



Inflammation and infection

Prostatic cyst: A rare entity with differential diagnostic challenges in urology - A case report[☆]

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ABSTRACT

A 62-year-old man presented with a Prostate Specific Antigen (PSA) level of 9.89 ng/mL during routine screening. The clinical examination revealed lower urinary tract symptoms, along with a soft, bulging, painless mass in the left lobe of the prostate during digital rectal examination. Imaging confirmed the presence of a left latero-prostatic cystic formation with a low level of malignancy. A prostate biopsy indicated a benign prostatic parenchyma with no signs of malignancy. Medical treatment with alpha-blockers resulted in improved urinary symptoms, and follow-up monitored PSA levels at 3 and 6 months, recording 8.05 ng/mL and 6.87 ng/mL, respectively.

1. Introduction

Prostate cysts are rare in urology, with an incidence of 0.5–7.9%. The origin is rarely acquired, but most often congenital, related to developmental disorders affecting the Müllerian or Wolffian remnants.¹

Intraprostatic cysts are mainly asymptomatic and are usually discovered by chance during imaging examinations. However, they can also cause noisy symptoms, fertility problems and an increase in PSA levels, raising an issue of differential diagnosis with prostate cancer.

We report a case of prostate cyst in a patient who presented with an abnormally increased PSA level.

2. Case presentation

A 62-year-old patient, with family history of metastatic prostate cancer (uncle at the age of 75), presented in our outpatient care unit with an elevated PSA of 9,89 ng/mL detected during a screening examination initiated by a general practitioner. Past screening examination (6 years ago) showed a PSA level of 1,46 ng/mL.

Clinically, the patient complained of irritative lower urinary tract

symptoms (pollakiuria and urinary urgency), and obstructive lower urinary tract symptoms (Urinary hesitancy and weak stream of urine). Additionally, the patient reported low libido without erectile dysfunction.

The digital rectal examination did not reveal prostatic hypertrophy. However, a soft, bulging, painless mass the size of a fingertip was observed in the left lobe of the prostate.

Faced with this symptomatology and the elevated PSA level, an abdomino-pelvic ultrasound was initially performed. The ultrasound revealed a 27g prostate with no significant post-void residual volume. Nevertheless, it showed the presence of a left latero-prostatic cystic formation measuring 20 × 10 × 12mm (Fig. 1).

To further evaluate the possibility of prostate cancer, a multi-parametric prostatic MRI was ordered. The MRI results indicated the presence of a left lateral prostatic formation, oval in shape, with regular contour, well-defined, showing restricted diffusion (asignal on diffusion) (Fig. 2A), discreet hyperintensity on T1-weighted imaging (Fig. 2B), heterogeneous signal on T2-weighted imaging (Fig. 2C), and no enhancement after gadolinium injection (Fig. 2D). The formation measures 16 × 12mm, creating a mass effect at the level of zones 10a

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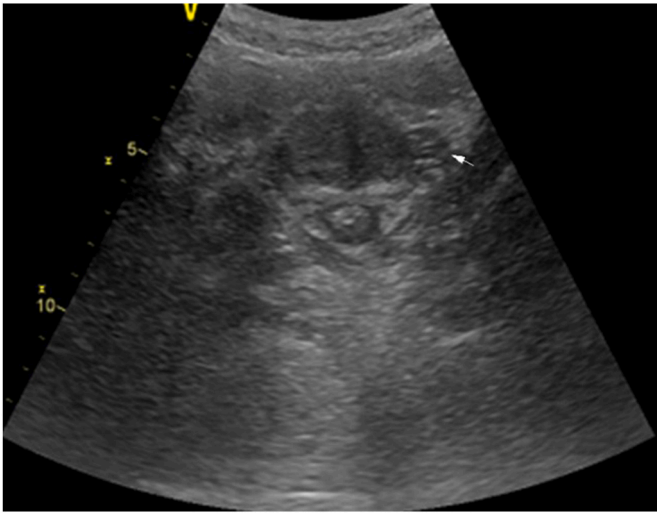


Fig. 1. Ultrasound appearance in favor of a left latero-prostatic cystic formation measuring 20 × 10 × 12mm.

and 10p in the peripheral zone, and has been classified as PIRADS 3.

The patient's biological work-up, which included a complete blood count (CBC), C-reactive protein (CRP) analysis, and a urine cytobacteriological examination (UCO), did not reveal any signs indicative of an abscessed collection in the prostate gland.

At this stage, the behavior of the mass on the various MRI sequences indicated a low level of malignancy. Nevertheless, considering the suspicious digital rectal examination and the elevated PSA level, A prostate biopsy was conducted, comprising 14 samples, 12 of which were obtained systematically, and 2 specifically targeted the lesion.

On histological examination, all the samples (from 1 to 14) exhibited a consistent morphological appearance: a dystrophic prostatic parenchyma was observed, comprising a proliferation of acini of variable sizes bordered by a regular cylindrical epithelium with a few endoluminal epithelial projections, and the basal layer preserved throughout. There were no suspicious signs of malignancy.

As a result, we initiated a medical treatment plan involving the use of alpha-blockers (Tamsulosin) to alleviate urinary symptoms. Following the treatment, we remarked a good clinical evolution. Therefore, surgical intervention for the cyst was not necessary. A follow-up ultrasonography was performed 3 months later, which showed the lesion to be stable (**Fig. 3**), and new PSA levels were obtained at 3 and 6 months, measuring 8.05 ng/mL and 6.87 ng/mL, respectively.

