

Conference Abstracts

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Metastatic Pure Small Cell Neuroendocrine Carcinoma of the Prostate Presenting with Low Prostate-Specific Antigen: A Diagnostic Challenge

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Abstract

Background

Pure small cell neuroendocrine carcinoma (SCNC) of the prostate is an uncommon and highly aggressive malignancy accounting for less than 2% of prostate cancers. Unlike conventional prostatic adenocarcinoma, it frequently presents with advanced metastatic disease despite low or only mildly elevated serum prostate-specific antigen (PSA), making diagnosis challenging and often delaying appropriate management.

Methods

A 57-year-old male with a congenital solitary right kidney presented with acute anuria, severe right loin-to-groin pain, and nausea due to distal ureteric obstruction. CT demonstrated a distal ureteric calculus with mild hydronephrosis. Emergency ureterorenoscopy with double-J stenting relieved the obstruction, with subsequent improvement in renal function. Further evaluation revealed a hard, enlarged prostate on digital rectal examination despite a mildly elevated PSA of 4.262 ng/mL and low PSA density of 0.04 ng/mL/cc. Multiparametric MRI demonstrated a PI-RADS 5 lesion extending from the base to the apex, with

extracapsular extension, bilateral neurovascular bundle and seminal vesicle involvement, pelvic lymphadenopathy, and suspected hepatic and osseous metastases. Transrectal ultrasound-guided 12-core biopsy confirmed small cell neuroendocrine carcinoma (SCNC) involving all 12 cores, with 61–70% tumor involvement and perineural invasion (PNI) identified in blocks C, D, and K. Immunohistochemistry confirmed pure neuroendocrine differentiation. Bone scintigraphy demonstrated multifocal skeletal metastases. The case was reviewed by a multidisciplinary tumor board, with platinum-based systemic chemotherapy and bone-targeted therapy planned. Further follow-up was continued under the oncologist.

Conclusion

This case highlights the aggressive clinical behavior of pure prostatic SCNC and demonstrates that extensive metastatic disease may occur despite only mildly elevated PSA levels. Clinicians should maintain a high index of suspicion when clinical examination and imaging are discordant with PSA values, as early histopathological confirmation and multidisciplinary management are essential for timely initiation of appropriate therapy.

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