Primary Urothelial Carcinoma of the Prostate: A Case Report

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Abstract
Prostate cancer is common and frequently a lethal type for men. While it would be diagnosed through Digital Rectal Examination (DRE) by the 50s, the gold standard diagnosis method for this disease is achieved through the pathological examination of the samples obtained through needle biopsy. The results of the prostate biopsy, i.e. pathological diagnosis, can be grouped into four: benign prostate hyperplasia, adenocarcinoma, Prostatic Intraepithelial Neoplasia (PIN) and Atypical Small Acinar Proliferation (ASAP). Urothelial carcinoma diagnosis is less often and is generally accompanied by urothelial carcinoma in the bladder or prostatic urethra as primary focus.

INTRODUCTION
Prostate cancer is common and frequently a lethal type for men. While it would be diagnosed through Digital Rectal Examination (DRE) by the 50s, the gold standard diagnosis method for this disease is achieved through the pathological examination of the samples obtained through needle biopsy. The results of the prostate biopsy, i.e. pathological diagnosis, can be grouped into four: benign prostate hyperplasia, adenocarcinoma, Prostatic Intraepithelial Neoplasia (PIN) and Atypical Small Acinar Proliferation (ASAP). Urothelial carcinoma diagnosis is less often and is generally accompanied by urothelial carcinoma in the bladder or prostatic urethra as primary focus. However, though rarely, primary urothelial carcinoma can be reported. This paper presents a case of urothelial carcinoma detected through prostate biopsy, along with the relevant literature.

CASE PRESENTATION
A 73-year-old man admitted to the polyclinic with low urinary tract symptoms. His physical examination resulted with a +1 DRE score and his prostate was found to be adenomatous. The genital examination turned out to be normal. His routine screenings exhibited a blood creatinine value and urinalysis value within normal ranges, while his serum PSA level was 48.9 ng/ml. No pathology was detected by urinary system ultrasonography and the prostate volume was found to be 48 cc. 12 quadrant prostate biopsy was performed due to the high level of PSA level and 4 quadrants were found to have intraductal urothelial carcinoma. The density of the tumor, detected to be positive in 2 right quadrants and 2 left quadrants, was found to be 5-15% in all quadrants. Abdominal contrast tomography was made and the patient was suggested cystoprostatectomy. As he refused the suggested treatment, he was given goserelin acetate depot and bicalutamide medication. When he came back for control 3 months later, his PSA level was found to be 14.4 ng/ml. The patient, clinically relieved by the administered alpha-blocker, was planned to continue the current treatment as he did not comply with the suggested treatment and did not adhere to the follow-up advices thoroughly.

DISCUSSION
Prostate cancer is the second most frequent type of cancer seen in males with 899,000 new cases each year (14% of all cancer cases in males) [1,2]. Prostate cancer would be diagnosed through Digital Rectal Examination (DRE) by the 50s. Currently, clinical localized prostate cancer is diagnosed through the histopathological assessment of the samples obtained through prostate needle biopsy [3]. Prostate biopsy would initially be performed in DRE guidance through transperineal approach during the 30s when prostate biopsy was first defined, and later on through transrectal approach which was defined by Astraldi [4].

Transrectal Ultrasound guided (TRUS) biopsy performed in the 80s was first systematically defined by Hodge et al. [5]. In its early days of definition, this biopsy was performed with 6 quadrants, whereas it is currently performed with 8-13 quadrants [6,7]. Now, random TRUS guided biopsy is the golden standard for the pathological diagnosis of prostate [8]. The subject in this study was performed 12-quadrant biopsy.

Indicators for prostate biopsy were high level of serum Prostate Specific Antigen (PSA) and/or suspicion of prostate cancer arising from the DRE. In this case, while the outcomes of the DRE were found normal, the serum PSA level was found above the normal range; therefore the patient was planned for performing biopsy.
The results of the prostate needle biopsy, i.e. pathological diagnosis, can be grouped into four: Benign Prostate Hyperplasia (BPH), adenocarcinoma, Prostatic Intraepithelial Neoplasia (PIN) and Atypical Small Acinar Proliferation (ASAP). While the pathological assessment of the cases reveals prostate cancer with a rate of 20-67%, the rest can be reported to be non-cancerous lesions [9]. On the other hand, there isn’t sufficient data on urothelial carcinomas diagnosed by prostate needle biopsy. Moreover, a reliable staging system does not exist for prostatic urothelial carcinomas [10]. Due to the anatomical closeness, urothelial carcinoma of bladder can invade prostate. In case of suspicion about diagnosing adenocarcinoma or primary prostatic urothelial carcinoma in the pathological preparation analyzed after TRUS biopsy, precise discrimination between the two entities is important for making prognosis and treatment approach. Treatment for adenocarcinoma is generally limited to medical hormonal treatment or prostatectomy, primary mode of treatment for urothelial carcinoma is cystoprostatectomy and chemotherapy [11,12].

While high-stage urothelial carcinoma and adenocarcinoma have similar pathological characteristics, there are specific distinctive characteristics between them. Major criteria for pathological diagnosis of the cancerous tissue in the prostate biopsy samples are infiltrative glandular growth pattern, inexistence of basal cells and nuclear atypia. PSA is the oldest and most frequent immunohistochemical marker used to define prostate-derived cancers [13]. PSA and prostate-specific acid phosphatase are traditionally used for verification. They can be negative with a rate of 19% and 27% in cases of prostate-derived but poorly differentiated carcinomas [14,15]. 2 markers have been proved to be useful for the diagnosis of prostate adenocarcinoma: positive diagnostic tissue marker Alpha-Methyl-Acyl-Coenzyme A Racemase (AMACR) for prostate cancer; and p63 which is used in the diagnosis of prostate adenocarcinoma and does not stain the basal membrane in the atypical glands [16-18]. Cytokeratin (CK) 7, CK20 and High-Molecular-Weight Cytokeratin (HMWCK) have been analyzed as potential urothelial markers [19]. Whereas p63 is expressed by most of the urothelial carcinomas, it is negative in most of the prostate adenocarcinomas. p63 is a reliable marker for urothelial differentiation and it can be used along with other markers in case of difficulty in morphological differentiation between high-stage urothelial bladder carcinoma and poorly differentiated prostate adenocarcinoma [20]. In our case, pathological preparations were stained with hematoxylin-eosin and urothelial carcinoma was detected among the benign prostate tissues under 40X magnification Figure 1-2).

Prognosis of high-grade urothelial carcinoma depends on the prostate invasion degree. No reliable grading system has been developed yet. Non-invasive prostatic transitional cell carcinoma can successfully be treated with conservative agents (TUR +/- BCG), whereas invasive prostatic transitional cell carcinoma should be treated aggressively with cystoprostatectomy [10]. In comparison to their acinar forms, such tumors exhibit a hormone-resistant and aggressive biological behavior, and a poor prognosis. Early diagnosis and radical surgery are the unique approaches that increase the life expectancy [21]. However, in 2003, Morikawa et al. achieved a positive response in a case with medical treatment without surgical intervention, and the PSA level for the subject in question decreased to undetectable levels in 2 months [22]. In our case, the patient was advised surgery, which he rejected. Medication (goserelin acetate depot and bidutamide tablet) was administered for the malignity, and a partial response was achieved.

In conclusion, while primary urothelial carcinoma of prostate is rare, in case of detection, existence of a synchronous urothelial tumor should be investigated. Whereas the primary treatment approach is cystoprostatectomy, anti-androgen treatment can also be administered.

REFERENCES


