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Uropathology - Slide Seminar

Chairs of the Session

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Keynote Speaker

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CASE HISTORIES:

Case 1

IAP-JKM1: Diagnostic Dilemmas in Genitourinary Pathology

Clinical History: 62-year-old man with 5.5 cm renal mass

Discussion: This patient underwent nephrectomy for a large renal mass with suspected lung metastasis. By immunohistochemistry, the tumor expressed TTF-1 and was negative for urothelial and renal epithelial markers. After re-review of imaging, it was agreed that the lung mass was the primary site of origin with a dominant kidney metastasis. This case underscores the importance of excluding secondary malignancy (and urothelial carcinoma) prior to considering a vanishingly rare collecting duct carcinoma of the kidney.

Clinical Findings: 5.5 cm renal mass and small lung mass

Additional information: Lung molecular work-up was negative

Diagnosis: Metastatic lung adenocarcinoma with micropapillary features, involving kidney (clinically presenting as primary renal neoplasm)

Case 2

IAP-JKM2: Diagnostic Dilemmas in Genitourinary Pathology

Clinical History: 47-year-old woman with a 3 cm renal mass

Discussion: This renal cell carcinoma shows fairly classic features of a papillary renal cell carcinoma. This particular case has small individual cysts separated by fibrous stroma, a pattern that has been described as "microcystic". Current data suggests this histologic pattern identifies most papillary renal cell carcinomas with aggressive (i.e. metastatic) potential.

Clinical Findings: 3 cm renal mass

Additional information: The patient developed metastatic disease to lungs 3 years later

Diagnosis: Papillary renal cell carcinoma with microcystic features

Case 3

IAP-JKM3: Diagnostic Dilemmas in Genitourinary Pathology

Clinical History: 42-year-old man with 4.5 cm renal mass

Discussion: Given the unusual tubulocystic architecture and the prominent eosinophilic cytoplasm of the neoplastic cells, as well as some areas with more cellular nested growth, we sought to exclude the possibility of an FH deficient renal cell carcinoma. Immunostains for FH showed a loss of cytoplasmic expression, while 2SC showed strong and diffuse nuclear and cytoplasmic staining.

Clinical Findings: No other known clinical findings.

Additional information: After genetic counseling and further molecular work-up, the patient had a germline mutation fumarate hydratase.

Diagnosis: Fumarate hydratase-deficient renal cell carcinoma (HLRCC associated)

Case 4

IAP-JKM4: Diagnostic Dilemmas in Genitourinary Pathology

Clinical History: 80-year-old man with hematuria found to have a polypoid/papillary urethral mass

Discussion: This clinical scenario and the papillary architecture should raise strong suspicion for the subtle pattern of prostatic ductal adenocarcinoma that presents as a prostatic urethral papillary mass, mimicking papillary urothelial carcinoma. NKX3.1 showed strong and diffuse nuclear activity in the neoplastic cells, while GATA3 and p63 were negative. Within the prostatic urethra, it is very important to first exclude this possibility before accepting other glandular proliferation such as villous adenoma of the urinary tract or urothelial carcinoma with glandular differentiation. Most importantly, these histologically subtle forms of prostatic ductal adenocarcinoma are most commonly associated with high-grade/high stage disease in the prostate gland.

Clinical Findings: Large papillary urethral mass at cystoscopy, clinically concerning for urothelial carcinoma

Additional information: The patient underwent radical prostatectomy and a Gleason score 4+4=8 (grade group 3) pT3a prostatic adenocarcinoma was identified.

Diagnosis: Prostatic adenocarcinoma involving prostatic urethra, ductal type

Case 5

IAP-JKM5: Diagnostic Dilemmas in Genitourinary Pathology

Clinical History: 62-year-old man who underwent prostate needle core biopsies

Discussion: Some intraductal proliferations of the prostate gland may not fully meet published criteria for the diagnosis as intraductal carcinoma, but are well beyond what is typically acceptable for high-grade prostatic intraepithelial neoplasia. This typically consists of loose papillary or cribriform architecture that does not fill the entire glandular space (and without significant nuclear pleomorphism or comedonecrosis). We typically diagnose such lesions as a "atypical intraductal proliferation of the prostate" and suggest additional biopsy before definitive treatment or active surveillance decision-making. In our studies, these lesions are typically associated with high-risk prostatic adenocarcinoma at follow-up.

Clinical Findings: Elevated serum PSA at screening

Additional information: The patient was found to have Gleason grade 4+3=7 prostatic adenocarcinoma with cribriform gland morphology on subsequent biopsy.

Diagnosis: Atypical intraductal proliferation of the prostate, highly suspicious for intraductal carcinoma.

