FRCPath Part 2 Histopathology Short Cases, autumn 2014

Commentary

Case 1
Female age 52: palpable lesion, left breast

Breast, fat necrosis.

Average: 2.6/5

This case was chosen as a good example of fat necrosis of the breast presenting as a palpable mass lesion and investigated by means of a needle core biopsy.

Candidates were given a pass mark for giving a competent description of fat necrosis, noting the classical histological features and arriving at a differential diagnosis including and favouring fat necrosis. Candidates with a more confident approach and able to make the diagnosis without resort to immunohistochemistry or resort to a differential diagnosis were given a higher mark, as were candidates who offered clinical correlation (history of trauma, recent surgery) or candidates who indicated the need for MDT discussion and who were aware that this is a "B2" lesion. Candidates including fat necrosis in a differential diagnosis but not favouring the diagnosis were penalised slightly. Any candidates making an unequivocal diagnosis of malignancy were given a clear fail.

This case was well answered by many candidates, with more than half of the candidates passing this question. A significant minority of candidates lacked confidence in their diagnosis and offered broad differential diagnoses, without favouring the correct diagnosis. A small minority made confident malignant diagnoses.

Case 2
Female, age 35. Lymphadenopathy, left side of neck.

Metastatic papillary carcinoma of thyroid

Average 3/5

This case was chosen to test the ability of candidates to diagnose metastatic malignancy and suggest a strategy to consider possible primary sites of origin on the basis of morphological features, clinical history and immunohistochemical staining.

Pass marks were awarded to candidates giving a competent description of metastatic carcinoma in a lymph node and noting the characteristic morphological features of

metastatic papillary carcinoma of thyroid. Candidates adding value by suggesting appropriate immunohistochemistry, suggesting clinical investigations to consider a primary site in thyroid and enquiring as to past medical history were given additional marks. Candidates who recognised metastatic carcinoma but resorted to broad differential diagnoses or favoured other forms of thyroid cancer were penalised slightly. Candidates arriving at benign diagnoses or diagnosing primary lymphoreticular neoplasia were given clear fails.

This case was well answered by nearly all candidates, with only a few failing. Those who lost marks lacked precision in their diagnoses.

Case 3
Female age 64. Long history of ring shaped lesions. Incisional biopsy from the left forearm.

Granuloma annulare

Average 2.9/5

This case was chosen as a good example of a granulomatous skin lesion, testing the approach of candidates to necrobiotic granulomatous skin lesions. Candidates were provided with a helpful clinical history.

Pass marks were given to those who correctly identified the main abnormality as a necrobiotic granulomatous skin lesion and gave a reasonable differential diagnosis to include granuloma annulare, rheumatoid nodule and necrobiosis lipoidica. Candidates with a more confident approach and able to make a definite diagnosis of granuloma annulare were given additional marks, as were candidates offering clinicopathological correlation and aware of the different forms of granuloma annulare.

Candidates who recognised a granulomatous condition, but failed to note the necrobiotic component, were given a borderline fail. Candidates who did not recognise the granulomatous nature of this condition, or who clearly favoured leprosy or other tropical/ infective disorders were given a clear fail, as were candidates who considered malignant diagnoses.

This question was well answered by most candidates, with many candidates adding considerable value to their answers. A minority of candidates failed to recognise the necrobiotic component, or made confident diagnoses of tropical diseases such as leprosy.

Case 4.

Female, age 85. Goitre, abnormal thyroid scan. Right hemithyroidectomy. Previous left nephrectomy.

Clear cell carcinoma of kidney, metastatic to thyroid.

Average 3.1/5

This case was chosen to consider the candidates' capacity to assess and investigate unusual metastatic disease, and assimilate helpful details form the clinical history.

Candidates giving a good description of the lesion and offering a differential diagnosis that included metastatic renal cell carcinoma were given a pass mark. Candidates appreciating the relevance of the clinical history of nephrectomy and suggesting appropriate immunohistochemical investigations to strengthen the diagnosis of metastatic renal cell carcinoma were given additional marks.

