

## CASE REPORT

### Metastatic carcinoma of prostate with low PSA and Gleason score

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#### ABSTRACT

Prostate cancer remains the most common malignancy among men and second leading cause of cancer related mortality. American cancer society recommends screening of all men more than 50 years of age and men with their first degree relative who had prostate cancer to undergo screening starting from 40 years of age. Screening involves estimation of prostatic specific antigen and digital rectal examination. Almost all patients with metastatic prostate cancer present with raised prostate specific antigen. Gleason score is also another factor which accounts for mortality. High scores are associated with more advanced disease.

We report a case where patient presented with metastatic prostatic carcinoma with PSA level in grey zone and low Gleason score.

**Key words:** prostatic carcinoma, low Gleason score, PSA.

#### INTRODUCTION

Almost all patients with metastatic prostate carcinoma presents with raised PSA level. Those patients with metastatic prostatic carcinoma with low prostate specific antigen account for less than 1 percent.<sup>1</sup> Gleason score is another factor, which indicates aggressiveness of the tumor and in turn metastatic capability of the tumor. Most of the metastatic carcinomas are associated with high Gleason score. There are not many published literature regarding this rare association between metastasis, low PSA and low Gleason score. Here we present one such case where patient presented with multiple bony metastases with PSA in the grey zone and low Gleason score.

#### CASE REPORT

A 72-year-old male patient presented to the urology clinic with lower urinary tract symptoms (LUTS). On eliciting detailed history, he was also found to have low backache and significant weight loss in previous 2 years. Digital rectal examination (DRE) revealed hard, non-tender grade-2 prostate with a nodular surface. Based on the DRE findings and history of low backache, a serum PSA (total and free) was ordered, total PSA was 7.4ng/ml while percent free PSA came as 16%. Subsequently, ultrasound guided 12 core transrectal prostate biopsy was done which showed adenocarcinoma of prostate with a Gleason score of 6 (3+3) (Fig. 1). X-Ray chest and CT pelvis with lumbosacral spine was ordered as part of metastatic workup. The X-ray chest showed osteosclerotic lesion in 4th rib on right side and para tracheal lymphadenopathy (Fig. 2).

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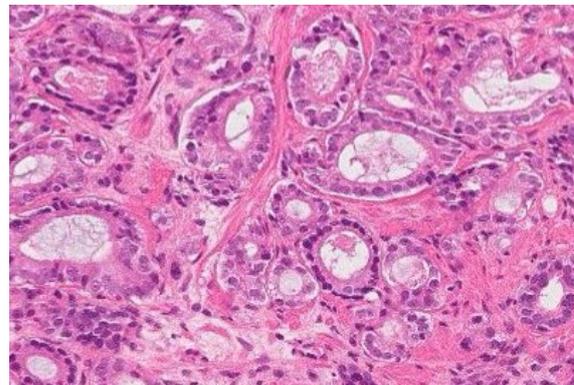


Figure 1, Microscopy showing Gleason score 3+3.

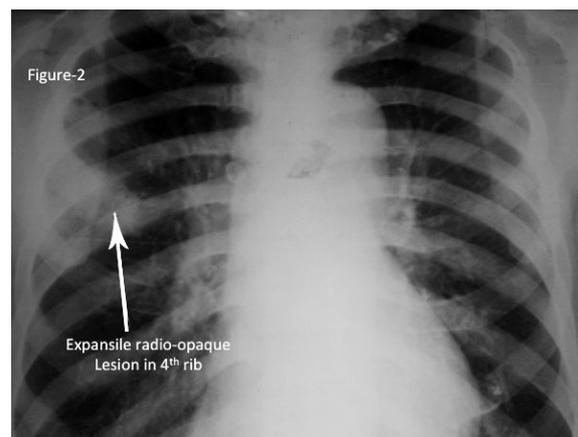
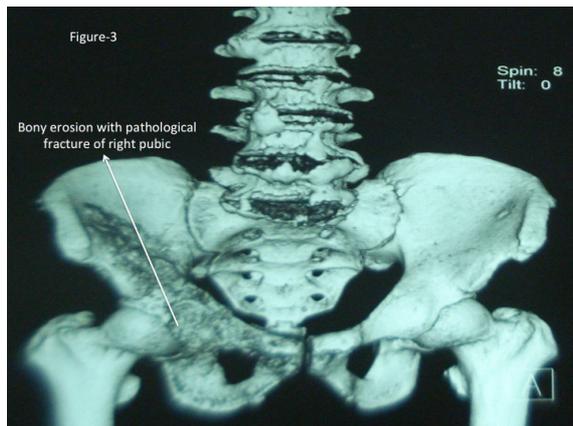


