

**FRCPath Part 2 in Histopathology Spring 2012
Surgical Pathology**

Answers

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.’

The short answers to the cases are given in the list below. On the following pages are summaries of the expected full answers and the points that examiners were looking for when marking the answers. These are all based on the original diagnostic reports.

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.

1 - M 58. Orchidectomy for infective orchitis.

Classical seminoma

2 - F 18. Cyst surrounding lower left 8 tooth (also removed). Present many years, slowly enlarging, ? dentigerous.

Odontogenic keratocyst

3 - F 48. Breast screening patient. Mammotome / Vacuum-Assisted Core Biopsy of 5 mm focus of microcalcification in left upper outer quadrant. Clinical assessment = normal (P1), Radiological assessment = probably benign (R3), Ultrasound assessment = Normal (U1)

Benign microcalcification and fibrocystic disease/ columnar cell change

4 - F 56. 3 cm mass in the lower lobe of the right lung. PET-CT shows moderate uptake in RLL mass only. Section from right lower lobectomy.

Atypical carcinoid tumour

5 – M 50. 'Painful left epididymal swelling. Failed to respond to medical therapy. Anxieties about fertility'. Received, a 25 mm length of ? vas attached to a pear-shaped firm mass 42 x 30 x 17 mm, with a homogeneous creamy-white cut surface.

Necrotising granulomatous inflammation

6 - M 73. Papillomatous expansile nasal polyp filling left nasal cavity. ? Inverted papilloma.

Primary sino-nasal intestinal type adenocarcinoma

7 – F 63. Oesophageal tumour diagnosed as poorly differentiated carcinoma with some neuroendocrine differentiation. Has had several rounds of chemotherapy followed by gastro-oesophagectomy. No tumour visible macroscopically. Section of gastro-oesophageal junction.

High grade dysplasia suspicious for lamina propria invasion (intramucosal carcinoma) in Barrett's oesophagus

8 – F 24. Products of conception. Missed miscarriage at 5/40.

Complete hydatidiform mole in twin pregnancy

9 – F 88. Lobulated. Well-defined part cystic part solid lesion in the right breast. Central wide excision, including nipple.

8 mm high cytonuclear grade encysted papillary carcinoma, completely excised.

10 – F 46. Cervical lymphadenopathy. ? NHL on FNA. Left cervical lymph node biopsy.

Follicular lymphoma, grade 3A

11 – F 37. Scattered lumpy lesion on forehead, neck and left hand. Hint of annular configuration. Incisional biopsy from dorsum of left hand.

Granuloma annulare

12 – F 32. Referral cytology of severe dyskaryosis ?invasive (code 5). At colposcopy, there was dense aceto-white seen over a large area. Loop excision of the transformation zone was done and this is one section from it.

CIN3 and CGIN

13 – F 31. 10 cm mass in right lobe of liver – resected.

Inflammatory / telangiectatic hepatocellular adenoma

14 - M 63. Large retroperitoneal mass extending from around the right kidney down into the inguinal canal. On sectioning the tumour there was a tennis ball sized solid area lying adjacent to the kidney. Section from the edge of the solid area.

Well differentiated liposarcoma with de-differentiated component

15 – M 24. Pigmented lesion excised from the left mid back.

Pigmented spindle cell naevus of Reed

16 – F 48. Ulcerated area in anal canal.

Basaloid squamous cell carcinoma

17 - F 17. Biopsy of skin lesion from right hip. ? epidermal cyst.

Aneurysmal dermatofibroma

18 – F 75. Altered bowel habit. Normal colon on sigmoidoscopy. Endoscopic biopsy.

Collagenous colitis

19 – M 28. Past medical history of eczema. Widespread superficial blistering with appearance suggesting an impetiginised eruption.

Impetiginised pemphigus foliaceus

20 – F 30. Enlarged firm mobile right axillary lymph node.

Foreign body giant cell reaction to silicone

History

58 M. Orchidectomy for infective orchitis.

Answer

Classical seminoma

In this section there is no invasion of the epididymis or visceral or parietal tunica vaginalis.

Marking scheme

3.5

Good description.

Confident diagnosis of classical seminoma with no other tumour elements

Mention of lack of involvement of epididymis and tunica vaginalis +/- staging

Mention of importance of examining background testis for ITGCN

Appropriate confirmatory immunopanel

3.0

As above but less confident of diagnosis **or** lacklustre description, muddled immunopanel etc.

