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## Case Report

# Management of a localized prostatic adenocarcinoma despite the very high rate of PSA and the large tumor mass: Does PSA level indicate the stage of prostate cancer? ☆,☆☆

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## ABSTRACT

Prostate-specific antigen (PSA) is a marker specific to the prostate gland, and it is, therefore, possible to observe an increase in PSA above 4 ng/mL in cases of benign prostatic hypertrophy and cancer. But according to studies, a very high PSA level is most likely synonymous with metastatic prostate cancer.

Our rare case concerns the management of a localized prostatic adenocarcinoma despite a very high PSA level of over 3000 ng/mL, with an enormous volume of prostate without invasion or distant metastasis.

A very high PSA level can probably be a sign of metastatic prostatic adenocarcinoma, but not necessarily.

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## Introduction

Prostate-specific antigen (PSA) is a serine protease involved in fertility, whose production depends on dihydrotestosterone (DHT) [1]. Over the past 30 years, the PSA test has been

the main marker for prostate cancer screening, playing a key role in the diagnosis and follow-up of men with this cancer, since it was first proposed by Catalona et al. [2] in 1991. Studies have shown that serum PSA levels correlate with the risk of metastasis, particularly above 20 ng/mL [3].

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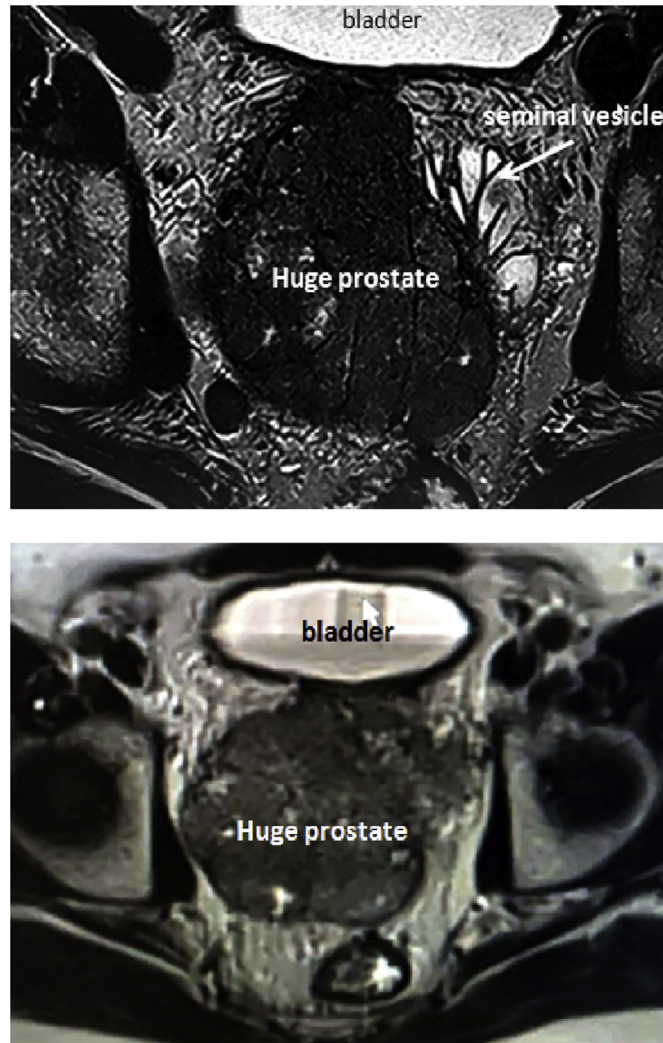
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**Fig. 1 (A and B) – An axial MRI TESLA 1.5 section showing a huge prostatic tumor mass.**

## Case presentation

### Patient information

Our patient was 78 years old and was consulted for a urinary obstruction syndrome with dysuria. He also reported unusual asthenia with loss of appetite, without hematuria or bone involvement.

### Clinical results

A digital rectal examination revealed a hard, enlarging prostate with no palpable nodule (CT2c). Dysuria was observed with a Qmax of less than 5 mL/sec, on flowmetry.

### Diagnostic assessment

Biological workup was normal, with a PSA level of 3600 ng/mL.