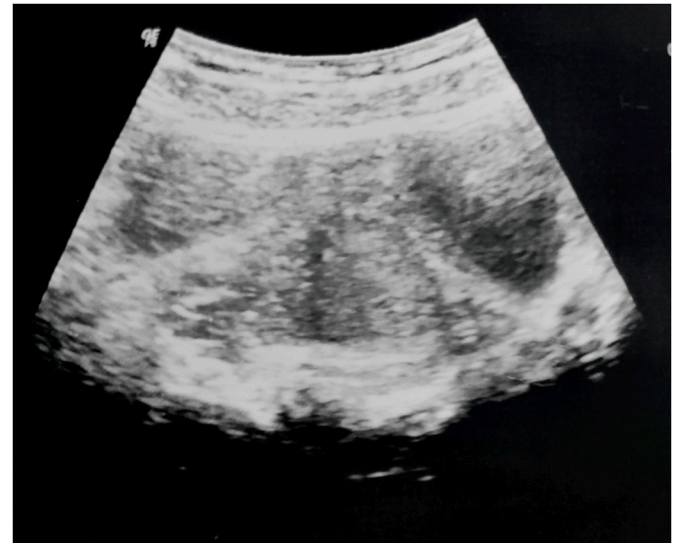


Fig. 3. Follow-up ultrasound scan showing the lesion to be stable.

3. Discussion

In addition to prostate cancer, several factors that increase PSA levels have been described, including benign prostatic hyperplasia, prostatitis, urinary retention, ejaculation and digital rectal examination.² In our case, the patient had none of these etiologies, which posed a diagnostic problem given a PSA of 9.89 ng/mL. The question now is whether the prostatic cyst played a role in the rise in PSA.

Prostatic cysts can take a variety of forms, including isolated median cysts, cysts of the ejaculatory ducts, single or multiple parenchymal cysts, hemorrhagic or superinfected cysts, cancers of cystic forms, and cysts secondary to parasitosis.¹ Thus, the malignancy of a cyst or the presence of certain morphological characteristics in a benign cyst, such as hemorrhage, superinfection and multilocularity, could justify raising the PSA level.

Cystic prostate cancer is rare, and most cystic lesions are benign, which makes them difficult to diagnose.³ However, in addition to an elevated PSA, there are other factors which may point to the malignant nature of a cystic lesion, namely: inhomogeneous cystic density suggestive of intracystic hemorrhage, irregular walls, rapid growth of the cyst, and the presence of a solid cystic mass or multiple cysts.⁴

With regard to benign cysts, several cases of prostatic cysts associated with high PSA levels have been reported,^{3,4} but there are currently

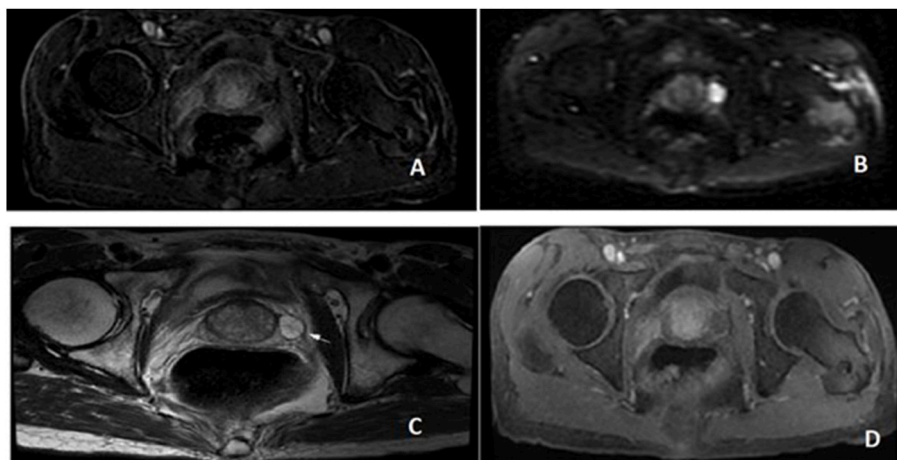


Fig. 2. Presence of a left latero-prostatic formation with a mass effect on sectors 10a and 10p of the homolateral peripheral zone, classified as PIRADS 3 on MRI.

not enough studies directly linking benign prostate cysts to elevated PSA levels.

Moreover, Han-Kuang Chen and al.⁵ reported the case of a 61-year-old man who presented with a PSA of 79 ng/mL and underwent radical prostatectomy for suspected prostate cancer and in whom the pathology results surprisingly showed only small-volume, organ-confined tumors and a large benign intraprostatic cyst. The cyst was unilocular and non-hemorrhagic. Given these results, they concluded that the large prostatic cyst was responsible for the elevated serum PSA level.

In our case, we hypothesize that the elevation in PSA levels was a result of the mass effect exerted by the cyst. Despite the lack of radiological criteria suggesting malignancy, the infrequent occurrence of cystic prostate cancers, and the absence of specific clinical and biological indicators, diagnostic certainty cannot be established. Consequently, the possibility of biopsy should not be disregarded.

4. Conclusion

Although prostatic cysts are rare, some large cysts pose a problem of differential diagnosis with prostate cancer through increased PSA and symptomatology. Hence the importance of prostate biopsy in diagnosing cancer to avoid missing malignant forms of prostatic cysts.

Section headings

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Consent for publication

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Availability of data and material

On request, email the corresponding author.

Code availability

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CRediT authorship contribution statement

Ghassane El Omri: Writing – original draft, Investigation, Conceptualization. **Hamza Rais:** Writing – original draft, Investigation, Funding acquisition, Conceptualization. **Abderrahim Bourial:** Investigation. **Abdeljalil Heddat:** Supervision.

Declaration of competing interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

Abbreviations

PSA	Prostate specific antigen
MRI	Magnetic resonance imaging
DRE	Digital rectal examination
CBC	Complete blood count
CRP	C-reactive protein
UCO	urine cytobacteriological examination

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