2.5

Includes a differential diagnosis or does not allude to absence of epididymal or tunica involvement

2.0

Includes a differential diagnosis or misinterprets the epididymis or tunica as being involved by tumour.

1.5 – 1.0

Wrong diagnosis, or seminoma low on list of differentials.

Slide 2

F 18. Cyst surrounding lower left 8, also removed. Present many years, slowly enlarging, ? dentigerous.

Oral biopsy, left mandible: A cystic structure measuring 20 x 13 x 5mm. The surface is intact and smooth. The specimen is bisected longitudinally to reveal soft creamy contents. Both sections embedded in 1A. Also received is a tooth measuring 13 x 12 x 10mm. This was returned to the pot.

Sections show an odontogenic cyst. The cyst is lined by a thin squamous epithelium that shows palisading of the basal cells and surface parakeratosis. The cyst wall is composed of fibrous tissue. There are scattered odontogenic epithelial rests and a few satellite (daughter) cysts. The features are those of an odontogenic keratocyst.

Left mandible; odontogenic keratocyst.

- 1.5 Malignant diagnosis
- 2.0 Benign diagnosis but not correctly classified as odontogenic keratocyst
- 2.5 Diagnosis of odontogenic keratocyst
- 3.0 Correct diagnosis, with correct identification of satellite (daughter) cysts and comment on the increased risk of recurrence

Slide 3

Case 12H2811

F 48. Breast screening patient. Mammotome / Vacuum-Assisted Core Biopsy of 5 mm focus of microcalcification in left upper outer quadrant. Clinical assessment = normal (P1), Radiological assessment = probably benign (R3), Ultrasound assessment = Normal (U1)

- 1.5 Any malignant diagnosis (DCIS or invasive malignancy)
- 2.0 Atypical ductal hyperplasia (ADH)
- 2.5 Benign fibrocystic change and columnar cell change.
- 3.0 Benign calcification. B2. Discuss at MDT. Correlate with imaging findings and clinical history. If these correlate then no further action with patient back to normal recall.

Slide 4

History:

56 year old non-smoking female with a 3cm mass in the lower lobe of her right lung. PET-CT shows moderate uptake in RLL mass only. Section from the right lower lobectomy.

Marks:

- 1.0: Any benign diagnosis
- 1.5: Small cell carcinoma, large cell neuroendocrine carcinoma or any other malignancy
- 2.0: Carcinoid tumour NOS.
- 2.5: Atypical carcinoid tumour
- 3.0: Atypical carcinoid tumour, including identification of necrosis and pleural invasion, a mitotic count between 1 and 10 per 2 square mm, the size (32mm) and that it appears excised.
- 3.5: All the above plus stage pT2a Nx or pT2a N0. No need for adjuvant therapy.

Notes:

Candidates may request immunohistochemistry to confirm the diagnosis but their favoured answer should be atypical carcinoid without recourse to immuno.

MIB-1 staining may also be requested but it is not necessary for diagnosis and its role in prognosis is not defined in pulmonary carcinoid tumours.

Providing a list of differential diagnoses including carcinoid tumour without identifying a favoured answer scores 1.5.

Slide 5

Microscopic Examination

The epididymis and vas are surrounded by florid granulomatous inflammatory geographic necrosis. There is associated lymphocytic tubulitis but in sections appear to be angiocentric, involving arteries in particular. Fungal stain is negative. Acid fast bacilli are not seen on Ziehl-Neelsen stain.

The appearances are those of NECROTISING GRANULOMATOUS INFLAMMATION. In the absence of organisms on ZN the most likely diagnosis is tuberculous. Other diagnosis also includes necrotising sarcoid and other rarer causes of granulomatous inflammation. Appropriate clinical investigation is therefore recommended.

The testicular biopsy shows essentially normal spermatogenesis but with some atrophy (which may be related to formalin-fixation). There is no evidence of granulomatous inflammation.

Slide 6

M 73. Papillomatous expansile nasal polyp filling left nasal cavity. ?Inverted papilloma.

ENT biopsy, nasal polyp, left: Multiple tan haemorrhagic and cream coloured fragments of tissue together measuring 40 x 30 x up to 8mm. All tissue is embedded in three cassettes, 1A to 1C.