Figure 2, Chest X-ray showing osteosclerotic lesion in the 4th rib.

His CT scan of pelvis showed features suggestive of bony erosion with pathological fracture or right pubic ramus with extensive periosteal reaction suggestive of bony secondaries (Fig. 3). Urine routine showed occasional red blood cells and complete blood picture showed leuco-erythroblastic cell picture. All other routine investigations like LFT, KFT and ECG

were under normal limits. The patient underwent surgical castration in the form of bilateral subcapsular orchidectomy. He was prescribed Bicalutamide 50mg one tablet twice daily for three months. The testosterone estimation done on postoperative day 2 was found to be 69 ng/dl and the patient was referred to department of medical oncology where he got radiation for the bony metastasis with 30 Gy over 10 fractions. Injection Zoledronate 4mg was also given monthly. After 3 months patient is clinically stable with improved bone pain and LUTS with PSA of 5.6 ng/ml. He is now on Bicalutamide once daily.



**Figure 3**, CT-pelvis showing pathological fracture of right pubic ramus

## DISCUSSION

Prostate carcinoma remains the most common carcinoma in men and second leading cause of cancer related mortality.<sup>2</sup> This carcinoma is easily amenable for screening where by it is diagnosed in early stages and treated efficiently. Even though many new investigations like PSMA, pro-PSA and prostate cancer antigen are proposed for the screening, combined serum PSA estimation and digital rectal examination remains the most common screening method used.<sup>3</sup> The sensitivity of PSA estimation alone is up to 72%. Most of the indications for biopsy of the prostate depends on the PSA level and abnormal digital rectal examination.

PSA is organ specific glycopeptide, which is produced exclusively in prostate. It is currently the only serological marker routinely used in the diagnosis, staging and monitoring of prostatic carcinoma.<sup>4</sup> According to most literature a patient should undergo prostate biopsy if his PSA level is more than 4ng/ml. A study conducted by European Randomised Study on Prostate Cancer published their report in 2009 and concluded that PSA based population screening reduced the rate of mortality from prostate cancer by 20%. This study reflects the importance of PSA in the diagnosis and treatment of prostate carcinoma.<sup>5</sup> There are many reports in which prostate carcinoma is found in patients with PSA level was within the grey zone of 4-10 ng/ml. Some types of prostatic carcinoma

are associated with low PSA level like small cell, anaplastic and neuroendocrine variants.<sup>6</sup> In a patient with extensive metastases with adenocarcinoma prostate, it is expected that the PSA will be on the higher side but in our patient who presented with metastases, finding his PSA in the grey zone is a rare occurrence.

Gleason scoring is a grading system used to evaluate patients with prostate cancer. Biopsies from all lobes are examined under low power field and Gleason score is assigned based on two most common tumor patterns. Since the introduction of Gleason scoring in 1960, it is being used by pathologist and urologist as a standard tool to classify patients as having low grade, intermediate and high-grade tumour.<sup>7</sup> The Gleason score more than 7 is associated with metastasis. It is advised to do further metastatic work-up. Over-treatment of prostatic carcinoma based on PSA and Gleason scoring is a topic of debate.<sup>8</sup> Even though Gleason score 6 is a cancer having the ability to invade surrounding tissues, metastasis to different organ system is rarely seen.

## CONCLUSION

Metastatic prostatic carcinoma is usually associated with raised PSA and most commonly seen with a Gleason score of 7 and above. But full metastatic workup should be done in selected cases, as low PSA and Gleason score of less than 7 can be associated with metastatic prostate carcinoma.

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