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Varieties of Renal Diseases Identified in Renal Biopsies of Patients Infected by COVID-19

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probable Wolffian origin (FATWO). The uterus contained a noninvasive FIGO grade 1 endometrioid adenocarcinoma arising in a background of atypical hyperplasia (Figure 2.48, D). FATWO is a rare neoplasm of low malignant potential that originates from mesonephric (Wolffian) duct remnants. It frequently arises in the broad ligament and mesosalpinx, and less commonly in the fallopian tubes, ovary, and retroperitoneum. Complete surgical resection is the standard treatment for FATWO. It is important to recognize the existence of this rare lesion and to differentiate it from endometrioid adenocarcinoma, especially in cases of synchronous tumors, to avoid unwarranted upstaging and aggressive treatment for an early-stage endometrioid adenocarcinoma.

Expression of EZH2 and Histone H3K27-Ac in Prostate

(Poster No. 49)

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Context: Enhancer of zeste 2 (EZH2), an upregulated gene and adverse prognosticator in prostate cancer, contains a domain that catalyzes histone H3 lysine 27 methylation and acetylation (H3K27-Ac), which is a key metastasis facilitator. Studies report that EZH2 can also act independently. For the first time, we determine whether EZH2 and H3K27-Ac expressions are correlated in prostatic tissue.

Design: Tissue microarrays were made and immunohistochemistry was performed for EZH2 and H3K27-Ac. Slides were scanned and image data utilized software-assisted, unbiased quantification method. The software captured high- and low-intensity diaminobenzidine-positive regions and tissue areas.

Results: Benign prostate tissue expressed only minimal EZH2 but showed strong H3K27-Ac positivity (Table). Tumor cells were EZH2 positive with weak staining involving up to 25% of malignant cells. H3K27-Ac was increased in tumors with moderate intensity involving up to 100% of tumor cells, with stagewise and gradewise progressive increases, with the strongest staining in lymph nodes. Notably, relationship of H3K27-Ac and EZH2 expression was coupled in stages and Gleason grades of prostate cancers. Additionally, staining intensity and proportion of the cells were also independently evaluated manually by pathologists and a histology score was calculated. These results correlated with automated analysis.

Conclusions: EZH2 and H3K27-Ac had an inverse correlation in benign versus especially low-grade and low-stage prostate cancers; however, in high-stage and high-grade cancers and metastases, H3K27-Ac increased significantly. Findings support EZH2 and H3K27-Ac as targets for cancer prevention and localized or low-grade prostate cancer, but their epigenetic influence in advanced prostate cancer may be at variance from this.

Expression of EZH2 and H3K27-Ac Based on the Stages and Grades of the Prostatic Cancers		
	EZH2	H3K27-Ac
Stages		
Benign (n = 72)	0.28 ± 0.1 ^{1,2,3,4}	52.62 ± 2.3 ^{1,2,3,4}
Stage 2 (n = 41)	1.59 ± 0.5	22.73 ± 3.2
Stage 3a (n = 17)	1.53 ± 0.7	23.18 ± 6.3
Stage ≥3b (n = 16)	1.56 ± 0.4	32.25 ± 4.3 ^{1,2}
LN (n = 16)	1.75 ± 0.4	41.06 ± 5.5 ^{1,2,3}
Grades		
Benign (n = 72)	0.28 ± 0.1 ^{a,b,c,d,e}	52.62 ± 2.3 ^{a,b,c,d,e}
Grade 3 + 3 (n = 15)	1.13 ± 0.6	21.4 ± 2.8
Grade 3 + 4 (n = 17)	1.06 ± 0.6	20.88 ± 1.9
Grade 4 + 3 (n = 26)	1.11 ± 0.5	22.96 ± 3.0
Grade ≥4 + 4 (n = 16)	1.25 ± 0.3	31.5 ± 7.3 ^{a,b}
LN (n = 16)	1.75 ± 0.4	41.06 ± 5.5 ^{a,b,c}

Abbreviation: LN, lymph node.

Data are expressed as mean ± CI.

¹ P < .05 versus stage 2; ² P < .05 versus stage 3a; ³ P < .05 versus stage ≥3b; ⁴ P < .05 versus LN; ^a P < .05 versus Grade 3 + 3; ^b P < .05 versus Grade 3 + 4; ^c P < .05 versus Grade 4 + 3; ^d P < .05 versus Grade ≥4 + 4; ^e P < .05 versus LN.

Varieties of Renal Diseases Identified in Renal Biopsies of Patients Infected by COVID-19

(Poster No. 50)

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Context: COVID-19 has been shown to cause renal pathology by multiple proposed mechanisms. However, studies evaluating renal biopsies for the effects of COVID-19 remain limited. We report our experience in our health system in a variety of renal pathologic diagnoses caused by COVID-19 infection.

Design: We performed detailed analysis of 5 renal biopsies related to COVID-19 infection, of 812 renal biopsies over the previous 22 months (0.6% of all cases).

Results: The first 3 patients were 2 African American men, 34 and 45 years old, and 1 48-year-old white male transplant recipient who developed acute kidney injury and nephrotic range of proteinuria after COVID-19 infections. Renal biopsies showed collapsing glomerulopathies in the patients. Patient 4, a 71-year-old white woman, developed acute kidney injury (serum creatinine at 5.56 mg/dL) with hematuria and proteinuria following COVID-19 infection. Her renal biopsy revealed moderate acute tubular necrosis and mild IgA nephropathy. Patient 5, a 15-year-old African American adolescent girl infected with COVID-19, developed nephrotic range proteinuria, which became negative soon after the renal biopsy. The renal biopsy revealed segmental fusion of foot processes compatible with minimal-change disease in remission.

Conclusions: The results of our 5 patients with COVID-19 infection included 3 collapsing glomerulopathies, 1 IgA nephropathy/acute tubular necrosis, and 1 minimal-change disease in remission, supporting previous reported varieties of renal diseases due to COVID-19 infection.

Synchronous Primary Renal Mucinous Adenocarcinoma and Neuroendocrine Tumor

(Poster No. 51)

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We present a case of synchronous primary renal cystic adenocarcinoma and carcinoid tumor in a 53-year-old woman. The patient had a past medical history of breast cancer and mature ovarian teratoma. Imaging showed a large cystic lesion with mural nodules, and laboratory studies revealed a slowly rising serum CEA. She underwent a nephrectomy. Gross examination revealed a 11.5-cm cyst adherent to and tunneling through the lower pole of the kidney. It showed no connection to the pelvico-calyceal system. The cyst lining was predominantly smooth with focal gritty areas of calcification and contained yellow to tan semitransparent grumous to mucoid material. Microscopic examination revealed a 11.5 cystic enteric-type mucinous adenocarcinoma with moderate differentiation confined to the cyst wall. Closely approximating the adenocarcinoma was a 1.5-cm well-differentiated neuroendocrine tumor that extended focally into perirenal fat and had an area suspicious for lymphovascular invasion. Primary renal adenocarcinoma is an extremely rare entity. Most cases of primary renal adenocarcinoma are documented to occur in the background of a teratoma, horseshoe kidney, or metaplasia of pelvic urothelium. This case is unique in that it is an apparently de novo case of primary renal adenocarcinoma where neither teratoma nor metaplasia of the urothelium is present in the specimen.

Spontaneous Intratesticular Hemorrhage: A Challenging Clinical Diagnostic Entity

(Poster No. 52)

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Spontaneous intratesticular hemorrhage (SIH), first described in 1941, is a rare benign clinical entity with very few reported cases. The final diagnosis is made after orchiectomy. Spontaneous idiopathic