Case 6

IAP-JKM6: Diagnostic Dilemmas in Genitourinary Pathology

Clinical History: This 73-year-old man presented with clinical signs of benign prostatic hyperplasia and underwent a transurethral resection of prostate tissue for symptomatic relief.

Discussion: The small tubular pattern of nephrogenic adenoma may be a very close histologic mimic of the low-grade prostatic adenocarcinoma. Therefore, the diagnosis of nephrogenic adenoma should be carefully considered when diagnosing well-formed gland patterns of prostatic adenocarcinoma near a urothelial-lined surface. NKX3.1 and PAX8 immunohistochemistry may be very helpful, if needed, as PAX8 is positive in most nephrogenic adenomas (while NKX3.1 is negative).

Clinical Findings: Significant urinary voiding symptoms with frequency, urgency, and nocturia

Additional information: None

Diagnosis: Nephrogenic adenoma in a transurethral resection of prostate specimen

Case 7

IAP-JKM7: Diagnostic Dilemmas in Genitourinary Pathology

Clinical History: 81-year-old man who presented with hematuria and underwent cystoscopy

Discussion: The vast majority of malignant spindle cell neoplasms in older adults represent sarcomatoid urothelial carcinoma. True primary vesical sarcomas are exceedingly rare, and most are morphologically prototypical leiomyosarcomas. Therefore, pre-test probability suggests that a diagnosis of sarcoma should be rendered very cautiously in this setting. We typically implement immunohistochemistry for GATA3, p63, and high molecular weight keratin in an attempt to demonstrate epithelial/urothelial lineage. In the absence of any immunohistochemical staining, we utilize a diagnosis such as "malignant spindle cell neoplasm", and suggest that it is still more likely to be a carcinoma.

Clinical Findings: At cystoscopy, a large mass was identified filling the lumen of the urinary bladder

Additional information: The patient underwent neoadjuvant chemotherapy and cystectomy and is currently disease-free.

Diagnosis: Sarcomatoid urothelial carcinoma

Case 8

IAP-JKM8: Diagnostic Dilemmas in Genitourinary Pathology

Clinical History: 73-year-old man with a history of prostatic adenocarcinoma who presented with hematuria and voiding symptoms. The patient underwent cystoscopy for further evaluation and bladder biopsies were taken.

Discussion: The presence of dilated engorged blood vessels with surrounding fibrin are fairly prototypical of prior radiation therapy. Such lesions may incite an epithelial hyperplasia in which islands of somewhat squamoid appearing epithelium surrounds aggregates of extravasated fibrin. This histology is fairly characteristic of a benign radiation-induced pattern of injury. While this lesion is described in the literature as "pseudocarcinomatous

hyperplasia", we try to avoid the use of the term "carcinoma" in a benign biopsy. Therefore, we typically diagnose such cases “benign urothelial mucosa with florid radiation related changes”.

Clinical Findings: Extensive erythema of the bladder mucosa

Additional information: None

Diagnosis: Benign urothelial mucosa with florid radiation related changes (radiation-induced hyperplasia)

Case 9

IAP-JKM9: Diagnostic Dilemmas in Genitourinary Pathology

Clinical History: 52-year-old woman presented with hematuria and underwent cystoscopy with transurethral resection of tumor

Discussion: Given the predominance of tumor deep in the tissue specimen and the lack of any surface or precursor urothelial lesion, we considered the possibility of secondary involvement by a non-urothelial carcinoma. High-risk HPV CISH showed granular cytoplasmic stippling, as is common in tumors driven by high risk HPV.

Clinical Findings: Given hematuria, the patient underwent cystoscopy and subsequent imaging. On imaging, the patient was felt to have a pT4 bladder cancer.

Additional information: After our final diagnosis, the primary cervical squamous cell carcinoma was identified and the patient underwent appropriate therapy.

Diagnosis: HPV-associated squamous cell carcinoma, involving muscularis propria, highly suspicious for uterine cervix origin.

Case 10

IAP-JKM10: Diagnostic Dilemmas in Genitourinary Pathology

Clinical History: This 15-year-old patient underwent partial nephrectomy for a solitary renal mass

Discussion: Historically, these lesions were thought to be part of the spectrum of "thyroid follicular-like carcinoma of the kidney.” The Pilsen group from the Czech Republic subsequently recognized these lesions as a specific entity, which they proposed were benign. Further study has demonstrated that the morphologic features and immunophenotype are consistent with a rare pattern of benign localized glomerulocystic change.

Clinical Findings: Solitary kidney mass

Additional information: None

Diagnosis: “Atrophic kidney”-like lesion