Sections show a papillary tumour with occasional tubular formations supported by haemorrhagic fibrous stroma. The tumour cells resemble those seen in colonic neoplasms and occasional goblet cells are also present. Mitotic figures are readily found and atypical mitosis is seen. In some blocks, the tumour is seen adjacent to nasal mucosa and underlying sino-nasal bone. The features are those of a papillary adenocarcinoma.

Immunohistochemistry shows that most of the tumour cells are positive for CK20 and a small proportion are also positive for CK7. Staining for CEA is also positive. Scattered cells are strongly positive for granular cytoplasmic chromogranin and synaptophysin; staining for CD56 is negative.

The features are in keeping with a primary sino-nasal intestinal type adenocarcinoma. If this proves to be the case, the subtype would be papillary/ colonic type. The differential diagnosis is a metastatic deposit and this should be excluded by clinical staging. Lower GI tract would be the most likely primary site. Clinical correlation and discussion at the MDT is advised.

Left nasal cavity; intestinal-type adenocarcinoma, most likely primary but metastasis should be excluded.

1.5 Benign diagnosis

2.0 Unequivocal diagnosis of metastatic adenocarcinoma

2.5 Diagnosis of primary sino-nasal intestinal type adenocarcinoma

3.0 Diagnosis of primary sino-nasal intestinal type adenocarcinoma, with appropriate differential diagnosis, suggestions for immuno and MDT referral

Slide 7

63year old lady – oesophageal tumour diagnosed as poorly differentiated carcinoma with some neuroendocrine differentiation. Has had several rounds of chemotherapy followed by gastro-oesophagectomy.

No tumour visible macroscopically. Section of junction.

Response

3.5 – clear diagnosis of high grade dysplasia and suspicious for lamina propria invasion (intramucosal carcinoma) in Barrett's oesophagus.

Would perform other stains to confirm p53, Mib1. Would review the previous histology. Would comment on fibrosis of presumed tumour regression

3 – most of above

2.5 – clear diagnosis of Barretts and strongly favours high grade dysplasia

2 – unequivocal adenocarcinoma

1 -1.5 – thinks reactive or neuroendocrine tumour

Slide 8

Thank you very much indeed for asking me to look at this very interesting case. In my opinion, the histological appearances are those of complete hydatidiform mole but this is occurring in the context of abundant non-molar villi. Therefore, I believe this to be a twin pregnancy, one of which is a complete molar.

I intend to carry out immunohistochemistry for p57 and, if my view is correct, then the villous cytotrophoblast of the non-molar tissue should be positive whilst the molar tissue should be negative.

Immunohistochemistry for p57 shows two populations of chorionic villi : a non-molar hydropic population with p57 +ve villous cytotrophoblast and a p57 -ve molar population.

COMMENT:

These findings confirm the original histological diagnosis of complete mole occurring in the context of a twin pregnancy.

Slide 9

88 year old woman with lobulated, well-defined part cystic part solid lesion in the right breast. Central wide local excision, including nipple.

Microscopy:

Sections show a multiloculated papillary lesion underlying, but not infiltrating, the nipple epidermis. The tumour is formed from thin fibrovascular cores, many bearing dilated vessels, with overlying crowded atypical epithelial cells in one or more layers. The epithelial cells have large, pleomorphic nuclei with prominent nucleoli and occasional mitoses.

The lesion is surrounded by a reactive fibroblastic pseudocapsule with a nodular focus of haemorrhage, the latter in keeping with previous core biopsy site. There is also associated chronic inflammation around the periphery of the tumour and haemosiderin deposition.

Focal, possible lympho-vascular invasion is present.

The tumour measures at least 8mm in maximum extent and extends to 9mm from the inked margin in this section.

Diagnosis

Right Breast (Mastectomy) –

8mm high cytonuclear grade encysted (or intracystic or encapsulated, all terms OK) papillary carcinoma (preferable NOT with in situ addendum);

Completely excised in this section;

Possible lympho-vascular invasion.

