

Case #1 A 36 y/o woman is found to have an enlarged uterus, which measures approximately 8 weeks. Serum pregnancy test is negative, and the patient also complains of irregular menstrual bleeding. A total abdominal hysterectomy performed, and the morphologic findings are shown in the images for this case. Based on the findings, what is the best diagnosis?

- A. Leiomyoma
- B. Low-grade stromal sarcoma
- C. Adenomatoid tumor
- D. Leiomyosarcoma

Answer: A. This case illustrates a fairly straightforward example of a leiomyoma. However, it raises a question as to how to differentiate between the possible answers in any given case. At times the line between the different lesions can be blurred. Immunohistochemistry can be helpful, but is not entirely specific. Stromal sarcomas tend to be CD10 positive, and leiomyomas express desmin. An adenomatoid tumor can look morphologically very similar to a leiomyoma, and cytokeratin and can be very helpful in highlighting the mesothelial component of the adenomatoid tumor. A leiomyosarcoma often comes into the differential diagnosis when there is an elevated mitotic index. In general, leiomyosarcomas exhibit pleomorphism at low power, a mitotic index greater than 10, and coagulative necrosis. (Sternberg, fourth edition, pages 2504-2525)

Case #2 A 65-year-old female presents to her gynecologist complaining of postmenopausal bleeding. Ultrasound showed an enlarged uterus, and a hysterectomy was performed. Representative images from the uterine corpus are shown. Based on the morphologic findings, which of the following is the best diagnosis?

- A. Papillary syncytial metaplasia
- B. Squamous metaplasia
- C. Low-grade papillary serous carcinoma
- D. High-grade serous adenocarcinoma

Answer: D. This case represents a mixed endometrial and high-grade serous adenocarcinoma of uterus with images predominately of the high-grade serous component. At times papillary syncytial metaplasia can be confused with carcinoma. In this case, the diagnosis of papillary syncytial metaplasia should not be considered given the malignant high-grade features of the nuclei, which is best shown in the high-powered image. The other answers for this question represent benign or low-grade processes, which do not exhibit the high grade nuclear abnormalities shown in this case. (Sternberg, fourth edition, pages 2475-2485)

Case #3 A 36-year-old woman presents her gynecologist with irregular menstrual bleeding. An endometrial biopsy was performed two weeks later, with representative images shown. Based on morphology, which of the following is the best diagnosis?

- A. Normal secretory endometrium
- B. Secretory carcinoma
- C. Low-grade secretory endometrial carcinoma
- D. Papillary syncytial metaplasia

Answer: A. This case is an example of normal secretory endometrium. Papillary syncytial metaplasia is composed of a sheet like growth pattern that is reminiscent of morula formation. Secretory carcinoma is a variation of endometrial carcinoma, and is characterized by well differentiated cells with secretory features. Cytologic features of well differentiated carcinoma must be identified before this diagnosis can be made. In the images for this case, the only possible confusion with carcinoma may come from the tortuous nature of the glands which might focally give the appearance of back-to-back glands. (Sternberg, fourth edition, pages 2486-2487)

Case #4 A 70-year-old woman presents to her primary care physician with vaginal bleeding. Her uterus was noted to be slightly enlarged on ultrasound examination. A total abdominal hysterectomy was performed, and representative images of the endometrium are shown. Based on the morphologic findings, which of the following is the best diagnosis?

- A. Endometrioid carcinoma, grade 3
- B. High-grade serous carcinoma
- C. Clear cell carcinoma
- D. Yolk sac tumor

Answer: C. This case illustrates clear cell carcinoma, which is highlighted by cells with clear or eosinophilic cytoplasm, nuclear pleomorphism, and high-grade cytology. Clear cell carcinoma can form tubules, papillary structures, or be in sheets. The images for this case showed the tubuloglandular architecture pattern. High-grade serous carcinomas are probably the most commonly confused tumor with this lesion. Both of these lesions represent high-grade carcinomas that usually occur de novo in postmenopausal women. The cells in serious carcinoma usually have macro nucleoli in addition to marked hyperchromasia, nucleomegaly, and sometimes multinucleated tumor giant cells. (Sternberg, fourth edition, pages 2482-2489)

Case #5 A 45-year-old female presents with an adnexal tumor. A unilateral oophorectomy is performed, and representative images of a portion of the ovary are shown. Based on the morphologic findings pages for this case, what is the most common diagnosis that can be associated with this lesion in approximately one third of cases?

