Teacher guide

Preparation National Pathology Exam

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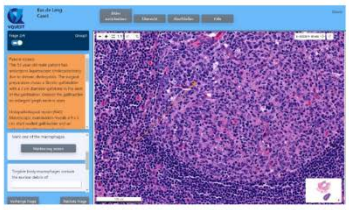
Scenario

Setting

Online at home



VQuest

Patient cases
- 4 with marker questions
- 4 without marker questions

Date: December ´22- January ´23

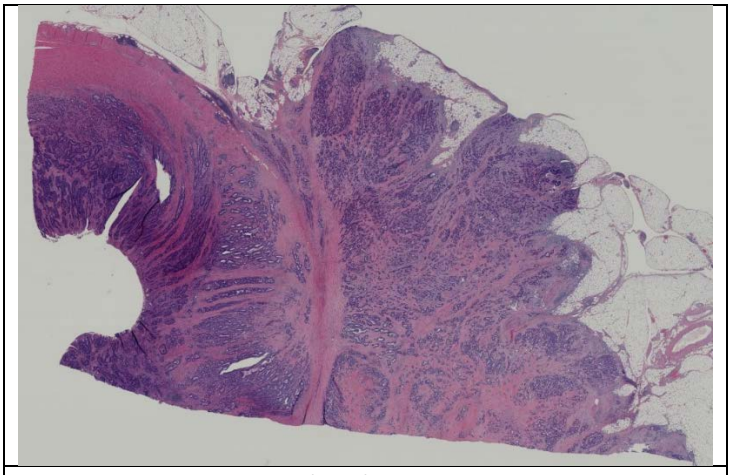
Individual work (total 3 hours)

wk 50 — wk 51 (VQUEST) — wk 52 — wk 1 — wk 2 — zoom

PRISMA Learning Dashboard

Fri 13.01.2023
12-14 Finnish time
Online discussion
2x 50 minutes

Case 1



Colon: adenocarcinoma (WSI)
Summary

70 year old patient with pain in lower abdomen. Colonoscopy revealed a tumor in the colon transversum. Biopsy PAD was: suspicion of adenocarcinoma. An extended proximal hemicolectomy was performed. Answer the question based on one histological section from the tumor.

1. What is your pathological-anatomical diagnosis for the tumor?
[LLQ: r] Adenocarcinoma NOS

2. Explain briefly why you chose this diagnosis
[OQ: explanation]

3. Assess the grade of the tumor based on the current WHO Classification of Tumors. [MCQ]

- Not applicable
- High-grade
- Low-grade [r]

4. Explain briefly why you chose this grade.
[OQ: explanation]

5. Assess the depth of invasion based on the current AJCC staging system. [MCQ]

- No invasion
- pT1
- pT2
- pT3
- pT4a [r]
- pT4b

6. Place this marker on the area of deepest invasion or tumor growth
[MQ: example of region of interest: couple of pT4a-invasions]

7. Assess the tumor budding score [Info: calculation of the number of buds], [MCQ]

- Not applicable
- BD1: 0-4 buds / 0.785 mm^2

- BD2: 5-9 buds / 0.785 mm^2
- BD3: 10 or more buds / 0.785 mm^2 [r]

8. Place this marker on the area where you assessed the budding score.
[MQ: example of region of interest: area with highest amount of tumor buds]

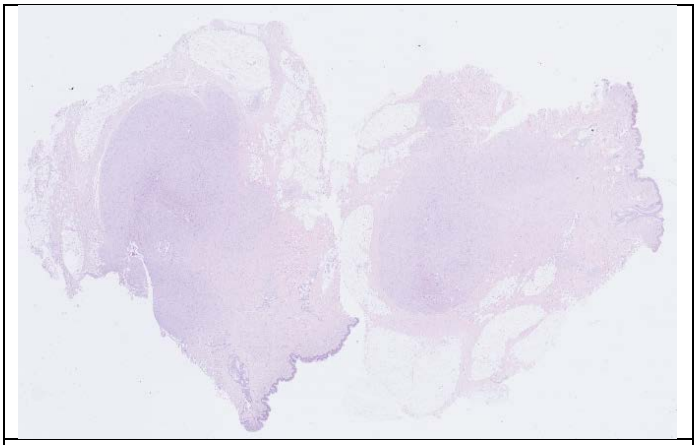
9. Is there vascular invasion?
Yes
No [r]

10. If you answered yes, place the marker on the vascular invasion you have identified. If you answered no, you can skip this question.