Points for comment on:

Papillary architecture

Degree of epithelial cells atypia – marked/high cytonuclear grade

Mitotic count not required

Pseudocapsule

Presence of haemorrhage (and possible explanation) (bonus)

Comment on lympho-vascular invasion

Size of lesion

Distance to margin in mm

Note:

(1) Candidates may request myoepithelial markers to assess whether the lesion has myoepithelial layer between epithelium and fibrovascular cores – absent in papillary carcinoma in situ and encysted papillary carcinoma but present in benign papilloma. This lesion is not, however, benign based on cytology alone but is reasonable.

(2) However, they may also ask for myoepithelial markers to assess whether the overall lesion lies within duct space – i.e. is in situ or encysted – this also would be entirely reasonable, but is not required for diagnosis.

Recent review of myoepithelial markers in breast suggests smooth muscle myosin heavy chain and p63 are best myoepithelial markers. Alternative is smooth muscle actin. Ck5 is NOT a good myoepithelial marker, nor is S100.

Good candidates should discuss/comment on whether these are in situ or invasive lesions.

Slide 10

LEFT CERVICAL LYMPH NODES - FOLLICULAR LYMPHOMA, GRADE 3A.

Slide 11

MICRO.

This is skin the dermis of which contains prominent areas of granulomatous inflammation which includes some multinucleate cells and much of which is related to degenerate collagen. There is no evidence of neoplasia and special stains for fungi and acid fast bacilli are negative. The appearances are in keeping with the clinical suggestion of granuloma annulare.

Slide 12

32 year old with a referral cytology of severe dyskaryosis ?invasive (code 5). At colposcopy, there was dense acetowhite seen over a large area. Loop excision of the transformation zone was done and this is one section from it.

1 if invasive neoplasia is diagnosed.

1.5 or 2 if one or the other dysplasia is overlooked and other comments are not given, particularly the need for levels and correlation.

2.5 is given if CIN 3 and CGIN are mentioned but other comments such as excision margins, correlation, etc are not included. Provided they do not call it invasive neoplasia.

3 if some of the features are not mentioned.

3.5 should describe this as the transformation zone with CIN 3 on the surface and also colonising occasional glands and extensive high grade CGIN. In this section the CIN is completely excised but the CGIN is present at the endocervical margin. There is no invasive neoplasia. The good candidates will ask for levels to exclude invasion and to ensure that the CGIN is definitely incompletely excised. They will also suggest further colposcopy excision and will indicate the depth of the deepest gland involved by the CGIN. The most important feature to be mentioned is the apparent non-correlation with the referral cytology. They should suggest a review of the cytology and, if required, a discussion at a colposcopy MDT meeting.

Slide 13

31 year old female. 10 cm mass in right lobe of liver – resected.

Answer scoring:

3.5 – inflammatory adenoma with awareness of the new categorisation based on immunohistochemical profile; this case would be serum amyloid A positive and normal staining for beta catenin and liver fatty acid binding protein; may mention glutamine synthetase staining
may also know the cytokeratin 7 would pick up ductules, cytokeratin 19 would be negative
may know that it was previously called telangiectatic focal nodular hyperplasia.

3.0 – adenoma, not sure which type but would suggest further stains to categorise but may not know them

2.5 – clearly a benign diagnosis, would favour adenoma, but unable to exclude focal nodular hyperplasia

2.0 - focal nodular hyperplasia without any mention of adenoma and not suggest further stains or clinical history

1 - 1.5 – malignant or suggest that this is background liver

Slide 14

History: 63 year old male with large retroperitoneal mass extending from around the right kidney down into the inguinal canal. On sectioning the tumour there is a tennis ball sized solid area lying adjacent to the kidney. Section from the edge of the solid area.

Answer: Should describe tumour with two components – Well diff liposarcoma with collections of variably sized adipocytes lying in loose fibrous stroma with numerous tumour giant cells. Occasional lipoblasts but not prominent so may be missing in some sections.

De-differentiated component with sheets of spindle cells in loose stroma, mitotic activity +, extensive central necrosis and area of more pleomorphic spindle cells.

Good/excellent candidate will make diagnosis of de-differentiated liposarcoma on history (classical site) and morphology + will suggest confirmation with immuno +/- ISH for MDM2 amplification (3.5) and correlation with radiology.

An adequate answer will describe the tumour – label it as a sarcoma and provide a suggested immunostaining panel to subtype – e.g. S100 for MPNST, Desmin and SMA for leiomyosarcoma, pancytokeratin to exclude sarcomatoid carcinoma.