- A. Transitional cell carcinoma
- B. Squamous cell carcinoma
- C. Small cell carcinoma
- D. Serous cystic neoplasm
- E. Mucinous cystic neoplasm

Answer: E. In approximately one third of Brenner tumor cases, there is an associated mucinous cystic tumor. Transitional cell carcinoma is a term usually reserved for a pure form of transitional cell carcinoma without a Brenner component. If there is a component of benign Brenner tumor along with a malignant portion, then this is usually referred to as a malignant Brenner tumor. (Sternberg, fourth edition, pages 2568-2571)

**Case #6** A 67-year-old female is found to have an ovarian mass. A total abdominal hysterectomy with bilateral oophorectomy was performed. A mass limited to the ovary was present, and representative images are shown. Based on the findings, what is the best diagnosis?

- A. Small cell carcinoma
- B. High grade serous carcinoma
- C. Endometrioid carcinoma (FIGO grade 3)
- D. Transitional cell carcinoma

**Answer: B.** The high grade nuclear features are consistent with a high grade serous carcinoma. Just as in the uterus, high grade serous carcinomas can occur in the ovary also. No classic areas of endometrioid carcinoma are seen. Not infrequently, mixed tumors composed of serous and endometrioid carcinoma may be encountered. It is important in these cases to document the highest grade component and estimate its percentage in the report.

**Question #1** An endometrial stromal sarcoma is found to be confined to the uterus and invades the outer one half of the myometrium. What is the pathologic stage (pT)?

- A. pT1a
- B. pT1b
- C. pT1c
- D. pT2a
- E. pT2b

**Answer: C.** Invasion of the outer half of the myometrium but still limited to the uterus, is characteristic of pT1c. pT1b is characterized by invasion of less than one half of the myometrium, and pT1a is characterized by tumor being limited to the endometrium. pT2 is characterized by invasion of the cervix and does not extend anywhere else outside the uterus. (AJCC, page 301)

**Question #2** A primary ovarian serious carcinoma is present in the right and left ovaries. A 3 cm omental implant is also present. What is the pathologic stage (pT)?

- A. pT1c
- B. pT2b
- C. pT2c
- D. pT3b
- E. pT3c

**Answer: E.** pT3 is characterized by peritoneal metastasis outside the pelvis. pT3c is specifically characterized by a metastasis greater than 2 cm outside the pelvis and/or regional lymph node metastasis. Important characteristic of this description is recognizing that the omentum is outside the pelvis, and therefore the stage will be in the pT3 category. (AJCC, page 309)

**Question #3** Cervical carcinoma that is clinically visible and confined to the cervix would be classified as what?

- A. pT1
- B. pT2a
- C. pT2b
- D. pT3
- E. pT4

Answer: A. Cervical carcinomas that are confined to the cervix are categorized as pT1. Carcinomas that are diagnosed only by microscopy are classified as pT1a, and grossly visible lesions are classified as pT1b. These divisions can then be subclassified based on size and depth of invasion. (AJCC, page 295)

**Question #4** What is the current recommendation from the CAP/ASCO panel for the minimum criteria of 3+ Her-2/neu positivity on IHC tissue stained sections (i.e. not FISH) in breast cancer cases?

- A. Uniform intense membranous staining in at least 1% of tumor cells
- B. Uniform intense membranous staining in at least 10% of tumor cells
- C. Uniform intense membranous staining in at least 30% of tumor cells
- D. Uniform intense membranous staining in at least 50% of tumor cells
- E. Uniform intense membranous staining in at least 75% of tumor cells

Answer: C. The CAP/ASCO panel's consensus recommendation in this area is that tumors exhibit uniform intense membranous staining using a validated IHC assay in at least 30% of the invasive breast tumor cells. This is a change from the previous recommendation of 10%. There is an excellent discussion of this topic in the September 2007 *Archives of Pathology & Laboratory Medicine* on page 1330. While this is a new development, subtle important changes that have a direct effect on patient care have a way of getting onto the exams in a somewhat fast manner.

References:

*Sternberg's Diagnostic Surgical Pathology*. Mills, SE, et al. 4th Edition. 2004.

*AJCC Cancer Staging Handbook*. Greene, FE, et al. Sixth Edition. 2002.

**Notes for question set:**<sup>1</sup>

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<sup>1</sup> PathMD strives for the highest quality and accuracy. However, the *PathMD: Board Review Letter* is for review purposes and not meant for clinical decision making. It should not be used in place of review of primary reference texts and the current medical literature. If inaccuracies are identified, please notify us so that a correction may be published. (info@PathMD.com)