Candidates who diagnosed primary thyroid or parathyroid carcinoma and did not consider the possibility of metastatic disease lost marks, as did those offering very broad differential diagnoses or diagnosing benign disease.

This case was well answered by most candidates, with only a very few candidates making inappropriate confident diagnoses of primary thyroid or parathyroid neoplasia.

Case 5
Male age 19. Enlarged left testis: left orchidectomy.

Mixed germ cell tumour of testis.

Average 2.9/5

This case was chosen in order to assess the candidates' ability to assess and classify complex testicular tumours. The case was thought by examiners to be a good example of a mixed germ cell tumour.

Pass marks were given to candidates able to give a competent description of the components (embryonal carcinoma, immature teratoma, syncytiotrophoblast) and arriving at a diagnosis of mixed germ cell tumour or a differential diagnosis favouring mixed germ cell tumour.

Candidate adding value by observing lymphovascular invasion and intratubular germ cell neoplasia were awarded additional marks, as were candidates suggesting appropriate immunohistochemistry, suggesting the need for serum marker studies and making appropriate observations about the natural history of the tumour.

Candidates whose differential diagnoses favoured other forms of testicular germ cell tumour lost marks. Benign diagnoses and diagnoses of seminoma, lymphoma and metastatic carcinoma were given clear fails.

Most candidates approached this question very competently and offered sensible correct diagnoses with considerable added value. A small minority favoured inappropriate benign diagnoses.

Case 6
Male age 50. Mass, right parotid gland. Right parotidectomy.

Pleomorphic adenoma of salivary gland.

Average 2.8/5

This case was chosen to assess the candidates' ability to assess a common salivary gland neoplasm. This was regarded as a good example of a pleomorphic salivary adenoma.

Pass marks were awarded to candidates able to describe the lesion and make a confident diagnosis of pleomorphic salivary adenoma. Additional marks were awarded to candidates giving a more complete description, noting likely complete excision and noting the need for appropriate sampling to exclude malignancy. Understanding of the natural history of these lesions also gained marks: candidates were rewarded for noting good prognosis but risk of local recurrence if excision is incomplete.

Candidates whose approach lacked confidence lost marks: notably, if candidates resorted to a differential diagnosis without favouring pleomorphic salivary adenoma, or made a confident diagnosis of other forms of benign salivary neoplasm. Definite malignant diagnoses were given clear fails.

Most candidates answered this case with confidence and clarity: a minority chose other benign or malignant diagnoses or offered broad and unfocussed differential diagnoses.

Case 7
Male, age 76. Chest X ray: left lung mass. Percutaneous needle biopsies.

Organising pneumonia.

Average 2.1/5

This case aimed to assess the ability of candidates to assess small needle core biopsies in the face of a potentially misleading clinical history. The clinical history of a left lung mass is the original clinical history provided to the pathologist who submitted

the case. Candidates need to be able to assess histological abnormalities without bias from the clinical history.

This was a good example of an organising pneumonia with many characteristic features. Candidates were given a pass mark for a competent description of an organising pneumonia or a differential diagnosis favouring organising pneumonia. Additional marks were given to those candidates who suggested appropriate special stains (trichrome, reticulin, gram, DPAS, Grocott or ZN stain). Additional marks were also awarded to candidates seeking clinical correlation with history of recent ill ness, serology, microbiology) or offering relevant observations regarding possible aetiology.

Borderline fails were given for answers indicating a benign reactive process but not favouring organising pneumonia. A confident diagnosis of interstitial pneumonia was regarded as a borderline fail.

Any malignant diagnoses were marked as clear fails.

This case proved difficult to many candidates, with a few candidates allowing themselves to be misled by the clinical history and arriving at malignant or other neoplastic diagnosis.

Case 8
Female, age 19. Darkly coloured mole, left forearm. Excisional biopsy.

Pigmented spindle cell naevus of Reed

Average: 2.6/5

This was a relatively straightforward case, aiming to test the ability of candidates to report an unusual but well recognised melanocytic lesion, and arrive at a confident benign diagnosis.

Pass marks were awarded to candidates giving a competent description of the lesion and clearly favouring a diagnosis of pigmented spindle cell tumour of Reed (Spitz naevus was also accepted).