11. Is there perineural invasion?
Yes
No [r]

12. If you answered yes, place the marker on the perineural invasion you have identified. If you answered no, you can skip this question.

Case 2



Subcutaneous: granular cell tumor (WSI)

Summary: This is a case of granular cell tumor, of which most are benign. The tumor is of neural origin and expresses usually S100, SOX10 and CD68.

A 42-year-old male. A slowly growing subcutaneous nodule has been surgically removed from the back of the head. Answer the following questions based on these histological sections from the middle of the resected tissue.

1. Describe the histological finding as you would do in your pathological anatomical report.
[OQ: explanation] There is a multinodular tumor located in the dermis and subcutis. The tumor is relative circumscribed and consists of tumor cells with a sheetlike or cluster-like growth pattern and large granular cytoplasm. There is no mitotic activity or atypia.

2. What additional stains or studies would you order, if any?
[LLQ: 3 correct answers] S100, SOX10, CD68

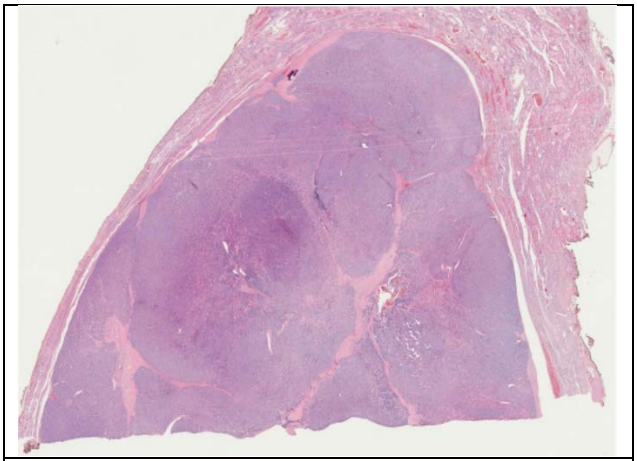
3. From what kind of cells does this lesion stem? [MCQ]

- Epithelial
- Histiocytic
- Lymphoid
- Melanocytic
- Neural [r]

4. What is your pathological-anatomical diagnosis for the tumor?

[LLQ: r] Granular cell tumor

Case 3



Thyroid: oncocytic carcinoma (WSI)

Summary

60-year-old patient with a thyroid nodule. Ultrasound revealed a 3 cm tumor in the right lobe. The cytological diagnosis from a fine needle aspiration was Bethesda category IV: suspicion of follicular neoplasia. Total thyroidectomy was performed. Answer the question based on this one histological section from the tumor.

1. What is your pathological-anatomical diagnosis for the tumor?
[LLQ: r] Oncocytic carcinoma

2. Explain briefly why you chose this diagnosis
[OQ: explanation]

3. Is there capsular invasion? [TFQ]
Yes
No [r]

4. If you answered yes, place the marker on the invasion you have identified. If you answered no, you can skip this question.

5. Is there vascular invasion? [TFQ]
Yes [r]
No

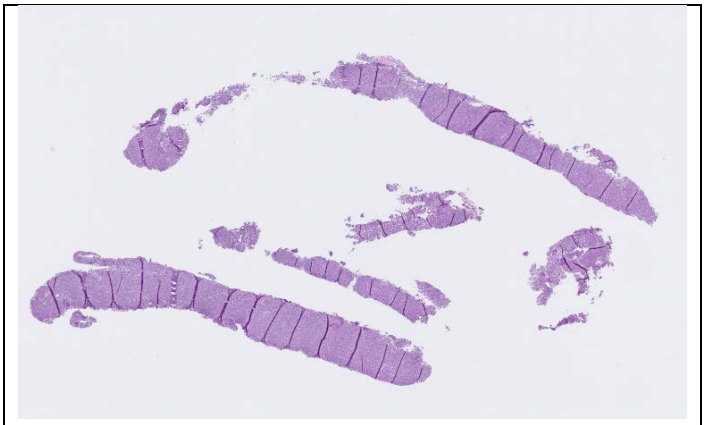
6. If you answered yes, place the marker on the invasion you have identified. If you answered no, you can skip this question.
[MQ: rough indication or example of region of interest]

7. Is there tumor necrosis? [TFQ]
Yes
No [r]

8. If you answered yes, place the marker on the necrosis you have identified. If you answered no, you can skip this question.

