PathMD™: Board Review Letter

Author: Julia Turbiner, M.D. | GU Pathology - Part 1 | Volume 2, Number 3

Please refer to the website for images associated each case below.

Case 1 All of the statements concerning this entity are true, EXCEPT:

A) It occurs most commonly at the ureteropelvic junction and upper ureter
B) It is mostly found in children and young adults
C) There is a female predominance
D) This lesion has no malignant potential
E) It represents a mesenchymal tumor

Answer: C. The lesion represents a fibroepithelial polyp. It is a benign mesenchymal tumor consisting of a vascular, loose, edematous stromal core covered by essentially normal urothelium. It occurs in renal pelvis, ureter and the urethra, mostly in young adult males (this slide is from a 35 yo, otherwise healthy male). In the urethra it is typically found in the posterior aspect, close to verumontanum. It presents with hematuria and colicky flank pain. [C. Fletcher. Diagnostic histopathology of tumors, 2d edition, p513, 548].

Case 2 The diagnosis of this bladder lesion is:

A) Papilloma
B) Papillary urothelial neoplasm of low malignant potential (PUNLMP)
C) Transitional cell carcinoma, grade 1 of 3
D) Reactive urothelium
E) Polypoid cystitis

Answer: A. In the WHO/ISUP classification, urothelial papilloma has delicate fibrovascular cores lined by normal-appearing urothelium, lacking atypia. Superficial umbrella cells are often prominent. Mitoses are absent to rare, if present they are basal in location and not atypical. Papillomas tend to occur in younger patients, including children and are most commonly located on posterior/lateral walls of the bladder close to the ureters and in the urethra. The clinical course is favorable, although about 8% may recur and/or progress to higher-grade disease. PUNLMP/TCC grade 1 resemble exophytic papilloma but have increased cellular proliferation exceeding the thickness of normal urothelium. You should not be asked to differentiate between the two, because some people still use the 1973 WHO classification (TCC) and some the 2004 WHO classification (PUNLMP) and the boards in general do a good job in avoiding controversial subjects. This lesion is not normal/reactive due to marked papillary architecture. Finally polypoid cystitis (also called bullous or papillary cystitis) is a reactive condition due to an inflammatory insult. It has thick non-branching papillae with marked edema and congestion.
[Rosai and Ackerman's Surgical pathology, 9th edition, p1320, 1333;
WHO GU book, 2004, pp113-116]

Case 3 A 42 yo female presented with hypertension, Cushing's syndrome and virilization. A representative section from her resection specimen is shown. All of the following features are part of diagnostic criteria for this tumor EXCEPT:

A) Vascular invasion
B) Tumor necrosis
C) Diffuse growth pattern
D) Tumor weight
E) Cellular pleomorphism

Answer: D. This is an example of adrenocortical carcinoma. These tumors occur predominantly in 5th to 7th decade but can also happen in children. Older literature used to emphasize that adrenal carcinomas are larger and heavier than adenomas, however it's been noticed that rarely very small tumors can metastasize, while large tumors may behave in a benign fashion. The best established criteria for diagnosis of malignancy were proposed by Weiss et al in 1984 and Hough et al in 1979. They include options A, B, C and E and in addition: broad fibrous bands, mitoses (either >10 per 100 hpf or >6 per 50 hpf), capsular invasion and predominance of compact cells (>75%). There is no diagnostic immunoprofile for ACC, but in general these tumors are positive for vimentin, NSE and synaptophysin and negative for cytokeratin, EMA and chromogranin. [C. Fletcher. Diagnostic histopathology of tumors, 2d edition, p1063-1067].

Case 4 63 year old male with a history of bilateral ocular MALT lymphoma treated with radiation therapy. He now presents with diffuse pelvic infiltrative process involving the bladder, prostate, seminal vesicles, rectosigmoid, distal ureters, and adjacent muscles. Bladder and prostate biopsies were performed. Based on histology, the process is most consistent with:

A) Invasive transitional cell carcinoma (urothelial neoplasm)
B) Recurrent MALT lymphoma
C) High grade prostatic adenocarcinoma
D) High-grade lymphoma
E) Idiopathic retroperitoneal fibrosis

Answer: E. The specimen shows a predominantly extraprostatic pathologic process with fibrosis and nodular aggregates of lymphocytes, plasma cells, histiocytes and numerous eosinophils. These findings are not consistent with a malignant lymphoid neoplasm and are most reminiscent of idiopathic retroperitoneal fibrosis (IRF). IRF typically is an ill-defined fibrous mass that occupies the retroperitoneal midline, encircles the lower abdominal aorta and displaces the ureters, with eventual constriction and obliteration of the lumens and renal failure. It can be more localized around the kidney, ureter or bladder. It is extremely unusual (case reports) to have periprostatic and perirectal involvement, however the boards love zebras....
[Rosai and Ackerman's Surgical pathology, 9th edition, p2394; Shabbir M, Gelister JS. Retroperitoneal fibrosis mimicking prostate cancer. J R Soc Med 2006;99:39-40].

Case 5 All of the following statements are correct regarding this kidney neoplasm, EXCEPT:

A) 90% of the cases occur before the age of 6
B) It is associated with Beckwith-Wiedemann and Denys-Drash syndromes
C) It always has three components: undifferentiated blastema, mesenchymal tissue and epithelial tissue
D) Lesions are divided into favorable and unfavorable histology groups based on the degree of anaplasia
E) Staging is the most important prognostic determinator

Answer: C. This is an example of Wilms' tumor. Unfortunately it is almost never enough to get at the correct diagnosis. Just like in the RISE exam you will be asked something about the lesion, assuming you've already figured out what it was. In this case C is wrong--beware of questions that say "always" or "never"! The 3 components characterize and define the tumor and most tumors have all 3, however some are biphasic and others are monophasic. The important prognostic factors include: stage (capsular invasion, rupture at surgery, extrarenal vein invasion, tumor implansts, lymph node mets, distant mets and bilaterality are assessed), age (<2 yo is better), size, anaplasia. [Rosai and Ackerman's Surgical pathology, 9th edition, pp. 1240-1245; C. Fletcher. Diagnostic histopathology of tumors, 2d edition, pp. 502-507].