Additional marks were awarded to candidates able to give a particularly good description of the lesion, commenting on the need for complete excision, or noting that the patient is older than usual for this diagnosis.

Candidates lost marks for equivocating between benign and malignant diagnoses, or arriving at clearly malignant diagnoses.

The majority of candidates were able to pass this question, but because of the nature of the lesion it was difficult to add much value to answers. Only a few candidates failed by offering equivocal or malignant diagnoses.

Case 9
Female, age 77; right pleural effusion and pleural biopsy.

Epithelioid malignant mesothelioma

Average: 2.9/5

This case was chosen to identify candidates able to demonstrate a sensible approach to pleural biopsies and the diagnosis of likely malignant mesothelioma.

A pass mark was awarded to candidates who were confident about a diagnosis of malignant mesothelioma, or who offered a differential diagnosis clearly favouring a diagnosis of malignant mesothelioma. Additional marks were awarded to candidates who diagnosed malignant mesothelioma but recognised the need to undertake additional immunohistochemical stains in order to confirm the diagnosis, and exclude the possibility of adenocarcinoma. To gain these marks candidates had to indicate a sensible and efficient immunohistochemical panel, which might include calretinin, CK5/6, BerEP4, TTF1 and WT1. Candidates making aetiological observations (asbestos) also gained marks.

Candidates favouring a diagnosis of adenocarcinoma, or equivocating between malignant mesothelioma and a benign reactive mesothelial proliferation were awarded a borderline fail. Candidates favouring a benign reactive mesothelial proliferation were given a clear fail.

This question was generally well answered and many candidates added value to their answers by discussing appropriate use of immunohistochemistry and correlating their diagnosis with the clinical context. A few candidates failed to recognise the infiltrative nature of the process and its malignant nature.

Case 10
Female age 48. Screen detected lesion left breast. Wide local excision.

Invasive micropapillary carcinoma, breast.

Average 2.7/5

This case was characteristic chosen to identify candidates confident in diagnosis of breast malignancy, and able to recognise the less common types of breast cancer.

Pass marks were awarded to candidates able to recognise the characteristic histological features of invasive micropapillary carcinoma (reversed polarity of epithelial cells and empty stromal spaces. Additional marks were awarded to candidates who added value by noting poorer prognosis than other types of breast cancer, awareness of the need for hormone receptor and HER2 immunohistochemistry to guide treatment, and suggesting the use of MUC1/ EMA immunohistochemical

staining to prove reverse polarity. Candidates attempting to apply histological grading and commenting on likely lymphovascular space invasion also gained marks.

Candidates lost marks for diagnosis of other forms of breast cancer (including ductal carcinoma NOS).

Clear fails were awarded to candidates indicating that this was a benign lesion, diagnosing pure ductal carcinoma in situ or diagnosing metastatic carcinoma without suggesting immunohistochemistry to prove/ disprove this diagnosis.

The majority of candidates passed this question, but some failed to add value by additional commentary. A significant minority of candidates diagnosed ductal carcinoma not otherwise specified and very occasional candidates preferred benign diagnoses.

Case 11
Male, age 45.
Clinically cystic lesion left calf: excised.

Myxoid liposarcoma.

Average 2.8/5

This case was set to assess candidates' approach to soft tissue neoplasms.
Pass marks were given to candidates giving a competent description of the lesion, noting characteristic vascularity as well as the presence of lipoblasts and arriving at a diagnosis of liposarcoma. Additional marks were given to candidates able to correctly classify this as myxoid or round cell liposarcoma. Candidates aware of characteristic cytogenetic abnormalities, the limited value of immunohistochemistry, the relatively favourable prognosis and the value of Trojani staining were awarded higher marks.

Borderline fails were awarded to candidates only mentioning liposarcoma as part of a list of differential diagnoses, without favouring the diagnosis, or confidently diagnosing other forms of liposarcoma other than myxoid/ round cell liposarcoma, or other forms of sarcoma.

Clear fails were awarded to candidates favouring benign diagnoses, of arriving at a diagnosis of "myxoma".

