Case Report

Sarcomatoid Carcinoma of Prostate: A Rare Variant

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Abstract

Sarcomatoid carcinoma of the prostate is an extremely rare aggressive variant of prostatic adenocarcinoma, which causes diagnostic and therapeutic challenges due to its mixed histological features. It represents less than 0.1% of prostate cancer cases.

Keywords: carcinoma; prostate; adenocarcinoma; aggressive

Introduction

Adenocarcinoma of the prostate is a common malignancy affecting one in nine men, with six of every 10 cases identified in men older than 66 years, and more adversely affects African American males. [1] Sarcomatoid carcinoma of the prostate is a rare variant of prostatic cancer, with less than 100 cases reported in the literature up to date. Tumors are most commonly composed of an admixture of both malignant glandular and spindle cell elements. [2]

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62 years/ male, presented with acute urinary retention. Foley's catheter was put. USG was suggestive of mild prostatomegaly. CT abdomen and pelvis (plain and contrast) revealed prostate measuring 84x82x52 mm (approx. volume 179.1cc), grossly enlarged. Multiple slightly ill defined non enhancing areas were noted in its enlarged left peripheral lobe ? infective ?? neoplastic etiology. Fat planes between enlarged left peripheral lobe of prostate and distal rectum as well as anal canal were lost at few places. Both kidneys and ureters were unremarkable on radiology. Urinary bladder showed Foley's in situ, few

entrapped air foci noted in lumen of distended urinary bladder ? iatrogenic etiology. Serum PSA was slightly increased, 8ng/ml. There was no history of any therapy in the past.

Transurethral resection of prostate (TURP) was done. We received multiple TURP chips, aggregating to 6x4x3cm and weighing 22 gms. It was submitted entirely for histological examination. Microscopic examination revealed malignant tumour showing stellate to ovoid cells in nests, sheets and singly scattered pattern, chondromyxoid matrix (Figure 1a, 1b), foci of ossification & osteoid matrix (Figure 1c), necrosis. These were suggestive of osteosarcoma/ chondrosarcoma component. Also noted were sheets of dispersed poorly differentiated round to ovoid cells with high nucleocytoplasmic ratio,

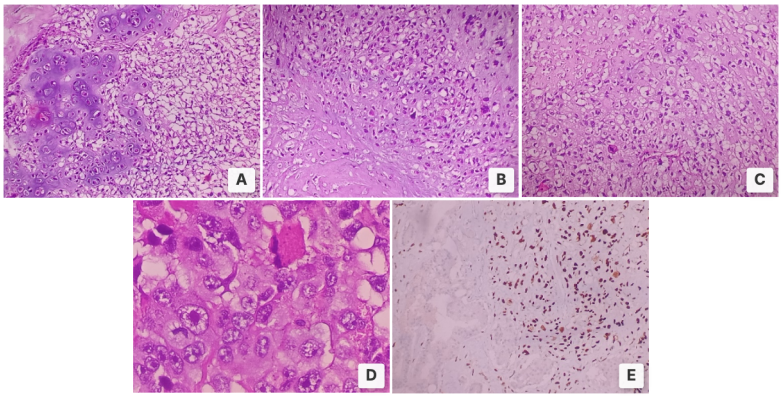

Figure 1: Figure 1. A chondrosarcoma component (HE x100). B: Stellate to ovoid cells in nests, sheets and singly scattered pattern, chondromyxoid matrix (HE x100). C: Osteosarcoma component (HE x100). D: Poorly differentiated round to ovoid cells with high nucleocytoplasmic ratio, few bizarre nuclei, coarse chromatin (HE x400). E: SATB2 positive osteosarcoma (IHC x100) component.

few bizarre nuclei, coarse chromatin (figure 1d) and few with dense eosinophilic cytoplasm. All these foci showed variable positivity for p63, CK, NKX 3.1, myogenin, myo D1, MDM2, CDK4, GATA 3 (weak), SATB2 (many foci- Figure 1e). Thus these cells represent admixture of pattern 5 adenocarcinoma of prostate, osteosarcoma, rhabdomyosarcoma & poorly differentiated component of carcinoma. Foci of glandular/ fused glandular areas (Figure 2a)- were positive for NKX3.1 (Figure 2b) & CK and showed loss of basal layer by p63 & HMWCK, squamous nests and islands (Figure 3a) - were

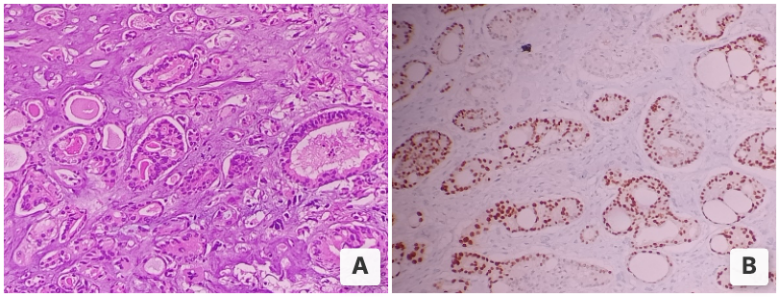

Figure 2: Figure 2. A: Adenocarcinoma component (HE x100). B: NKX 3.1 (IHC x100).

