August 2008 – start ST1
August 2009 – start SP1 – stage A – 12 months
August 2010 – start SP2 – stage B – 12 months - Part 1 FRCPath Spring 2011
August 2011 – start SP3 – stage C – 12 months (30 months total - 2 option packages to be included)
August 2012 – start SP4 – continue stage C – 12 months
April 2013 Part 2 FRCPath @ 21 months
August 2013 – start SP5 – continue stage C – 6 months
February 2014 – stage D – 12 months
February 2015 – 66 months - complete training programme
Competencies required to exit stage C:
• independent cut-up of all specimens
• ability to report most histopathology and non-cervical cytopathology specimens
• ability to appropriately refer for specialist/second opinion
• ability to demonstrate appropriate time management and task prioritisation for the stage of training.
Assessments
• workplace-based assessments 18 in total, 12 directed (during stage)
• multi-source feedback 1 completed (during year 3) and satisfactory
• FRCPath Part 2 pass (earliest opportunity at 21 months in stage)
• educational supervisor’s report satisfactory
• ARCP satisfactory outcomes (1 or 2).
One route to examination success is to read the question and then attempt to answer it.
The question is:

‘You should provide a written report to the requesting clinician including a description of the lesion, a clear final diagnosis, and a clinical comment putting your diagnosis into its clinical context.

You may suggest additional investigations as appropriate.’
T M P

- Topography – whereabouts is the specimen from?
- Morphology – what does it look like?
- Procedure – what happens next to the patient?
• To achieve a pass on this part of the examination an average mark of 2.5 per case is needed – a total of at least 50.

• To do that not only do you need make a clear diagnosis but you also need to put your diagnosis into its clinical context.
Cases 1 - 20

Mark
Case 1
Female 70 years
Referred by General Practitioner because of raised white cell count, Hb 9.4, WBC 132, Plt 203, Neutrophils 62.03, Lymphocytes 6.6. Metamyelocytes, myelocytes, promyelocytes and blasts present in the peripheral blood. Bone marrow trephine biopsy.
An adequate specimen of bone marrow showing normal bone for the patient’s age. The overall cellularity is approximately 80%, which is increased considering the patient’s age. Erythopoiesis is normoblastic, and slightly reduced in quantity. Granulopoiesis is greatly increased with expansion of the numbers of precursor and developing myeloid cells, though in general there is complete maturation to neutrophil polymorphs. The distribution of granulopoiesis is predominantly paratrabecular, which is normal. Megakaryocyte numbers are normal, show a normal distribution, and are not obviously dysplastic.
There are no significant cellular infiltrates. No reticulin staining is available (though there is no obvious fibrosis). The features strongly suggest a myeloproliferative disorder, in particular chronic myeloid leukaemia. Confirmatory testing would be appropriate using cytogenetics or molecular genetics to test for the characteristic abnormality (BCR/ABL). Management through a haematology oncology MDT and referral to an associated specialist laboratory would be usual practice.

Bone marrow trephine biopsy – chronic myeloid leukaemia
3.5 = very good pass: Full report.

3.0 = good pass: Correct diagnosis with further investigations (Philadelphia chromosome acceptable) and MDT referral.

2.5 = pass: Describe hypercellular marrow, suggest a myeloproliferative disorder, probably chronic myeloid leukaemia.

2.0 = borderline fail: Alternative diagnoses such as polycythaemia vera or megakaryocytic disorder.

1.5/ 1.0 = fail: Wrong diagnosis
Case 1

• chronic myeloid leukaemia in bone marrow
• (Mean score 2.45/5)

• A disturbing number of candidates called it acute not chronic leukaemia, not always with appropriate evaluation of blast count.

• The better candidates gave a comprehensive microscopic description of bony trabeculae and cellular elements.
Case 2
Female 43 years
Lump in left breast
• A fibroepithelial lesion with variable cellularity of the stromal component. In areas the stroma is somewhat myxoid and paucicellular whilst in other areas there is very dense stromal cellularity. In all portions, however, there is atypia, which is focally pronounced, of the spindled stromal elements and including large pleomorphic multinucleated giant cells.

