

# Incidental findings of Synchronous Bladder and Prostate tumor

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## Abstract

Prostate cancer accounts for 70% after a cystoprostatectomy for a bladder tumor. Chun TY, have stated common embryological origin of these organs, along-with molecular similarities. Accordingly the incidence of prostate cancer in patients with a bladder tumor is 18 times higher whereas incidence of bladder cancer in patients with prostate cancer is 19 times higher<sup>[1]</sup>. We report a case of 76years male patient who presented with complaints of urinary retention and hematuria. Tissue biopsy for bladder and prostate was done and reported as primary malignancies of bladder and prostate.

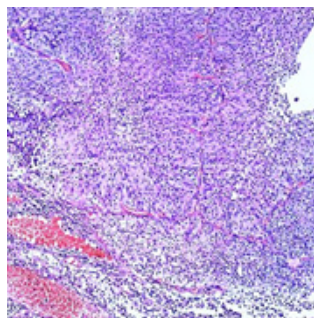
## Introduction

Bladder malignancy is the common urologic cancer, occurring alone or in association with other cancers of the urogenital tract, but seen commonly with prostate tumors<sup>[2]</sup>. Prostate cancer can be detected after a radical cystoprostatectomy (RCP) in asymptomatic patients or in patients not suspected of cancer during the digital rectal examination (DRE) or by estimation of PSA values and prostate biopsy<sup>[2-4]</sup>. We present a case of 76years male patient who presented with complaints of urinary retention and hematuria.

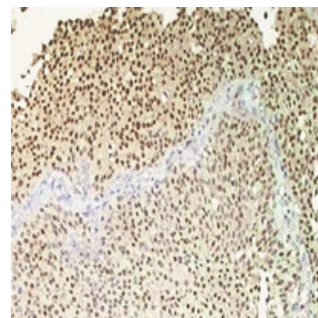
## Case Report

A 76 years male presented with complaints of urinary retention and hematuria. On DRE examination prostate was found to be Grade II-III. The CBC, biochemical and urine values were within normal limits. CT IVP/IVU scan was performed which showed polypoidal intra-vesical growth involving base and left anterolateral wall of bladder. The prostate appeared enlarged. The polypoidal growth was seen extending inferiorly to involve prostate with loss of fat planes between them. An ill-defined lobulated peripherally

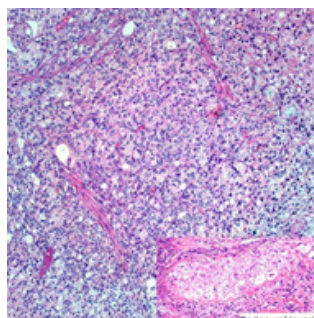
enhancing in right kidney was noted suggestive of metastasis. On gross bladder tissue measured 2.5 x 2.0 cm, deep muscle measured 0.5 cm, and bits from prostate tissue measured 0.8x 0.5cm. On microscopy tissue from bladder revealed high grade urothelial carcinoma with involvement of detrusor muscle. Tissue from prostate revealed adenocarcinoma conventional type with Gleason scores 6 grade1. On IHC bladder tumor was focally and strongly positive for GATA3 and prostate tumor showed positivity for NKX3.1 suggesting synchronous tumors of bladder and prostate.



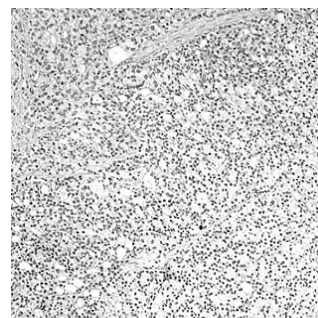
**Figure 1:** High grade urothelial carcinoma - Bladder



**Figure 2:** GATA 3 IHC in Bladder - High grade urothelial carcinoma



**Figure 3:** Prostatic Adenocarcinoma inset Perineural invasion



**Figure 4:** NKX 3.1 IHC - Prostatic Adenocarcinoma

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## Discussion

Billroth first described multiple primary malignant neoplasms in the same individual<sup>[5]</sup>. Prostate and bladder cancers occur in elderly individuals due to increase in incidence of malignancies with age<sup>[6]</sup>. The prostate and bladder cancer have common embryological origin and have some molecular similarities<sup>[1,7]</sup>. This association has been shown by Fradet et al in their study with involvement of three oncogenes and deletion of suppressor genes. Prostate stem cell antigen is overexpressed in transitional cell carcinomas and there are genotypes of rapid N-Acetyltransferase identified in patients with these 2 cancers. N-Acetyl transferase enzyme is involved in activation of carcinogenic amines, and has been found to be higher in patients with double cancers than controls<sup>[8,9]</sup>. The reflux of urine with prostatic intra-urinary stasis and carcinogens in bladder along with chronic inflammation is responsible for the development of concurrent bladder and prostate cancer<sup>[10-13]</sup>. Incidentally detected Prostate cancer can be classified into 2 groups: clinically significant and clinically insignificant cancer. Clinically significant prostate cancer has positive tumor margins, extra-prostatic extension, a Gleason score of more than 6 or tumor volume  $\geq 0.5$  cc. Perineural invasion is a sign of biological malignancy and recurrence risk<sup>[14-16]</sup>. The incidence of prostate cancer in biopsy is 24.4%, despite normal digital rectal exams and PSA levels<sup>[17]</sup>. Revelo et al, found that 41% of prostate cancers on RCP, and of these 48% were clinically significant<sup>[18]</sup>. Multiple synchronous primary malignancies in the urinary tract is quite rare. The biological behavior, their stages and the co-morbid conditions, can affect the treatment strategies which remains a concern in synchronous tumors<sup>[19]</sup>.

## Conclusion

Although synchronous malignancies of bladder and prostate are common this is the first case reported in our institute. Whenever bladder malignancy is suspected, sampling of prostate and kidney is suggested to rule out primary synchronous malignancy or metastasis.

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