Most candidates answered this question well, arriving at confident diagnoses of myxoid liposarcoma. A few candidates were more vague in their diagnosis, and a small number of candidates thought that this was a benign lesion.

Case 12
Female age 45.
Abdominal discomfort. Bilateral ovarian lesions on imaging.

Krukenberg tumour of ovary.

Average 2.7/5

This case was included to assess the ability of candidates to assess ovarian neoplasms and consider metastatic disease as well as primary ovarian malignancy and to describe strategies to confirm metastatic disease.

Pass marks were awarded to candidates who gave a good description of the presence of a signet ring neoplasm and arrive at a confident diagnosis of metastatic signet ring carcinoma, or consider a list of differential diagnoses including this option.

Additional marks were given to candidates indicating the need for immunohistochemical and tinctorial stains to confirm the diagnosis (perhaps mucin stains, pancytokeratin and differential cytokeratin stains, CEA, Ca 19.9, inhibin, calretinin and CDX2). Additional marks were also given if candidates indicated the need for additional investigation to include imaging and endoscopy. Marks were also given to candidates who recognised that bilaterality favoured metastasis.

Borderline fails were given for differential diagnoses including but not favouring metastatic signet ring carcinoma.

Clear fails were given to answers failing to observe signet ring cells, or arriving at confident benign diagnoses or diagnoses of sex cord/ stromal tumours.

Most candidates dealt with this case competently, identifying the signet ring cells and suggesting reasonable immunohistochemical panels. A minority of candidates failed to recognise the signet ring component and favoured benign diagnoses, or arrived at a diagnosis of sarcoma.

Case 13
Male age 61
Positive faecal occult blood test in Bowel Cancer Screening Programme. Polyp, sigmoid colon.

Tubulovillous adenoma, sigmoid colon, misplaced epithelium.

Average 2.5/5

This case was chosen as a relatively straightforward example of epithelial misplacement in a sigmoid colon polyp, and aimed to test the ability of candidates to make a confident diagnosis of this important feature, and to correctly resist the temptation to diagnose malignancy

Candidates were awarded a pass mark for a confident diagnosis of a pedunculated adenomatous polyp (either tubular or tubulovillous adenoma were accepted) showing low grade epithelial dysplasia and epithelial misplacement without evidence of malignancy.

Additional marks were given to candidates able to list the features that allowed them to make a confident diagnosis of epithelial misplacement (presence of lamina propria, cytological similarity of misplaced epithelium to surface epithelium, lack of desmoplastic stromal response). Candidates who measured the lesion, and realised that with a greatest dimension exceeding 10mm this lesion would require enhanced follow up, were given extra marks, as were candidates who commented the excision was complete.

Candidates observing high grade epithelial dysplasia were given a borderline fail, as were candidates who ventured a differential diagnosis of epithelial misplacement vs adenocarcinoma, without resolving this differential.

Candidates making a definite diagnosis of malignancy were given a clear fail, as were candidates diagnosing other forms of non-dysplastic polyp.

This case was well answered by more than half the candidates. A worryingly large number of candidates offered malignant diagnoses or identified high grade dysplasia and examiners were concerned about the poor performance of many candidates in dealing with a straightforward example of a well-recognised lesion.

Case 14
Male age 20.
Right neck lymphadenopathy.

Kikuchi's disease, lymph node.

Average 2.6/5

This case was set to assess the ability of candidates to deal with a relatively challenging but benign lymphoreticular disorder, with characteristic histological features.

Pass marks were given to candidates giving a good description of an enlarged lymph node with some preservation of normal architecture and a histiocytic necrotising process lacking neutrophils. To pass candidates had to favour a benign diagnosis.

To gain additional marks candidates had to arrive at a confident diagnosis of Kikuchi's disease (necrotising histiocytic lymphadenitis) and make valid clinicopathological correlation. Appropriate immunohistochemistry to confirm the histiocytic nature of the process gained marks, as did observing that the aetiology of this condition is unknown, and that the condition usually has a benign self-limiting course.