MRI revealed a huge heterogeneous Prostate Imaging-Reporting and Data System (PI-RADS) VI prostate tumor

weighing 450 g developing predominantly posteriorly in intimate contact with the seminal vesicle, with no capsular invasion. (Figs. 1 and 2).

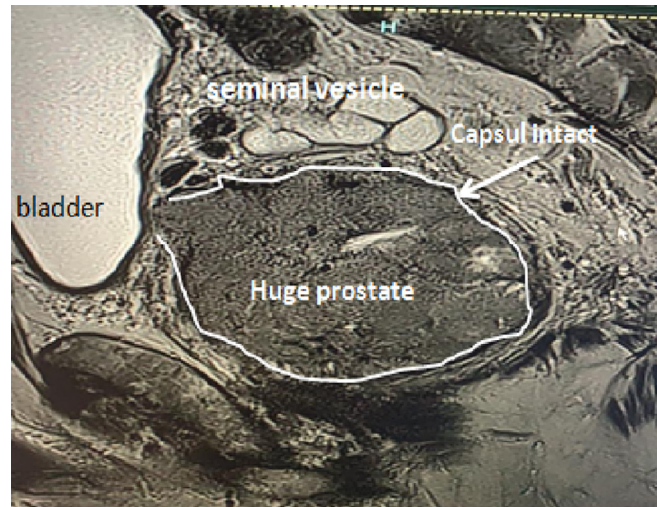
Following these previous results, a Tc bone scan and full-body CT scan were performed without any evidence of metastasis.

### Therapeutic intervention and follow-up

A prostate biopsy was performed after antibiotic prophylaxis with ciprofloxacin one hour earlier. Pathology revealed a Gleason 9 poorly differentiated prostatic adenocarcinoma.

At a multidisciplinary meeting attended by oncologists and urologists, the decision was made, given the patient's age and tumor stage, to place him on radio-hormonotherapy, and a TURP for de-obstruction was also performed.

The evolution was marked by the stabilization of the tumor and a decrease in PSA to 200 ng/L after 3 months of radio-hormonotherapy and fodder TURP, with an improvement in micturition.



**Fig. 2 – Sagittal TESLA 1.5 MRI section showing intimate contact of the prostatic tumor with the seminal vesicles without infiltration.**

## Discussion

PSA is used to diagnose prostate cancer but does not reflect the characteristics of prostate cancer cells. Anywhere if greater than 100 ng/mL in the majority of cases is most locally advanced or metastatic [1].

There is a close relationship between the PSA level and the risk of developing metastases when it exceeds 20 ng/mL [3]. Carter et al. showed that 50% of subjects aged 70–80 had histological signs of malignancy [4].

Cells synthesizing PSA in the blood may point to the existence of micrometastases or an indicator of dissemination in the body of tumor cells [5].

Catalona et al. [2], demonstrated that serum PSA levels have limited value for staging because in men with benign prostatic hyperplasia elevated PSA levels up to 10  $\mu$ g may be found as well as there is an overlap in serum PSA levels between patients with localized and nonlocalized cancer. Cho et al. [5] demonstrated that PSA mRNA correlated with serum PSA levels in metastatic prostate cancer (PCa) but not in localized PCa.

Although elevated PSA levels are predictive of advanced PCa, a large portion of organ-confined cancers have much lower total PSA values that overlap with the levels found in men without PCa [1].

The PSA level is closely related to the tumor stage and the risk of locoregional and distant metastases. However, there is no direct relationship between PSA alone and the pT stage [3].

The goal of hormonal treatment in locally advanced or metastatic prostate cancer is to reduce testosterone levels to 50 ng/dL [3]. The optimal threshold has been set, on the advice of experts, at 20 ng/mL [3].

## Conclusion

If the PSA level is greater than 100 ng/mL in the majority of cases is the most locally advanced or metastatic, but if this

PSA level, which is very high if associated with a large prostate over 400 g, is not a predictive value of metastatic cancer.

## Credit author statement

**Hammou EL Farhaoui and Ahmed Jdaini:** Study concept or design, data collection, data analysis or interpretation, writing the paper. **Oussama Elabbassi:** Data analysis or interpretation, writing the paper. **Oualid Bounouar:** Study concept or design. **Anouar Elmoudane and Ali Barki:** Supervision and data validation.

## Patient consent

Consent was obtained from the patient for the publication of this case report and accompanying images.

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