering inappropriate malignant diagnoses.

Short case 8

Male age 33. Nodular lesion on dorsum of tongue. Excision biopsy.

Diagnosis: amyloid, tongue.

Average: 3.0/5

This was a straight forward case which aimed to assess the ability of candidates to assess a well-known pathological process in a common location and suggest appropriate investigations.

Candidates who passed were able to give a basic description and make a correct diagnosis or favour the correct diagnosis in a differential diagnosis. Candidates suggesting appropriate special stains, commenting on the distinction between primary amyloid and secondary amyloid and knowing of the need to consider referral to the national amyloid panel were given additional marks.

Candidates equivocating as to the correct diagnosis and not mentioning appropriate special stains were given borderline fails. Candidates preferring malignant diagnoses were given clear fails.

Nearly all candidates answered this question very well, and most candidates offered considerable added value. Only very few candidates made egregious errors.

Short Case 9.

Male age 59. Lower urinary tract symptoms. Abnormal bladder mucosa found at cystoscopy. Multiple biopsies.

Diagnosis: nephrogenic metaplasia of bladder mucosa.

Average: 2.46/5

This case aimed to assess the ability of candidates to diagnose a well-recognised benign bladder lesion that is sometimes over diagnosed as malignancy.

Candidates offering a basic description and a correct diagnosis of nephrogenic metaplasia (nephrogenic adenoma) were given a pass mark. Additional marks were given to candidates aware of the aetiology of the condition (inflammatory genitourinary conditions, bladder instrumentation), male predominance and the limited utility of immunohistochemical staining. Some candidates suggested immunohistochemistry and special stains to exclude prostatic carcinoma and clear cell adenocarcinoma: appropriate special stains were awarded extra marks.

Differential diagnoses which included nephrogenic adenoma but did not favour the diagnosis were given borderline fail marks, as were answers indicating a benign lesion, but failing to name the lesion. Candidates offering definite diagnoses of malignancy or favouring malignant diagnoses were given clear fails.

Most candidates offered good answers to this question, often with considerable added value. A small but appreciable proportion offered equivocal or indefinite diagnoses and a few candidates made inappropriate diagnoses of malignancy.

Short Case 10

Female age 49. Ex-smoker. Sub-pleural lesion measuring 150mm in greatest dimension, right lung lower lobe. Wedge resection, right lung.

Diagnosis. Solitary fibrous tumour.

Average 2.83/5

This case considered the ability to diagnose a well-recognised thoracic lesion, and suggest appropriate ancillary investigations.

Pass marks were awarded to candidates giving a competent description of the lesion and making a diagnosis of solitary fibrous tumour or offering a differential diagnosis favouring the correct diagnosis. Additional marks were given to candidates suggesting useful immunohistochemical staining (CD34, BCl2, and CD99) or indicating awareness of the value of Stat6 immunohistochemical or genetic testing. Other added value included awareness of the unpredictable nature of these tumours, and predictors of aggressive behaviour.

Borderline fail marks were awarded to candidates offering broad differential diagnoses without a favoured diagnosis. Clear fails were given to candidates making definite malignant diagnoses.

This case was answered well by the majority of candidates, and many candidates offered significant added value. Only a few candidates offered inappropriate or indefinite diagnoses.

Short Case 11.

Male, age 35. Lesion 45mm diameter, left kidney. Left partial nephrectomy.

Diagnosis: chromophobe renal cell carcinoma.

Average: 2.66/5

This case considered a well-recognised subtype of renal cell carcinoma which requires distinction from renal cell carcinoma NOS. Candidates able to describe the lesion and favour a diagnosis of chromophobe renal cell carcinoma were awarded pass marks. Additional marks were given to

candidates suggesting appropriate immunohistochemical and other stains (Hale's colloidal iron, CD10, CK7, vimentin) to allow distinction from renal cell carcinoma NOS and oncocytoma. Awareness of better prognosis compared with renal cell carcinoma NOS also gained higher marks.

Candidates favouring a diagnosis of renal cell carcinoma NOS were given borderline fails. A clear fail would have been awarded to any candidate favouring a benign diagnosis.

Most candidates answered this question well, and many candidates added considerable value. A minority of candidates offered equivocal diagnoses or favoured renal cell carcinoma NOS.

Short Case 12

Male age 59. Enlarged lymph node left side of neck. Lymph node biopsy.

Diagnosis: lymph node, toxoplasmosis.

Average: 2.47

This case required candidates to assess an enlarged lymph node and weigh reactive/infective features against potential neoplasia. This is an important distinction often faced by histopathologists in general pathological practice. There were histological features (notably intrafollicular granulomas) that a well-prepared candidate should have recognised as being suggestive of toxoplasmosis.