Candidates who had borderline fails diagnosed reactive lymphadenitis, NOS, or ventured broad differential diagnoses, or equivocated between benign and malignant diagnoses.

Clear fails were given to candidates who were confident that this was a malignant lesion, lymphoma or otherwise.

Most candidates approached this question well and were able to diagnose necrotising lymphadenitis, with many favouring Kikuchi's disease, favoured by appropriate immunohistochemistry.

Just under a quarter of candidates equivocated between benign and malignant disorders, or arrived at clear diagnoses of malignancy.

Case 15
Female age 61.
Postmenopausal bleeding. Endometrial curettage

Endometrial carcinoma with extrauterine fatty tissue.

Average 2.5/5

This case was set to test the ability of candidates to recognise the importance of an uncommon but clinically important feature in an otherwise common specimen. The material comprised straightforward endometrioid endometrial adenocarcinoma accompanied by mature adipose tissue. The admixture of endometrioid adenocarcinoma and mature adipose tissue should have raised suspicion of uterine perforation at the time of curettage, a clinically significant observation.

In the original marking scheme candidates were expected to observe both endometrial carcinoma and fat to gain a pass mark, with additional marks being awarded to candidates who recognised the clinical urgency of the presence of fat and the need to telephone the clinician to warn of likely uterine perforation. Additional marks were also awarded to candidates who attempted FIGO grading and arrived at grade 1 or grade 2.

The case was marked leniently, given that many candidates failed to observe the presence of fat or the significance of this observation. Many candidates over diagnosed high grade carcinoma and occasional candidates made no attempt to grade the lesion. Just under a quarter of candidates failed this question.

Case 16
Female age 35
Well circumscribed intramedullary lesion, diaphysis right tibia.

Fibrous dysplasia of bone.

Average 2.6/5

This case was chosen as a good example of a relatively uncommon but well recognised bone lesion, and aimed to assess the ability of candidates to assess a bone biopsy.

Pass marks were awarded to candidates able to give a competent description of the lesion and also able to make a confident diagnosis of fibrous dysplasia or favour this diagnosis in a differential diagnosis. Additional marks were awarded to candidates adding value in a number of ways; e.g.- by indicating the need for radiological correlation; an understanding of the epidemiology and natural history of the condition (childhood/ adolescence, good prognosis, usually cured by curettage, poly-ostotic vs mono-ostotic forms); knowledge of the genetics and the syndromes associated with fibrous dysplasia.

Candidates were awarded a borderline fail for an under confident answer that mentioned fibrous dysplasia in a differential but did not favour the diagnosis, or an answer that preferred other benign bony lesions. Clear fails were given to candidates favouring malignant diagnoses.

This case was well answered by the majority of candidates, with about one quarter of candidates adding significant value to their answers. Many candidates forgot to indicate the need for radiological correlation. A small proportion of candidates failed this question, usually by indicating alternative benign diagnoses, with three candidates indicating malignant diagnoses.

Case 17
Female age 18.
Abnormal liver function tests (raised alanine transaminase and bilirubin levels). Recently started on oral contraceptive pill. Liver biopsy.

Liver: bland cholestasis/ bilirubinostasis

Average 2.5/5

This case aimed to explore the ability of candidates to describe and interpret histological features visible on H&E staining in a medical liver biopsy and correlate their observations with the clinical history, which included important clues.

Pass marks were awarded to candidates giving a competent description of structurally normal liver tissue with canalicular cholestasis, and indicating that drug related aetiology needed to be considered. Additional marks were given to candidates who gave more complete descriptions, mentioned the need for additional tinctorial stains and clearly correlated the cholestasis with oral contraceptive pill use. Candidates who clearly itemised the absence of other findings (e.g.- no fibrosis, no lobular hepatitis etc.) were considered to add value, as were candidates who considered other causes of

isolated cholestasis (e.g.: early stages of large duct obstruction, sepsis, familial cholestatic syndromes etc.).

Borderline fails were given to candidates who observed cholestasis but attributed it to causes other than drugs, failing to appreciate the clinical history. Clear fails given to candidates who did not observe the cholestasis, made a confident diagnosis of a structural liver abnormality (e.g.: cirrhosis) or who diagnosed malignancy.