• The epithelial component of the tumour is formed from dilated cleft-like spaces lined by benign cell with no evidence of atypia. In one area there are prominent collections of keratin flakes, in keeping with inclusion from a previous core biopsy.
• The margin of the lesion is largely pushing in nature but is focally infiltrative. The tumour extends focally around adjacent normal breasts lobules. Stromal overgrowth is seen (10x fields with no epithelial component). There is no necrosis, but mitoses are conspicuous (>10/HPF). No heterologous elements are seen.

• The appearances are those of a malignant phyllodes tumour. This lesion should be completely excised. It extends to 3 mm from the inked margin in this section.

• **Excision biopsy of left breast - malignant phyllodes tumour**
• **Points for comment:**
  • Description of fibroepithelial/biphasic nature
  • Cleft-like epithelial-lined spaces
  • Degree of stromal cellularity - focally marked
  • Atypia of stromal cells - marked
  • Mitotic frequently > 10/HPF
  • Margin of lesion - focally infiltrative
  • Stromal overgrowth
  • Absence of necrosis (bonus)
  • Absence of heterologous elements
  • Presence of keratin (and possible explanation)(bonus)
  • Distance to margin in millimeters
  • Comment on the need for complete excision - discussion of how wide this should be. Some units require 5 mm while others except 2 mm.
• 3.5 - correct diagnosis with excellent description including most/all of the bullet points listed
• 3.0 - correct diagnosis with good description including most/all of first 7 bullet points listed
• 2.5 - reasonable description reaching correct diagnosis
• 2.0 - reasonable description that reaches diagnosis of borderline phyllodes tumour
• 1.5 - erroneous benign diagnosis e.g. benign phyllodes tumour or other benign lesion
Case 2

• malignant phylloides tumour in breast
• (Mean score 2.34 /5)

• Most candidates recognised the lesion but some went for sarcoma NOS while others underplayed the stromal cellularity.
Cases 1 - 20

Mark

- Cases 1 - 20 bar chart with red bars labeled 'Mark'.

- The x-axis represents the cases ranging from 1 to 20.

- The y-axis represents the marks ranging from 0 to 3.

- A peak is observed around case 15 with a mark of approximately 3.

- The chart highlights the distribution of marks across the cases.
Case 4
Male 72 years
Admitted with weight loss and pyrexia; diabetic; ascitic fluid showed atypical cells raising the possibility of lymphoma; CT revealed omental cake; at laparoscopy haemorrhagic ascitic fluid with no obvious primary, but abnormal omentum. Biopsy of omentum.
Case 4

- Active tuberculosis
- (Mean score 2.82 /5)

- Most candidates got this right with appropriate clinico-pathological correlation.
- Some candidates did not add a comment of ‘no evidence of malignancy’.
Cases 1 - 20

Mark
Case 5
Female 51 years
Multifibroid uterus causing menorrhagia. Largest fibroid was 7 cm and this is a section from it.
Essentially the lesion has diffuse, moderate to marked cytological atypia, but no definite coagulative tumour necrosis and only minimal mitotic activity (<2/10 hpf). Hence it cannot be called a leiomyosarcoma. There is focal ischaemic change and some hyaline degeneration is noted.
3.5 = description of the main features with definite comments on the atypia, mitotic activity and coagulative necrosis. Some may call this a symplastic leiomyoma which is the older terminology but still acceptable. The good candidates may ask to know about the other fibroids (which were all benign), may wish to examine further levels and more sections to look for the necrosis and may wish to perform p16, p53 and Mib1 / Ki67. These should be generally negative or only patchily positive in an atypical leiomyoma which was the case here.

3.0 = some may call it STUMP on the grounds of the diffuse atypia but so long as they have not categorically called it sarcoma they could get a 3 if they have also mentioned levels and the immunohistochemistry and looking at more sections.