positive for p63 (Figure 3b), CK5/6 (Figure 3c), CK & GATA3, focal surface papillary projection of squamous/ transitional epithelium were seen, suggestive of adenosquamous carcinoma component. The tumour was negative for S100, CD 34, CD

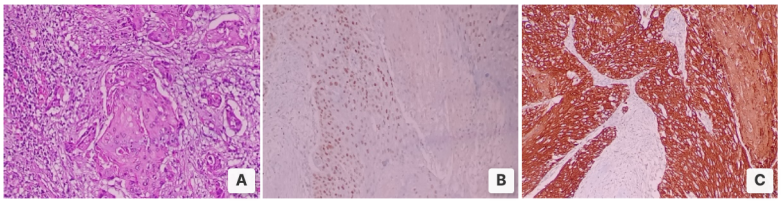

Figure 3: Figure 3. A: Squamous cell carcinoma component (HE x100). B: P63 (IHC x100). C: CK 5/6 (IHC x 100).

31, SMA, Desmin, H- Caldesmon. Thus, the final diagnosis was sarcomatoid carcinoma of prostate showing heterologous differentiation. As the malignant epithelial component was present, other sarcomas, were ruled out.

Discussion

Tumours of prostate are broadly classified into epithelial and mesenchymal tumours. Sarcomatoid carcinoma of prostate is a subtype of prostatic acinar adenocarcinoma which shows sarcomatoid differentiation and is exceedingly rare. It most commonly occurs during the development of high grade adenocarcinoma, especially after irradiation. The sarcomatous component may appear as homogenous spindle cell sarcoma, but it may also contain areas of heterologous leiomyomatous,

angiosarcomatous, chondroid or osseous differentiation. The prognosis is generally dismal despite therapy. The differential diagnosis encompasses prostatic stromal sarcoma and solitary fibrous tumour, but also other sarcomas secondarily involving the prostate. Demonstration of *TMPRSS2::ERG* translocation by FISH may be diagnostically useful to confirm the tumour's prostatic origin. [3] Localized, sarcomatoid prostate cancer can be effectively treated with definitive therapy including surgery and/or radiation. Favorable outcomes in the local disease group highlight the importance of early disease detection and treatment. More advanced disease, including bladder invasion or overt metastases, confers a poor prognosis for survival. [4] Due to the limited experience, there are no standard treatment recommendations for the management of this tumour. Operable tumours are treated with surgery, which may be followed by radiation therapy and/or adjuvant chemotherapy, particularly in patients with positive margins or nodes. Surgeries with curative intent include radical retropubic prostatectomy, radical cystoprostatectomy, suprapubic prostatectomy, and pelvic exenteration. This tumour has shown poor prognosis. In fact, non-surgical therapy (androgen ablation treatment and chemotherapy) seems to be ineffective and 55.5% of patients are unresponsive to chemotherapy (taxotere, estramustine, car-boplatinum, or cisplatinum). [2]

Conclusion

Sarcomatoid carcinoma of the prostate is an exceedingly rare and one of the most aggressive prostate malignancies. The prognosis is dismal regardless of other histologic or clinical findings.

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References

1. Wang T, Lewis B, Elaimy A, et al. Adenocarcinoma of the Prostate: Future Directions for Translational Science. In: Bott SRJ, Ng KL, editors. Prostate Cancer [Internet]. Brisbane (AU): Exon Publications; 2021 May 27. Chapter 7. Available from: https://www.ncbi.nlm.nih.gov/books/NBK571329/ doi: 10.36255/exonpublications.prostatecancer.translationalscience.2021.
2. Zizi-Sermpetzoglou A, Savvaidou V, Tepelenis N, Galariotis N, Olympitis M, Stamatiou K. Sarcomatoid carcinoma of the prostate: a case report. Int J Clin Exp Pathol. 2010 Feb 5;3(3):319-22. PMID: 20224731; PMCID: PMC2836510.
3. Kench JG, Berney DM, De Marzo A, Egevad L, Kristiansen G, Litjens GJS, Magi -Galluzzi C, Netto GJ, Yang XJ. Prostatic acinar adenocarcinoma. In: Amin Mahul B et al, editors. WHO Classification of Tumours Editorial Board. Urinary and male genital tumours. 5th ed. Lyon (France): International Agency for Research on Cancer;2022. p. 203-219.
4. Markowski MC, Eisenberger MA, Zahurak M, Epstein JI, Paller CJ. Sarcomatoid Carcinoma of the Prostate: Retrospective Review of a Case Series From the Johns Hopkins Hospital. Urology. 2015;86(3): 539-543.