LUTS due to a Basal Cell Carcinoma of the Prostate

A case report and review of the literature

Christos Antonopoulos, Ioannis Poulopoulos, Athanasios Simoulis, Maria Nakou, Christos Komninos

Urology Department, Athens Medical Center, Marousi, Greece

INTRODUCTION

- Most prostate cancers are conventional **acinar adenocarcinomas**; rare subtypes pose diagnostic and therapeutic challenges.
- **Basal cell carcinoma (BCC)** arises from the basal cells of the prostatic ducts and acini and often does **not raise PSA**, so diagnosis is frequently delayed.
- Only about **100–140 cases** have been reported; the best treatment and the prognosis remain unclear.
- **Aim:** to present a new case with a brief review of the literature.

CASE PRESENTATION

- **75-year-old man** with several months of progressive lower urinary tract symptoms (frequency, weak stream, incomplete emptying); transurethral prostate surgery 3 years earlier. No hematuria or systemic symptoms.
- **DRE:** firm, nodular prostate; no lymphadenopathy.
- **PSA 1.0 ng/mL** (normal); routine blood tests unremarkable.
- **CT:** heterogeneous prostatic mass with irregular borders, and a heterogeneous mass at the bladder floor (prostatic fossa).
- **Cystoscopy:** abnormal tissue, resected transurethrally. **PET:** no secondary lesions.

AT A GLANCE

0.01–0.1%	<140	1.0
of all prostate cancers	cases reported worldwide	ng/mL PSA at diagnosis (normal)

HISTOPATHOLOGY

- Basaloid cells in **nests**, with **cribriform / solid** patterns and **peripheral palisading**.
- High mitotic rate, occasional necrosis; no glandular / acinar architecture.
- Final specimen: predominant basaloid component (**>90%**) with **adenoid cystic / cribriform** architecture.

POSITIVE

High-molecular-weight cytokeratin · CK903 · p63 · BCL-2 · Ki-67

NEGATIVE

Markers of conventional acinar adenocarcinoma

DIFFERENTIAL DIAGNOSIS

- **Conventional acinar adenocarcinoma:** luminal differentiation, no basal marker expression.
- **Basal cell hyperplasia (benign):** no invasion, atypia or mitotic activity.
- **Adenoid cystic / cribriform carcinoma:** can look very similar; **MYB** rearrangement testing helps.

TREATMENT AND OUTCOME

- **Robotic Retzius-sparing radical prostatectomy** with extended pelvic lymph node dissection.
- Tumor maximal dimension 1 cm, confined to the prostate; no seminal vesicle invasion.
- Negative surgical margins; no lymph node metastasis: **pT2cN0M0**.
- **At 6 months:** asymptomatic, no radiologic evidence of recurrence, PSA low / undetectable – consistent with a non-PSA-secreting tumor.

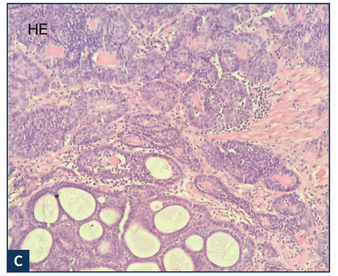
IMAGING AND PATHOLOGY



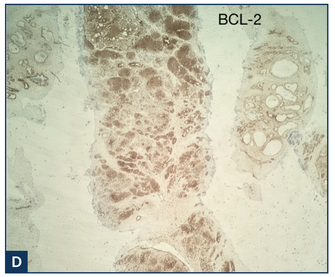
CT: heterogeneous mass in the prostate with irregular borders



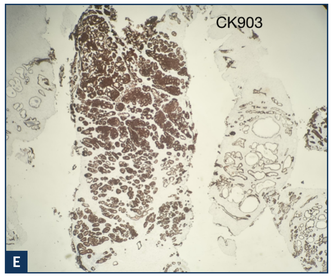
Surgical specimen of the robotic radical prostatectomy



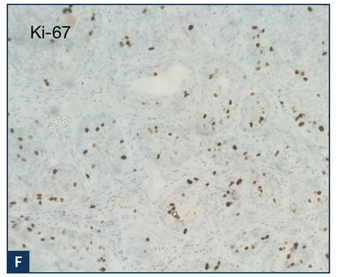
H&E: basaloid cell nests with cribriform pattern



Immunohistochemistry: BCL-2 positive



Immunohistochemistry: CK903 positive



Immunohistochemistry: Ki-67 positive

CLINICAL PATHWAY

1	2	3	4	5
75-year-old man · LUTS · PSA 1.0 ng/mL	CT · cystoscopy · transurethral resection	Histology + IHC: BCC · PET: no metastases	Robotic Retzius-sparing radical prostatectomy + extended pelvic lymphadenectomy	pT2cN0M0 · 6 months: no recurrence

DISCUSSION

- BCC accounts for roughly **0.01–0.1%** of prostate cancers; fewer than 140 cases documented worldwide.
- Typical presentation: **LUTS**, urinary retention, less often hematuria; the prostate may feel very hard. PSA is normal or only mildly raised, so BCC is rarely suspected before biopsy.
- **Diagnosis** relies on histology and IHC: basal markers present (34βE12, p63, Ki-67, BCL-2), luminal markers (PSA, PSAP) absent.
- Long thought indolent, BCC can **invade nerves**, reach lymph nodes, metastasize and progress quickly.
- **Molecular findings:** somatic PIK3R1, KMT2D, NOTCH1; germline MUTYH, NBN, MSH3 – cell-cycle, epigenetic and DNA-repair pathways that may allow targeted therapy.
- **Treatment:** radical prostatectomy is the most accepted approach for localized disease (no guidelines exist); radiation, chemotherapy and hormonal therapy in advanced disease have unclear efficacy.

TAKE-HOME MESSAGES

- Rare, with **non-specific symptoms and normal PSA** – diagnosis is often delayed.
- **Histopathology + immunohistochemistry** are essential for diagnosis.
- **Radical prostatectomy** offers the best chance of control in localized BCC.
- **Long-term follow-up** and more data are needed; molecular findings may guide targeted therapy.

REFERENCES

1. Puglisi S, et al. Acta Biomed 2023;94(S1):e2023232.
2. Chang K, et al. World J Surg Oncol 2013;11:193.
3. Komura K, et al. Int J Clin Oncol 2010;15(6):594-600.
4. Wang J-W, et al. Front Oncol 2023;13:1094943.
5. Bertozzi L, et al. Urol Case Rep 2025;60:102993.

Source: Antonopoulos C, Poulopoulos I, Simoulis A, Nakou M, Komninos C. LUTS due to a basal cell carcinoma of the prostate: A case report and review of the literature. *Urology Case Reports* 2026;67:103478. doi:10.1016/j.eucr.2026.103478 · Open access, CC BY-NC 4.0 · Written informed consent obtained · No conflicts of interest declared.