9. Is there 3 or more mitoses per 2 mm^2? [TFQ]
Yes
No [r]

Case 4



Lymph node: small lymphocytic lymphoma (WSI)

Summary: The biopsy shows effaced lymph node architecture with monotonous small lymphoid cells growing in a diffuse manner. There is no prominent mitotic activity or necrosis. The immune profile is consistent with small lymphocytic lymphoma.

Patient history: A 71-year-old male. Patient has noticed slowly growing masses on the neck and inguinal regions. Blood work shows a moderate lymphocytosis (12 x 10E9/L) and mild anemia. A core needle biopsy has been obtained from one of the inguinal lymph nodes. Here are histological sections of the biopsies.

1. What limitations does the biopsy technique impose on the diagnostical process?

[OQ: explanation] The biopsy technique (needle biopsy) provides us with a tissue cylinder, from which only a small portion of (possible) lymph node can be assessed. There might be different growth areas in different parts of the lymph node, which can be missed by the biopsy. Furthermore, the volume of tissue is smaller than from surgically resected sample, and we might run out of material for immunohistochemistry and genetic studies.

2. Which of the following 1st line markers would you expect to be positive in this case? [MCQ]

- CD20 [r]
- CD3
- Pankeratin (AE1/AE3)
- S100
- SOX10

3. The immunohistochemical profile of the cells is as follows: CD5+, LEF1+, CD23+, BCL2+, Cyclin D1- and CD10.

What is your pathological-anatomical diagnosis?

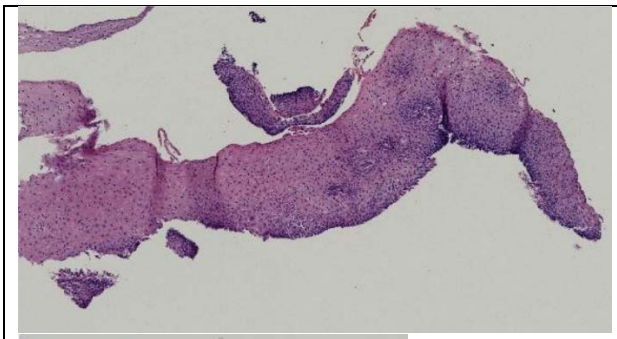
[LLQ: r] Small lymphocytic lymphoma

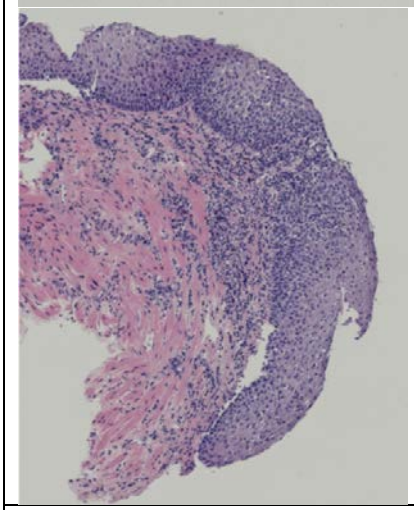
4. About one year after the diagnosis the clinical condition of the patient rapidly deteriorated and the lymph nodes increased in size.

What has likely happened?

[OQ: explanation] SLL/CLL carries a risk of transformation to large B-cell lymphoma, namely DLBCL (Richter transformation).

Case 5





Esophagus: lichenoid esophagitis a and b (2xWSI)

Summary: Diagnosis is based on the lymphocyte predominant inflammatory infiltrate concentrated around the epithelial-lamina propria-junction and the presence of apoptotic keratotic cells, “civatte bodies”

