Basal Cell Carcinoma of the Prostate

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63 y.o. asymptomatic male with rising PSA (5.61 mg/ml, 2.77 ng/ml one year prior) and family history of prostate cancer.
Axial T2: 1.3 cm T2-hypointense, heterogenous, left medial PZ lesion (arrow) in the base. Score of 3.

Axial B1600 ADC: 1.3 cm lesion is markedly hypointense (arrow). Score of 4.

Axial B1600 s/mm² DWI: Lesion is markedly hyperintense (arrow). Score of 4.

DCE: Lesion shows early, intense enhancement (arrow). Score (+).

No extraprostatic extension, SV involvement or enlarged nodes

PI-RADS overall score of 4

*Patient also had 1.0 cm right apex PZ lesion with PI-RADS overall score of 4*
MRI-ultrasound fusion biopsy results:

Left base lesion - florid basal cell hyperplasia

Right apex lesion – GS 4 + 5 = 9 prostate adenocarcinoma
Post prostatectomy final pathology results:

Left base lesion – Basal cell carcinoma with microscopic extraprostatic extension and perineural invasion

Right apex lesion – GS 4 + 5 = 9 prostate adenocarcinoma with established extraprostatic extension, lymphovascular invasion and perineural invasion

One (+) anterior fat pad node w/ 0.1 cm focus of adenocarcinoma
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Basal cell carcinoma (BCC) is a very rare tumor with <100 cases reported.

Age range is wide (late 20s through 80s) with most cases in older men.

Presenting symptoms might include nocturia, urgency and urinary retention.

BCC will not elevate PSA, yet in a minority of cases there is concurrent adenocarcinoma that may elevate PSA, as in this case.
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BCC can be histologically divided into adenoid-cystic and basaloid variants.

Basal cell proliferation lesions range from basal cell hyperplasia to florid basal cell hyperplasia to BCC.

Criteria for malignancy include extensive infiltration between normal prostate glands, extension out of the prostate, perineural invasion, and necrosis.

BCC immunohistochemistry: p63 +, high-molecular-weight keratin34bE12 +, PSA -, PSAP -. High Ki67 staining may suggest more aggressive behavior.
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Prognosis of prostatic BCC is not known due to scarcity of cases. While most BCC show an indolent course, a small subset behaves aggressively with local recurrence and distal metastases.

Iczkowski et al. reported 5-year metastatic potential ranges of 5-10% in T1/T2 tumors and 50-85% in stage T3/T4 tumors.

Radical prostatectomy is generally regarded as the treatment of choice.

There is no consensus on the role of radiation therapy, hormonal therapy or chemotherapy.
Imaging Features of BCC

Very few reports include imaging findings

Dong et al. describe a case of an 8.1 cm BCC with the following features:
MR T2-WI: inhomogeneous and hyperintense with central necrosis
CT: heterogeneous enhancement
PET/CT: strong FDG uptake (SUVmax 14.1), central photopenia due to necrosis

Segawa et al. describe a case of a large BCC with the following features:
MR: large, irregular tumor enlarging the gland and directly invading the seminal vesicle and bladder wall. At presentation, the patient had malignant left internal iliac and para-aortic lymphadenopathy and subsequently developed a right inguinal lymph node metastasis.

Local recurrence and distal metastasis can occur. Reported sites of metastatic disease include liver, lung, bone (ilium, ischium, and tibia), penile urethra and bowel.
References