2.5 = if only some of the features are mentioned or the immuno. is not suggested, ut the diagnosis is correct

2.0 = if a leiomyosarcoma is diagnosed but the preceding description is appropriate

1.5/ 1.0 = if a leiomyosarcoma is diagnosed and the description is not accurate, particularly if features are imagined when they are not there.
Case 5

- Atypical leiomyoma of uterus
- (Mean score 2.37/5)
- Quite a few candidates overcalled this as leiomyosarcoma.
Case 6
Female 82 years
Large infiltrating mass at the head of pancreas. FNA cytology not diagnostic. ? Pancreatic cancer. ? Lymphoma. ? Other malignancy. Section of needle biopsy.
Case 6

- Fat necrosis suggestive of acute pancreatitis
- (Mean score 1.82/5)

- Few candidates recognised the microscopic features of fat necrosis/saponification as features of acute pancreatitis.
- Most incorrectly called it chronic pancreatitis.
- Quite a few went for malignancy, with over-diagnosis of reactive fibroblasts.
- Overall worst answered case.
Case 7
Female 52 years
Biopsy of vulval lesion
Paget’s disease

- This specimen shows Paget’s disease of vulval skin, characterized by large oval to polyhedral cells with pale cytoplasm, large nuclei and small nucleoli which are arranged singly or in clusters in the epidermis, where they are interspersed with normal squamous epithelial cells, with some overlying hyperkeratosis. There is a band of lymphoplasmacytic infiltration in the underlying stroma but there is no evidence of invasive malignancy. The Paget’s disease extends to the surgical resection margins. There is no evidence of invasive malignancy.
- There is inflammation so candidates may suggest an inflammatory dermatosis / co-existing interface dermatosis such as lichen sclerosus or lichen planus.
• 3.5 = Differential favouring Paget’s with correct mucin histochemistry and immunohistochemistry to distinguish from melanoma and determine if primary or secondary Paget’s and expected results; comment on adequacy of excision; recommend review past medical history (for evidence of prior adenocarcinoma of the lower genital/urinary/gastrointestinal tract) and MDT discussion

• 3.0 = Differential favouring Paget’s with correct mucin histochemistry and immunohistochemistry to distinguish from melanoma and expected result; comment on adequacy of excision; recommend review past medical history (for evidence of prior adenocarcinoma of the lower genital/urinary/gastrointestinal tract) and MDT discussion

• 2.5 = Differential favouring Paget’s disease with correct mucin histochemistry or immunohistochemistry to distinguish from melanoma and expected result.

• 2.0 = Differential including Paget’s disease but no mention of histochemistry or immunohistochemistry to resolve differential. Credit for noting the inflammation and suggesting the possibility of a co-existing interface dermatosis such as lichen sclerosus or lichen planus.

• 1.5/ 1.0 = No mention of Paget’s disease or unequivocal incorrect diagnosis i.e., melanoma in situ.
Case 7

- Paget’s disease of vulva
  - (Mean score 2.58/5)
- Relatively few people suggested mucin histochemistry.
- Some candidates had incomplete immunohistochemical panels to differentiate Paget’s from melanoma.
- Most did not consider assessing margins.
Cases 1 - 20

Mark

0.5
1
1.5
2
2.5
3
3.5
Case 8
Male 71 years
Abdominal pain and rectal bleeding.
Section from small bowel resected at laparotomy
Necrotising vasculitis

- Sections show ischaemic mucosa with clear evidence of necrotising vasculitis in several areas and not associated with acute mucosal inflammation. (This man died the day after this operation).
3.5 = Well-constructed answer recognising the pathological features, explaining how apparent vasculitis can be seen in an area of bowel ischaemia and giving clinicopathological context - e.g. how to identify systemic vasculitis (anca etc)

3.0 = Recognises ischaemia secondary to vasculitis but no discussion re –types of vasculitis

2.5 = Vasculitis in differential of causes of ischaemia

2.0 = Recognises ischaemia but not vasculitis

1.5/ 1.0 = Fails to recognise vasculitis or ischaemia
Case 8

- Ischaemic enteritis due to necrotising vasculitis
- (Mean score 2.58/5)
- Overall answered well by candidates although surprising number didn’t think ischaemic.
- Those who recognised pathology tended to do very well because easy to give relevant additional information with CPC etc.
Case 9
Female 35 years
Acute appendicitis. Section of appendicectomy.
• 3.5 = very good pass: Diagnosis of malignant epithelial tumour. Includes tubular carcinoid as preferred differential uses appropriate ICC or special stains to support diagnosis, including expected results. Comments appropriately on depth of invasion, mitoses (low) vascular invasion (none) and completeness of excision (if appendix base is not assessable on the slide circulated it needs to be examined). Plus either a recommendation that the case is referred to the GI MDT meeting for review, or equivalent comments to the affect that the patient needs to be referred for additional investigations and treatment, or phone call to the clinician to alert them of this unexpected diagnosis.