Many candidates answered this question well and added considerable value to their answers. Approximately one third of candidates failed this question. Many candidates forgot to mention the need for special stains. Some candidates over interpreted the biopsies and identified structural lesions that weren't present. A common error was to disregard the drug history. A few candidates diagnosed neoplasms, most commonly hepatic adenomas.

Case 18
Female age 32.
Cyclical rectal bleeding. Sigmoidoscopy: abnormal sigmoid mucosa, probable extramural mass. Sigmoid colon biopsies.

Sigmoid colon. Endometriosis.

Average 2.6/5

This case was set to examine candidates' ability to interpret mucosal biopsies and diagnose a common condition in an uncommon location. The history included helpful clues that should have helped candidates to arrive at the correct diagnosis. Endometriosis was clearly represented in each of the sections used in the exam.

Pass marks were given to candidates giving an adequate description of endometrial glands and stroma and arriving at a definite diagnosis of endometriosis. Additional marks were given to candidates adding value by correlating with the clinical history, seeking to correlate with imaging and any known history of endometriosis and confirming the diagnosis with immunohistochemistry (CK7, CK 20, CD10 and oestrogen receptor might each have been helpful). Fails were awarded to candidates not favouring endometriosis in a differential diagnosis, not recognising the presence of endometriosis or arriving at a neoplastic diagnosis (a few candidates suggested a GI stromal tumour).

The majority of candidates answered this question well, appreciating the significance of the clinical history and correctly identifying the lesion. About one quarter of candidates failed this question, largely through failing to observe the lesion, or over interpreting the abnormality.

Case 19.
Male, age 8 months. Mass at dome of bladder: resected.

Neuroblastoma

Average 2.6/5

This case was set to explore the ability of candidates to assess a paediatric neoplasm arising in an unusual location. Recognising that few candidates would have had significant experience in paediatric pathology the marking scheme was lenient.

Pass marks were given to candidates offering a sensible differential diagnosis of paediatric small round cell neoplasms (neuroblastoma, rhabdomyosarcoma, Ewing's tumour, PNET, lymphoblastic lymphoma and Wilm's tumour|) and indicating an awareness of the need for immunohistochemical staining and specialist referral.

Additional marks were awarded to candidates suggesting appropriate immunohistochemistry (NB84/ PGP 9.5, synaptophysin, chromogranin, CD99, desmin, MyoD1 and CD4) and indicating the need for genetic studies to include investigation of MYCN, and the awareness of the prognostic importance of n-myc oncogene amplification.

Borderline fails were awarded for poor and incomplete lists of differential diagnoses and confident diagnosis of small round blue cell neoplasms other than neuroblastoma. Benign diagnoses and confident diagnoses of malignant tumours other than those listed above were regarded as clear fails.

Most candidates answered this question well, with a sensible list of differential diagnoses. Many added considerable value to their answers. Just under a quarter failed, for the reasons indicated above.

Case 20
Male age 45
Short of breath, oxygen dependent. Open lung biopsy.

Pneumocystis carinii/ jiroveci pneumonia

Average 2.5/5

This case was set to assess the ability of candidates to assess an open lung biopsy and consider infective aetiology. The case was chosen as a good example of H&E appearances that should raise suspicion of Pneumocystis carinii/ jiroveci pneumonia. Pass marks were given to candidates who gave a good morphological description and considered either pneumocystis carinii/ jiroveci pneumonia or the differential diagnosis of pulmonary alveolar proteinosis. Additional marks were given to candidates indicating the need for special stains, immunohistochemistry or PCR to confirm the diagnosis of pneumocystis carinii/ jiroveci pneumonia. Candidates seeking clinical correlation (was the patient immunocompromised) were given

additional marks, as were candidates indicating the need to search for other organisms associated with immunocompromise- e.g. CMV).

Fails were awarded to candidates failing to consider the differential diagnosis outlined above, attributing the changes to heart failure or intra-alveolar haemorrhage, or making a confident diagnosis of malignancy.

Most candidates answered this question well. Just under a quarter of candidates failed.