Slide 15

This pigmented lesion was excised from the left mid back of this 24-year-old man.

The lesion shows good radial symmetry and is predominantly intraepidermal, being composed of expansile junctional nests of spindle and epithelioid melanocytes showing quite heavy pigmentation. There is some limited spread of melanocytes into the upper epidermis but the striking feature is the heavy pigmentation that is present, with melanin pigment present in all layers of the epidermis and in melanophages in the underlying papillary dermis.

There is no substantial dermal component and there is no epidermal ulceration or dermal mitoses.

This lesion is a benign pigmented spindle cell naevus of Reed. Diagnostic features of malignant melanoma are not present.

The lesion has been completely excised with 2mm lateral margins.

In view of the benign diagnosis there is no indication for any further local surgery at this time.

1.5 Malignant diagnosis

2.0 No conclusion or suggestion of malignancy

2.5 Correct diagnosis of pigmented spindle cell naevus of Reed

3.0 Correct diagnosis with full description

3.5 Correct diagnosis with full description and advice on no further surgery

Slide 16

48 female. Ulcerated area in anal canal.

(Basaloid) squamous carcinoma of rectum

Traditionally basaloid SCC is said to have a poorer prognosis than usual type SCC. One of the main problems is the variability within tumours and now reliability in diagnosing this sub-type. It probably does confer a slightly poorer prognosis as the features of basaloid carcinoma are also those of poorer differentiation. In general histological features are much less useful in predicting prognosis in anal cancer than size and nodal status.

- 1.5 Fails to recognise a malignant tumour or clearly wrong malignant diagnosis - e.g. lymphoma
- 2 Indecisive answer as to nature (benign / malignant) or says malignant but without favouring carcinoma
- 2.5 "Carcinoma"
- 3 Squamous carcinoma
- 3.5 Recognises basaloid features

Slide 17

F 17. Biopsy of skin lesion from right hip. ? epidermal cyst.

- 1.5 Any malignant diagnosis
- 2.0 Benign report without clear correct diagnosis
- 2.5 Correct diagnosis of benign aneurysmal dermatofibroma, completely excised
- 3.0 Correct diagnosis plus comment that the aneurysmal variant of dermatofibroma has no malignant potential and should be cure by complete excision

Slide 18

Collagenous colitis

- 3.5 Excellent: as below with indication of awareness of clinical scenario (normal colonoscopy, middle age-elderly female, persistent watery diarrhoea)
- 3.0 Good: collagenous colitis, suggestion of special stains to confirm diagnosis (any collagen stain): as below and:-
- 2.5 adequate (pass) Collagenous colitis/ microscopic colitis: competent description of findings
- 2.0 Incorrect: Lymphocytic colitis
- 1-1.5 Wrong: any other form of inflammatory bowel disease, normal, any malignant diagnosis, infective colitis/post infective colitis

Slide 19

A+B) The skin shows superficial epidermal splitting at and just below the level of the granular layer with foci of acantholysis. Red blood cells are present within the blister, but inflammatory cells are scanty. Some eosinophils and neutrophils are seen within the epidermis. A single small collection of subcorneal neutrophils is also noted. The superficial dermis shows a mild inflammatory cell infiltrate including eosinophils and neutrophils and some pigmentary incontinence.

Special stains for bacteria show small numbers of gram positive cocci within the blister.

Immunofluorescence shows strong intercellular IgG staining within the epidermis, more marked in the superficial part of the epidermis. Intercellular C3 staining is also seen, but this appears more accentuated in the basal half of the epidermis, with focal staining also in the basement membrane zone. IgA and Igm are negative.

The appearances are those of pemphigus foliaceus with secondary bacterial infection.

Slide 20

1-1.5

Malignant diagnosis

2

Benign diagnosis – reactive node, fat necrosis

2.5

Foreign body giant cell reaction to prosthetic implant

3

Good description. Enlarged lymph node replaced by vacuoles many of which contain colourless globules, consistent with silicone gel surrounded by brisk foreign body giant cell reaction – most likely a reaction to ruptured silicone prosthetic implant. There is no evidence of malignancy.

COMMENT

This is a rather simple and topical case so hard to find additional information for a 3.5