

# Bilateral Testicular Metastases of Adenoid Cystic Variant of Carcinoma of Prostate

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## ABSTRACT

Prostate cancer is the second most frequently diagnosed cancer in men (13.6%) and the fifth most common cancer globally. Common sites of prostate carcinoma metastasis other than lymph nodes, include bones, lungs, urinary bladder, liver and adrenal glands. Rarely, a testicular mass, whether painful or painless, represents a metastasis. Metastasis in testes accounts for 0.06-2.5%. Bilateral testicular metastasis is less common and occurs in about 15% of cases. We report a case of prostatic adenocarcinoma in a 65 year male with metastasis to both testes identified upon histopathological examination of therapeutic orchidectomy specimen. Unusual adenoid cystic pattern seen in the metastatic deposits is highlighted. Bilateral metastasis is extremely rare and few are reported in literature.

**KEY WORDS:** Adenocarcinoma, metastasis, orchidectomy, prostate

## INTRODUCTION:

The incidence of carcinoma prostate varies widely between countries and ethnic populations, and disease rates differ by more than 100-fold between populations. The lowest yearly incidence rates occur in Asia.<sup>[1]</sup> About 200 cases of testicular metastasis are reported worldwide.<sup>[2]</sup> Several Indian registries have revealed an increasing trend in the incidence of prostate cancer and the mean annual percentage change has ranged from 0.14-8.6.<sup>[3]</sup> Testes is a rare site for involvement by secondary malignancies with reported incidence being 0.06-2.5%.<sup>[4]</sup> Despite the high frequency of carcinoma of prostate and its ability of wide dissemination via three mechanisms (local extension, lymphatic metastasis and hematogenous metastasis), testicular metastases from prostate cancer is rare. The favoured sites of metastasis of prostatic cancer are the bone, liver and lungs following lymph nodes.<sup>[5]</sup>

## CASE HISTORY:

Sixty five year old male presented with

complaints of difficulty in passing urine and stool, burning micturation since 2 months. Prostate specific antigen (PSA) was 90ng/ml. Ultrasound showed bilateral hydronephrosis with grade I nephropathy and ascites. Other organs did not show any abnormality. TURP specimen was grey white and amounting to 2.5 cc. It showed adenocarcinoma (Gleason's score 3+4=7). However, only therapeutic bilateral orchidectomy was performed. Prostatectomy was not done. Grossly, each testes measured 3.5 x 2x 1cms and 3x 2.5 x 1 cms. Both the testes were nodular on external appearance which on cut section revealed grey white areas scattered diffusely in the testicular parenchyma [Figure 1]. String test was negative.

Histological sections from both the testes showed adenocarcinoma cells arranged in adenoid cystic pattern amidst the atrophic tubules [Figure 2, 3, and 4 & 5]. A diagnosis of bilateral testicular metastasis from prostatic adenocarcinoma with adenoid cystic pattern, a histological subtype, was made.

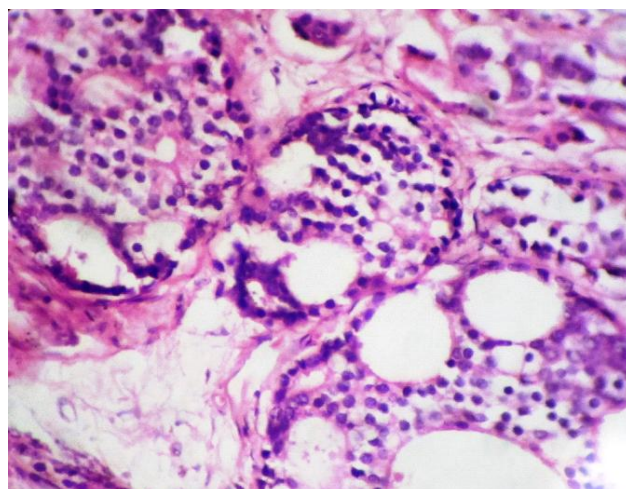
## DISCUSSION:

The lifetime risk (from age 0 to 90 years) of death from prostate cancer is 3% and the lifetime risk of a diagnosis of prostate cancer is 17% according to