A pass mark was awarded to candidates giving an appropriate description and arriving at a safe diagnosis of benign reactive lymphadenopathy and offering a differential diagnosis including toxoplasmosis amongst other infective possibilities. Candidates were expected to identify the presence of epithelioid histiocytes and granulomas. Borderline fails were awarded to candidates whose answers lacked sufficient precision (reactive lymphadenopathy NOS without an appropriate differential diagnosis). Clear fails were given to candidates who favoured any malignant diagnosis.

Most candidates answered this question well and a good number added value with increased precision in their answers or by suggesting appropriate additional investigations. A few candidates significantly over-interpreted the histological features, offering unsafe malignant diagnoses of lymphoma and metastatic carcinoma.

Short case 13

Male age 60. Incidental CT finding of well-circumscribed solitary lesion in posterior mediastinum. 70mm diameter lesion resected.

Diagnosis: myelolipoma.

Average: 2.38/5

This case was chosen as an example of an unusual lesion that any well prepared candidate should have been able to recognise or at least describe and make a reasonable attempt at diagnosis.

A basic pass mark was given to candidates who offered a safe basic correct answer, describing a well-circumscribed lesion showing tri-lineage haemopoiesis, and offering a diagnosis of either extramedullary haemopoiesis of myelolipoma. Additional marks were given to candidates aware that a solitary lesion favours myelolipoma. Borderline fail marks were given to candidates whose answers lacked confidence and precision, identifying a benign lesion but without further added value. Fail marks were given to candidates who didn't recognise haemopoiesis or who offered confident diagnoses of malignancy.

The majority of candidates coped with this case adequately, offering good descriptions and correctly recognising the benign nature of the lesion. A few candidates appeared unaware of the lesion and made clinically unsafe diagnoses of malignancy.

Short case 14

Female, age 74. Post-menopausal bleeding, on Tamoxifen. Endometrial polyps removed at hysteroscopy.

Diagnosis: endometrial polyp with metastatic lobular carcinoma of breast.

Average: 2.58/5

This case was chosen to test candidate's powers of observation and deal with a double diagnosis. The history provided clues; the patient was on tamoxifen, a drug most commonly used in the management of breast cancer. This history should have alerted candidates to the need to consider breast cancer related pathology as well as tamoxifen-mediated effects on the endometrium.

To gain a pass mark candidates needed to observe an endometrial polyp and a neoplastic infiltrate, with features most in keeping with metastasis from a breast primary. Candidates who added value to their answers made appropriate clinical correlation with the information that tamoxifen had been prescribed and asked regarding a history of breast cancer. Appropriate immunohistochemical investigations to consider metastatic breast cancer also gained marks. Awareness of the association of tamoxifen with endometrial polyps would have gained additional marks.

Borderline fail marks were given to candidates who equivocated with regard to the neoplastic infiltrate and offered only a differential diagnosis. Candidates who failed to see the neoplastic infiltrate were given clear fails, as were candidates making a confident diagnosis of primary endometrial neoplasia, without considering the possibility of metastatic disease.

Most candidates answered this question well, and many added considerable value to their answers. Few candidates noted that tamoxifen may also have given rise to the polyp. A few candidates failed to observe the neoplastic infiltrate, or suggested inappropriate forms of neoplasia.

Short case 15

Male, age 55. Renal transplant recipient. Dysphagia. Oesophageal ulcer biopsied at endoscopy.

Diagnosis: Cytomegalovirus oesophagitis.

Average: 2.76/5

This case considered the ability of candidates to consider a clinical history (renal transplant) and consider the possibility of infection arising secondary to immunocompromise.

Candidates giving an adequate description and favouring a diagnosis of CMV oesophagitis were given a pass mark. Additional marks were given to candidates who made appropriate clinical correlation with the history of renal transplantation, recognised the value of CMV immunohistochemistry to confirm the diagnosis or who suggested fungal stains, recognising the potential for co-existence of other infective agents.

Borderline fail marks were given to candidates whose answers lacked confidence (offering differential diagnoses without a favoured diagnosis) or who indicated a diagnosis of herpetic oesophagitis. Fail marks were given to candidates who did not consider the possibility of viral oesophagitis, or who offered malignant or dysplastic diagnoses.

Most candidates answered this question very well and the majority included some added value. A few candidates were imprecise in their answers or preferred herpetic oesophagitis. Very few candidates offered inappropriate diagnoses of malignancy.

Short case 16

Male, age 75. Gastric polyp found during investigation of anaemia. Endoscopic gastric polypectomy.

Diagnosis: hyperplastic/ regenerative polyp of stomach.