Case 6 A 3 year old boy presents with a large abdominal mass. All of the following statements regarding this condition are correct, EXCEPT:

A) Over 80% are detected in children under the age of 4
B) It is associated with the Beckwith-Wiedemann syndrome, Hirschsprung's disease and neurofibromatosis
C) Hemorrhage, calcification and necrosis are common macroscopic features
D) Histologically, the most prominent feature is presence of Homer Wright rosettes
E) Two characteristic genetic events are loss of a distal region of chromosome 1p and amplification of N-myc oncogene

Answer: D. This is an example of neuroblastoma. It is a prototypical "small round blue cell" tumor of childhood and usually has an ill-defined lobular or nested pattern with thin fibrovascular septa. There is often a variable amount of pale fibrillary extracellular material (neuritic cell processes), which in about 1/4-1/3 of the cases forms the center of Homer-Wright rosettes. These rosettes do not have a central lumen. Undifferentiated neuroblastomas have no neurofibrillary matrix. Other interesting features of neuroblastomas: they can undergo complete maturation resulting in spontaneous cure; most commonly though they have numerous widespread metastases and a very poor survival; children under 2 have better prognosis and extra-adrenal tumors behave better. There are several grading systems, but all overlap in focusing on the degree of differentiation in relation to neuroblastoma-ganglioneuroblastoma-ganglioneuroma spectrum. [Rosai and Ackerman's Surgical pathology, 9th edition, pp. 1127-1132; C. Fletcher. Diagnostic histopathology of tumors, 2d edition, pp. 1722-1728]

Case 7 If seen on a prostate core biopsy this prostatic adenocarcinoma would be best graded as:

A) Gleason score 3 + 3=6/10
B) Gleason score 3 + 4=7/10
C) Gleason score 4 + 5=8/10
D) Gleason score 3 + 5= 8/10
E) Gleason score 5 + 3= 8/10

Answer: D. Three components are seen: Gleason grade 3, grade 4 and grade 5. Evaluation of each component and relative predominance are somewhat subjective, therefore hopefully only clear-cut examples will be presented on the exam. However the general rule is that such tumor should be classified as high grade (score 8-10). According to the consensus conference (see reference below), tumors should not be graded by listing the primary and secondary patterns with a note relating to the tertiary pattern. Instead, in cases of a prostate core where 3, 4 and 5 are present only the primary and the highest grade component should be recorded. [J I Epstein et al. The 2005 international society of urological pathology (ISUP) consensus conference on Gleason grading of prostatic carcinoma. Am J Surg Pathol 2005;29(9):1228-1242]

Case 8 The following statements regarding normal prostate are true, EXCEPT:

A) Lipofuscin pigment helps differentiate seminal vesicle tissue from prostatic glands
B) Denonvillier's fascia separates the prostate and seminal vesicles from the rectum
C) Anterior fibromuscular stroma occupies approximately 1/3 of the prostate, contains very few glands and consists of smooth muscle and dense fibrous tissue
D) Skeletal muscle of the urogenital diaphragm extends into the prostate in its most apical aspect
E) Large number of neuroendocrine cells are present in prostatic epithelium

Answer: A. The exam has a few questions on normal histology. In this case everything is correct except for lipofuscin pigment: more than 60% of benign prostatic glands may have the pigment, so by itself it does not help in differentiating prostate from seminal vesicle. [Zhou M, GU pathology, 2007, p1-3]

Case 9 All of the following parameters are associated with adverse outcome in prostatic carcinoma, EXCEPT:

A) Extraprostatic extension
B) Involvement of seminal vesicle
C) Nodal metastases
D) Positive surgical margins
E) Perineural invasion

Answer: E. Pathologic stage (answers A-C) is currently the most accurate predictor of prognosis. Microscopic grading, surgical margins and PSA levels are also significant. Tumor volume, age, race and perineural invasion are not universally accepted as prognostic factors. [Rosai and Ackerman's Surgical pathology, 9th edition, pp. 1385-1387]

Case 10 This subtype of prostatic carcinoma overall has a better prognosis than the usual acinar type:

A) Signet ring carcinoma
B) Adenoid basal cell tumor (adenoid cystic tumor)
C) Mucinous adenocarcinoma
D) Ductal carcinoma
E) Small cell carcinoma

Answer: B Adenoid basal cell tumor resembles adenoid cystic carcinoma of the salivary gland. So far there have been no reports of progression or aggressive behavior. On the other hand signet ring carcinoma and small cell carcinoma are highly aggressive tumors. Mucinous carcinoma behaves similarly to conventional prostatic adenocarcinoma. Ductal adenocarcinoma cases have comparable behavior to acinal cancer with Gleason score 4+4=8/10. [Rosai and Ackerman's Surgical pathology, 9th edition, pp. 1127-1132; C. Fletcher. Diagnostic histopathology of tumors, 2d edition, pp. 1722-1728; J I Epstein et al. The 2005 international society of urological pathology (ISUP) consensus conference on Gleason grading of prostatic carcinoma. Am J Surg Pathol 2005;29(9):1228-1242]

Notes for question set:[1]

[1] 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)