• 3.0 = good pass: As for above but with some elements of additional information section missing. (Missing MDT reference, vascular invasion comments etc)
• 2.5 = pass: Either answers which include tubular carcinoid as preferred differential and uses appropriate ICC or special stains to support diagnosis, but which have multiple items of additional information missing, or diagnosis of malignant epithelial tumour which at least include carcinoid as differential or ICC or special stains that would confirm this diagnosis. Must include comments on depth of invasion, mitoses vascular invasion and recommend either MDT review, phone call to clinician or further investigation and treatment to achieve pass.

• 2.0 = borderline fail: Diagnosis of malignant epithelial tumour but any one of carcinoid not considered as differential seriously inadequate supporting information indicates any uncertainty around the malignant diagnosis includes erroneous information indicating incomplete comprehension of the diagnosis or supporting information includes alternative differential diagnoses which are not justified includes erroneous information on staging, completeness of excision or prognosis

• 1.5/ 1.0 = fail: Fails to make diagnosis of malignant epithelial tumour, or includes more than one of the defects listed the borderline section. Any other erroneous information indicative of a major problem interpreting the section.
Case 9

- Well differentiated endocrine tumour of appendix (‘tubular carcinoid’)
  - (Mean score 2.51/5)

- This was a difficult case. Clearly carcinoid tumours (or well differentiated endocrine tumours, as they should be called) are a common neoplasm in the appendix but this one showed very marked tubule formation.

- We can understand why many people called it adenocarcinoma but it was important to have endocrine tumour in the differential.

- Several people called it goblet cell carcinoid, which is distinct again, but these individuals were given some leniency due to the difficulty of the case.
Cases 1 - 20

Mark

- Bars represent cases from 1 to 20.
Case 10
Female 49 years
Colonic polyp
Tubulovillous adenoma with high grade dysplasia. Very obvious HGD, clear of stalk.

- **3.5 = very good pass:** Discussion of high grade dysplasia - that intramucosal adenocarcinoma does not exist in the colon and the use of deeper levels to exclude deeper invasion.
- **3.0 = good pass:** Recognises high grade dysplasia as part of a differential.
- **2.5 = pass:** Tubulovillous adenoma without further comment.
- **2.0 = borderline fail:** Indecisive answer - "either adenocarcinoma or high grade dysplasia".
- **1.5/ 1.0 = fail:** Misleading answer - either "carcinoma" or "benign polyp".
• Tubulovillous adenoma of colon with high grade dysplasia
  (Mean score 2.64/5)

• This was generally answered well. A minority were concerned about possible invasive disease and a few thought that adenocarcinoma was present.

• Some used the term 'intramucosal carcinoma' - not used in the UK.
Cases 1 - 20

Mark

Mark
Case 12
Male 30 years
Interstitial / nodular bilateral lung disease.
Wedge biopsy of lung.
Hypersensitivity pneumonitis (extrinsic allergic alveolitis)

- This lung biopsy shows an extensive but patchy chronic interstitial infiltrate, comprising mainly lymphocytes and a few plasma cells, located primarily around bronchioles. Scattered small loose noncaseating granulomas and occasional multinucleated giant cells are also present. Minimal fibrosis is noted. There is no architectural remodelling. There is no necrosis. There is no evidence of acute or of organising pneumonia. No malignancy is seen. The appearances suggest hypersensitivity pneumonitis (extrinsic allergic alveolitis). Advise correlation with clinical and radiological findings.

- (No acid fast bacilli or fungi were seen with special stains, Grocott and Ziehl-Neelsen)

- The combination of a cellular pattern of inflammatory cell infiltration, with centrilobular (peribronchiolar) accentuation without fibrosis, and also with loose non-necrotising granulomas, is suggestive of hypersensitivity pneumonitis, a diagnosis that would be confirmed if organising pneumonia was also present. The absence of necrosis and neutrophils suggests that infection is unlikely (and that Grocott and Ziehl-Neelsen are probably not necessary)
• 3.5 = very good pass: Full description and correct diagnosis, with some clinicopathological correlation
• 3.0 = good pass: description of a cellular pattern of pneumonitis with centrilobular accentuation, loose non-necrotising granulomas and no fibrosis or organizing pneumonia, with diagnosis of hypersensitivity pneumonitis. Advise correlation with clinical and radiological findings
• 2.5 = pass: description of a cellular pattern of pneumonitis with centrilobular accentuation, loose non-necrotising granulomas and no fibrosis or organizing pneumonia
• 2.0 = borderline fail: description of fibrosis &/or infection (the presence of fibrosis would suggest that the condition would not respond to treatment / be treated)
• 1.5/ 1.0 = fail: any malignant diagnosis
Case 12