Average: 2.29/5

This is an example of a lesion that any pathologist may encounter in routine practice. The case tested the ability of candidates to exclude the possibility of neoplasia and dysplasia and correctly interpret reactive and regenerative epithelial changes.

Pass marks were given to candidates offering an adequate description of the lesion and correctly characterising it as a hyperplastic or regenerative polyp, or at least favouring this in a differential diagnosis.

Candidates adding value with an understanding of the aetiology of the lesion were given additional marks.

Candidates making a confident diagnosis of other forms of benign polyp or diagnosing low grade dysplasia were given borderline fails. Candidates making a diagnosis of malignancy or high grade dysplasia were given clear fails.

Although more than half the candidates gained pass marks on this question, a significant number of candidates lost marks by either finding low grade dysplasia or making confident diagnoses of other forms of benign polyp.

Short case 17.

Female, age 45. Asymmetric nodule, thyroid. Thyroid resection.

Diagnosis: medullary carcinoma of thyroid.

Average: 2.64/5

This case was chosen as an example of a well-recognised but relatively uncommon form of thyroid neoplasia that all candidates should have been able to recognise on the basis of H&E sections alone.

A pass mark was awarded to candidates giving a competent description and favouring a diagnosis of medullary carcinoma of thyroid. Additional marks were given to candidates adding value by indicating appropriate immunohistochemistry and other special stains, indicating knowledge of the genetics of medullary carcinoma of thyroid or other associated conditions, and indicating knowledge of the cell of origin of medullary carcinoma.

Borderline fail marks were given to candidates offering a broad differential diagnosis without a favoured diagnosis. Fail marks were given to candidates favouring other malignant diagnoses (including metastatic carcinoma), or offering benign diagnoses.

Most candidates answered this question very well and many added considerable value to their answers. A few candidates lost marks by diagnosing other forms of thyroid cancer.

Short case 18.

Male, age 45. Smoker. Respiratory distress. Bilateral ground glass opacity on chest x-ray. Wedge biopsy right lung upper lobe.

Diagnosis: desquamative interstitial pneumonia.

Average: 2.46/5

This case was chosen as an example of a well-recognised benign reactive pulmonary condition. A helpful clinical history was provided.

Pass marks were awarded to candidates offering an adequate description and making a diagnosis of an inflammatory/ reactive condition, favouring a diagnosis of desquamative interstitial pneumonia. Additional marks were given to candidates adding value by seeking correlation with the radiological findings and clinical history, and reflecting as to aetiology.

Borderline fails were given to candidates offering a description only, but indicating that this is a benign process, or offering a diagnosis of other forms of benign reactive pulmonary disorder.

Fail marks were given to candidates making malignant diagnoses, or offering egregious benign diagnoses, including tuberculosis.

Most candidates answered this question well. A few candidates made confident diagnoses of other forms of benign reactive pulmonary pathology. A small minority offered malignant diagnoses or identified epithelial atypia.

Short case 19

Male, age 72. Antibiotic treatment of septic arthritis. Recent onset skin rash. Punch biopsy of skin from rash.

Diagnosis: leucocytoclastic vasculitis.

Average: 2.39/5

This case was chosen to assess the ability of candidates to identify an important and common pattern of inflammation, and correlate with the clinical history.

Pass marks were awarded to candidates giving a good description of the lesion and favouring a diagnosis of leucocytoclastic vasculitis. Candidates offering clinicopathological correlation (association with prescribed medication) were given additional marks, as were those aware of the aetiology of leucocytoclastic vasculitis.

Borderline fail marks were awarded to candidates offering a description only, or identifying inappropriate benign diagnoses. Fail marks were given to candidates making diagnoses of malignancy.

Only just over half of the candidates correctly recognised the process and passed the question. Many candidates offered descriptions only or offered inappropriate benign diagnoses. A few candidates added value, by interpreting the histology in an appropriate clinical context.

Short case 20

Female, age 53. Spinal cord compression. Biopsy of third lumbar vertebra.

Diagnosis: epithelioid angiosarcoma metastatic to bone.

Average: 1.99/5

This case was chosen to assess the ability of candidates to assess unusual metastatic disease and suggest appropriate additional investigations on the basis of histological clues. Although epithelioid, the lesion included vasoformative elements which should have alerted candidates to a likely angiosarcoma.

Pass marks were given to candidates considering angiosarcoma in their answer. Appropriate immunohistochemical investigation to substantiate a diagnosis of angiosarcoma gained further marks. Candidates who did not recognise the vasoformative nature of the tumour lost marks.

This question proved difficult to candidates. Relatively few candidates observed the vasoformative elements and considered angiosarcoma in their differential diagnosis.