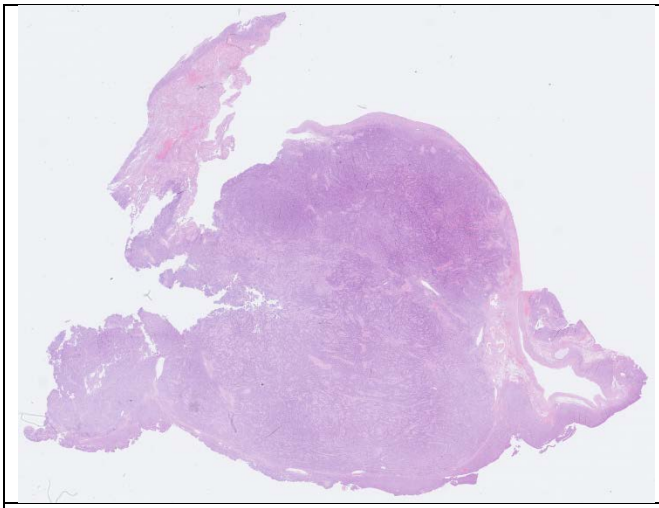
60-year old female with difficulty swallowing solid foods. Gastroscopy shows a stricture in the middle third of esophagus. The stricture area was biopsied and two slices of the same biopsy are shown [2 biopsies shown together in a split screen].

1. What is your pathological-anatomical diagnosis for the lesion?
[LLQ: r] Lichenoid esophagitis

2. Explain briefly why you chose this diagnosis.
[OQ: explanation]

3. What are the two main findings you see in the left specimen? Indicate them in the left window with the markers below.
[MQ: rough indication or example of region of interest]

Case 6



Ovary: granulosa cell tumor (WSI)

Summary: This is a case of granulosa cell tumor of the ovary. It falls into the category of sex cord stromal tumors. Most cases associate with hyperestrogenism, causing metrorrhagia, postmenopausal bleeding and endometrial hyperplasia. This is a low-grade tumor, which might relapse after several years or decades. Tumor cells are positive for: Caretinin, Inhibin A, FOXL2, SF1.

A 59-year-old female with 4 months of post-menopausal bleeding. The diagnostic imaging found a mass in the uterine cavity as well as a 2,5 cm lesion from the left ovary. Endometrial curettage showed well-differentiated endometrioid carcinoma. Here is a section from the whitish tumor mass from the left ovary. Macroscopically right ovary and the uterine tubes were unremarkable

1. What is your differential diagnosis? Rank the three most important diagnoses below.

[LLQ: 3 correct answers] Granulosa cell tumor

2. What additional stains or studies would you order, if any?

[LLQ: 4 correct answers] Calretinin, Inhibin A, FOXL2, SF1

3. What is the histological diagnostic clue in this case? [MCQ]

- Abundant psammoma formation
- Coffee bean-shaped nuclei [r]
- Granuloma formation
- Salt and pepper chromatin
- Squamous metaplasia

4. How does the tumor relate to patient's clinical findings?

[OQ: explanation] The tumor produces estrogen, which has likely caused the endometrioid carcinoma of the uterus.

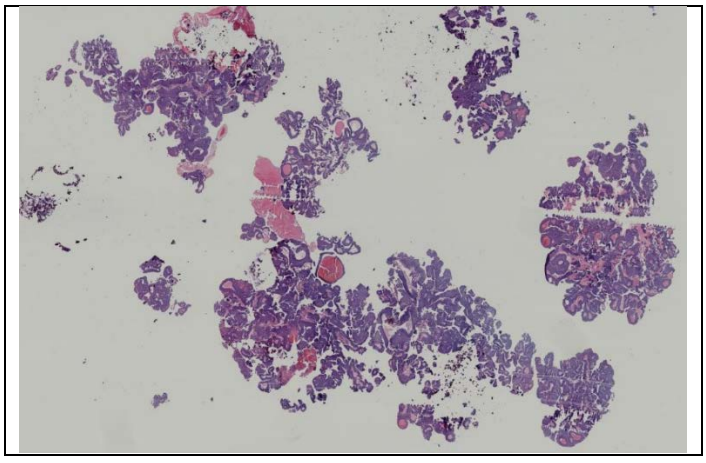
5. What is the prognosis?

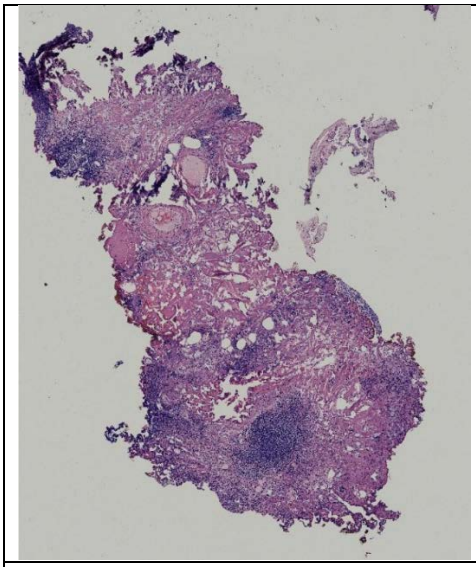
[OQ: explanation] Stage is the most important prognostic factor, but generally these tumors are of low-grade and progress slowly and have propensity for late recurrence after several years of even decades.