- Hypersensitivity pneumonia (extrinsic allergic alveolitis)
- (Mean score 2.2/5)

- Very poor descriptions by the majority of candidates (it seems clear that most trainees have a lack of experience in this area of pathology).
- Differential diagnoses usually wide, which is not necessarily a problem but many included an infective or potentially malignant cause, marking them down.
Cases 1 - 20

Mark
Case 15
Female 7 years
Splenomegaly. Recurrent cholecystitis and pancreatitis. Section from splenectomy
Sickle cell disease

• 3.5 = very good pass: Good description including use of terms ‘sludging’ of red blood cells in the sinusoids, and ‘Gamna-Gandy bodies’, culminating in diagnosis of sickle cell disease. Asks about ethnicity of the patient and haemoglobin electrophoresis results. Describes course of splenic pathology in sickle cell disease, with initial enlargement followed by atrophy (‘autosplenectomy’). Deduces that cholecystitis and pancreatitis likely to be due to pigment gallstones.

• 3.0 = good pass: Good description including use of terms ‘sludging’ of red blood cells in the sinusoids, and ‘Gamna-Gandy bodies’, culminating in diagnosis of sickle cell disease. Asks about ethnicity of the patient and haemoglobin electrophoresis results, but does not provide additional discussion.

• 2.5 = pass: Good description including packing of sinusoids by sickled red cells and fibrocalcific lesions of spleen (may or may not use the terms ‘sludging’ and ‘Gamna-Gandy bodies’, culminating in diagnosis of sickle cell disease. Further information/discussion required for higher scores is absent.

• 2.0 = borderline fail: Describes congestive and/or fibrocalcific lesions of spleen but does not reach diagnosis of sickle cell disease.

• 1.5 = fail: Favours non-neoplastic entity of spleen other than sickle cell disease.

• 1.0 = fail: Favours myeloproliferative or lymphoproliferative disorder or fails to recognize as spleen.
Case 15

• Sickle cell disease of spleen
• (Mean score 2.09/5)

• Sickling recognised by few and therefore a poorly answered question.
• If Sickle Cell Disease diagnosis arrived at then many did well because there is plenty to include with CPC.
Cases 1 - 20

Mark
Case 19
Female 76 years
Multiple oval scaly lesions on legs up to 10 mm in diameter. No improvement with topical steroids.
Porokeratosis

• 3.5 = very good pass: Correct terminology and good morphological description with mention of clinical associations eg. risk of cutaneous neoplasia, diseases/treatments causing immunosuppression such as SLE, renal transplantation and possible clinical variant(s) of porokeratosis (disseminated superficial porokeratosis etc)

• 3.0 = good pass: Correct terminology and a good description of appearances: the angulated cornoid lamella relating to a focus of absent granular layer; and the more central part of the lesion showing epidermal atrophy subtended by dermal inflammation and capillary ectasia. Either mentions clinical associations or the clinical subtype(s) of porokeratosis

• 2.5 = pass: Recognises cornoid lamellae and uses the term “porokeratosis”. Adequate description of cornoid lamella.

• 2.0 = borderline fail: Describes column of parakeratosis, but does not use the term cornoid lamella and/or fails to suggest porokeratosis as a probable diagnosis

• 1.5/ 1.0 = fail: Any malignant diagnosis
Case 19

- Porokeratosis
- (Mean score 2.17/5)

- Most candidates recognised the typical cornoid lamellae, but few provided good supplementary information.
- Incorrect benign diagnoses e.g. stasis changes, appear to have arisen due to lack of systematic evaluation of the different layers of the skin, or possibly due to not reviewing all three sections on the slide.
- Some candidates considered mycosis fungoides – possibly due to lack of systematic evaluation of all the available material and the hints provided in the clinical history.
One route to examination success is to read the question and then attempt to answer it.