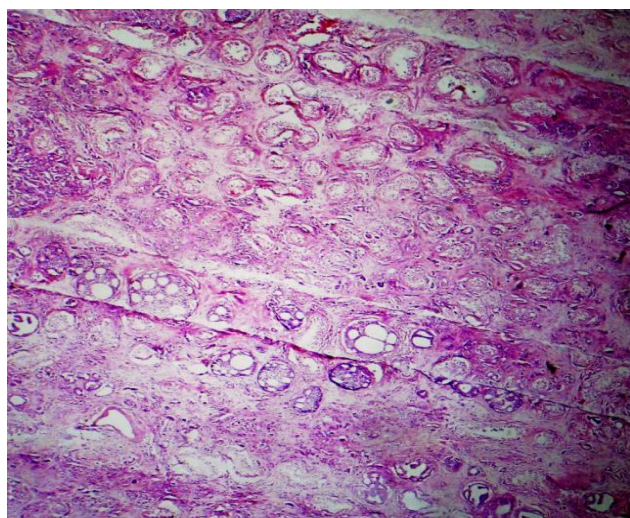
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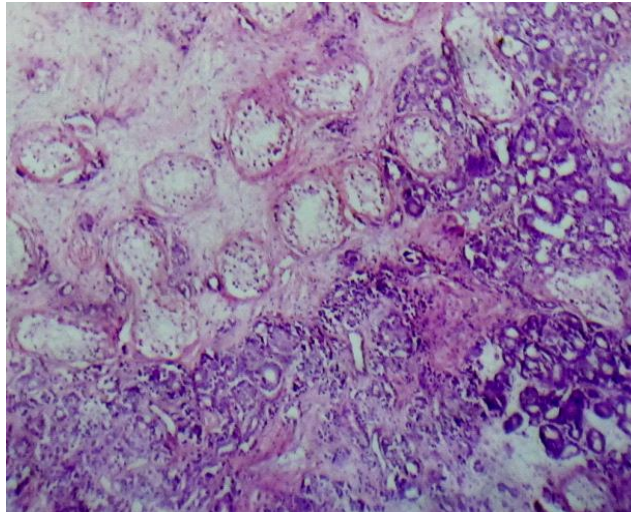
**Figure 1:** Cut section of bilateral testes showing solid well circumscribed masses with grey white areas.



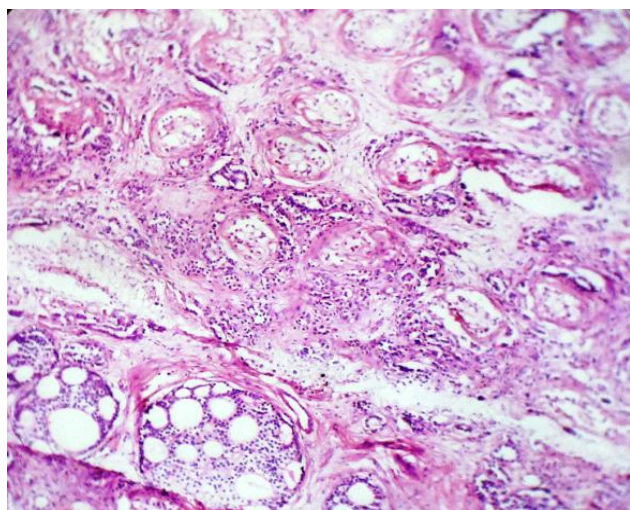
**Figure 4:** Cribriform arrangement of metastatic tumor cells with cellular and nuclear details (H & E stain, High magnification, 400X)



**Figure 2:** Adenocarcinoma cells arranged in adenoid cystic pattern amidst the atrophic tubules (LP) (H & E stain, low magnification).



**Figure 5:** Similar features in other side testes (HP)



**Figure 3:** Cribriform arrangement of metastatic tumor cells (H & E, High magnification)

Surveillance, Epidemiology, and End Results (SEER) Program.<sup>[1]</sup> The frequency of metastasis to the testis is very low.<sup>[4]</sup> The rarity of testicular metastases can be explained in relation to the controversial blood-testis barrier. It was reported that the main reason for relatively low incidence of metastases to the testis would be an unfavourable condition for establishment of metastatic tumours with relatively low temperature of scrotum.<sup>[5,6]</sup> According to the autopsy findings most common sites of metastasis of prostate cancer are lung, bladder, liver and adrenal gland metastasis following lymph nodes and bone.<sup>[5]</sup>

According to Bio Med Central (BMC) Urology case report, only some 200 cases of testicular metastasis have been reported worldwide, out of which commonest ones are from prostate (34.6%), lung (17.3%), malignant melanoma (8.2%), colon (7.7%) and kidney (5.8%).<sup>[2]</sup>

Prostatic cancer deposits within the testicles are usually diagnosed incidentally on histopathological examination after surgical orchidectomy.

Histologic subtypes of prostate carcinomas include mucinous, adenoid cystic, carcinoid, small cell, transitional cell and squamous cell. Adenoid cystic is a relatively rare but distinctive tumor in the prostate gland.<sup>[7]</sup> Microscopically, adenoid cystic carcinomas of the prostate can have either a predominant basaloid pattern like that of basal cell carcinoma of skin, or a cystically dilated acini and cells arranged in cribriform spaces surrounding eosinophilic-hyaline basement membrane-like matter.<sup>[8]</sup> By immunohistochemical evaluation, adenoid cystic carcinomas of the prostate are usually positive for high-molecular-weight keratin or basophilic mucinous secretion.<sup>[9,10,11]</sup> Most testicular metastases are final manifestation of widespread tumours and suggests poor prognosis. The interesting feature of present case being the bilateral involvement which is exceptionally rare, while unilateral metastasis being the more common occurrence.<sup>[4]</sup>

## CONCLUSION:

Orchidectomy specimens of patients with prostatic carcinoma need to be carefully examined for metastatic deposits although metastasis to testes occur rarely. Bilateral metastasis to testes from primary prostatic carcinoma, as observed herein, is extremely rare.

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