6. What is your pathological-anatomical diagnosis?

[LLQ: r] Granulosa cell tumor

Case 7





Urinary bladder: non-invasive papillary urothelial carcinoma a and b (2xWSI)

Summary: Non-invasive papillary urothelial carcinoma, low-grade, sample includes muscle, no invasion of any kind, pTa

70-year-old male with hematuria. Cystoscopy shows an exophytic 1-2 cm tumor in the urinary bladder. Tumor was removed endoscopically. A slice of the whole tumor is show in the right window and an extra tissue slice from the presumed resection margin in the left window. [2 biopsies shown together in a split screen]

1. What is your pathological-anatomical diagnosis (PAD) for the lesion?
[LLQ: r] Non-invasive papillary urothelial carcinoma, low-grade

2. Explain briefly why you chose this diagnosis.
[OQ: explanation]

3. Is the muscle layer represented in the samples?
Yes [r]
No

4. If you answered yes, place the marker in the left window on the muscle you have identified. If you answered no, you can skip this question.
[MQ: rough indication or example of region of interest]

5. What is based on the current AJCC staging system the pT-stage? [MCQ]

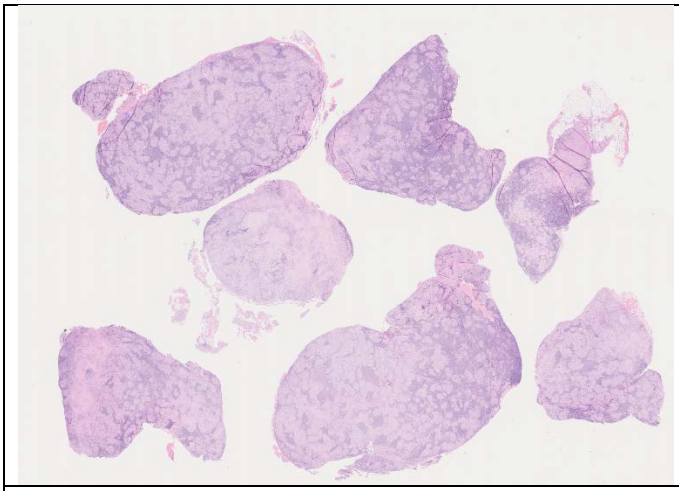
- Not applicable
- pTa [r]
- pTis
- pT1
- pT2
- pT3 or higher

6. If there is invasion, place this marker in the left window on the deepest invasion. If there is no invasion you can skip this question.
[MQ: rough indication or example of region of interest]

7. Is there lymphovascular invasion?
Yes
No [r]

8. If you answered yes, place the marker in the left window on the invasion you have identified. If you answered no, you can skip this question.

Case 8



Lymph node: granulomatous inflammation (WSI)

Summary: This case shows a florid granulomatous inflammation within a lymph node. There are no foreign objects or necrosis. Histologically etiology remains unknown, but possible differential diagnoses would be sarcoidosis, infection and secondary reaction to malignancy. In this case no positivity were found in GMS, PAS and ZN stains.

A 32-year-old female with 3 months of persistent cough, mild fever and fatigue seeks medical attention. Radiography of the lungs shows enlarged perihilar lymph nodes. One mediastinal lymph node has been obtained and its histological sections are shown here.

1. Describe the histological finding as you would do in your pathological anatomical report.
[OQ: explanation]

2. What is your differential diagnosis?
[LLQ: 4 correct answers] Foreign body reaction, Fungal infection, Granulomatous inflammation, Reactive granulomatous inflammation secondary to malignancy

3. What additional stains or studies would you order, if any?

[LLQ: 4 correct answers] GMS, PAS, Warthin-Starry, ZN

4. Into which pathological category does this histopathological finding fall? [MCQ]

- Accumulation
- Benign neoplastic growth
- Hypersensitivity reaction [r]
- Infection
- Malignant neoplastic growth

5. What is your pathological-anatomical diagnosis?

[LLQ: r] Granulomatous inflammation