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## Case Report

# Extensive prostatic abscess drained by CT-guided percutaneous approach: Case report<sup>☆,☆☆</sup>

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### ABSTRACT

Prostatic abscess is a rare entity that occurs most frequently after the age of 50. The main risk factors are immunosuppressive conditions such as diabetes, HIV infection and chronic renal failure. It is clinically manifested by signs of bladder irritation. The management of the disease involves antibiotic therapy and drainage of the abscess, which can be performed by various invasive methods. We report the case of a 60-year-old patient with a large prostatic abscess drained by CT-guided percutaneous approach.

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## Introduction

Prostatic abscess is a necrotic infection of the prostatic parenchyma. Formerly common due to gonorrhea urethritis, it has become a rare entity in clinical practice since the advent of broad spectrum antibiotics. The pathogens involved are multiple and dominated by enterobacteria. Its management requires drainage of the collection, which can be performed according to different modalities. The aim of this paper is to report the case of a 60 year old patient with a prostatic abscess drained by percutaneous approach, followed by a review of the literature on this pathology.

## Case report

A 60-year-old man presented to the hospital emergency department with pelvic pain and general deterioration. The patient was being followed in clinical hematology for type 1 AML, for which he had been treated and declared in complete remission for 3 years. He did not report diabetes or immunosuppression and had no particular family history. Furthermore, he did not undergo a transrectal prostate biopsy. His current symptomatology began three months ago with the onset of progressively worsening pelvic pain, dysuria, and general signs of asthenia, anorexia, and weight loss without

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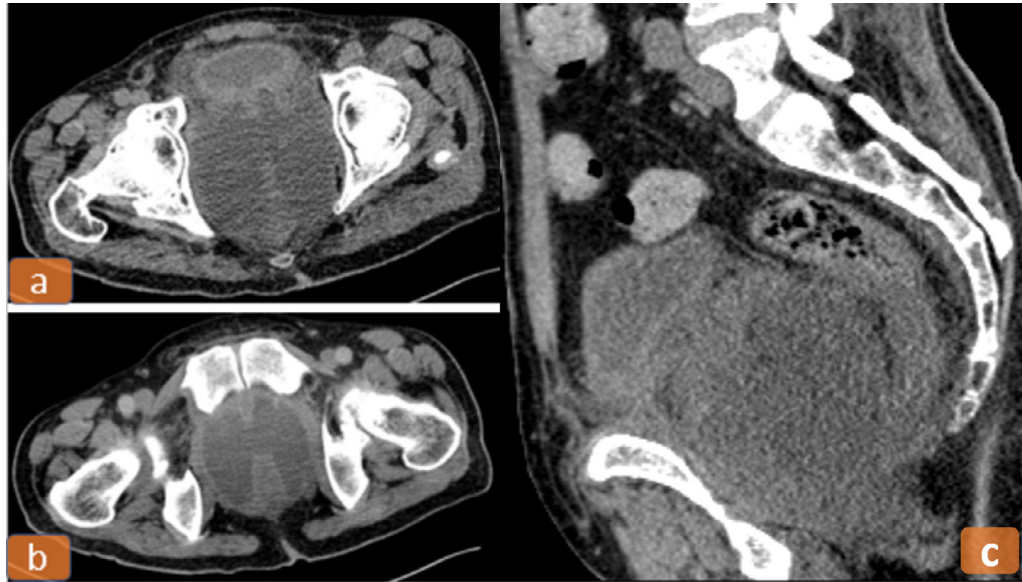
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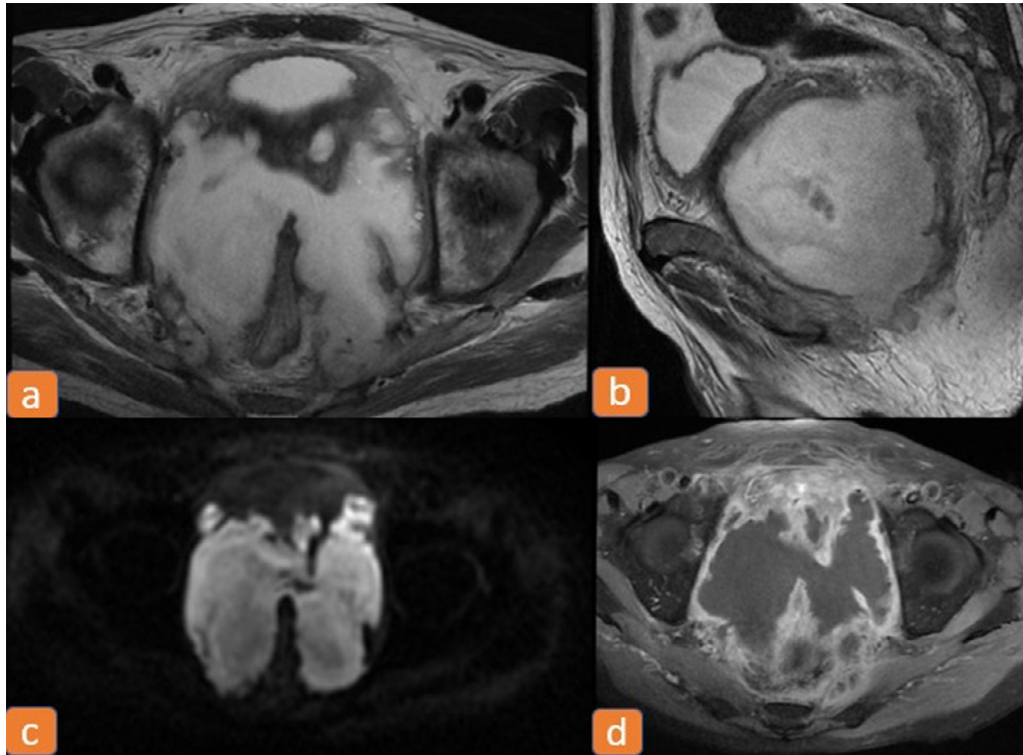


**Fig. 1 – Abdominal and pelvic CT scan in axial section without enhancement (a), and after enhancement (b), followed by sagittal section reconstruction (c) showing a large fluid-dense formation of the subperitoneal space, containing septa and an enhanced wall.**

any notion of fever. On the day of admission to hospital, clinical examination revealed a conscious patient with a GCS of 15/15, a temperature of 37.2°C, a heart rate of 95 beats/min, a blood pressure of 98/65mmHg, a polypnea of 24 cycles/min and a saturation of 96% on room air. Palpation of the abdomen revealed isolated tenderness of the hypogastric and perineal region. The rectal examination was very painful, making it difficult to perform. The biological work-up was in favor of an inflammatory syndrome with a CRP of 100 mg/l; white blood cells of 5830 elements/l with a predominance of neutrophils, sterile urine on cytobacteriological examination and a prostate specific antigen (PSA) of 0.3 ng/ml as well as a negative Xpert MTB/RIF test. An emergency abdominal CT scan (Fig. 1) showed a large cystic mass located in the pelvis, hypodense, well limited, heterogenous and containing thick septa requiring further characterization by pelvic MRI. On MRI (Fig. 2) there was a large 600 ml septated collection arising from the prostatic cavity. It was well limited, with a hypointense T1, hyperintense T2, in restriction of diffusion in DWI with low ADC. On the T1 FatSat sequence with gadolinium injection, a thickened and enhanced wall was noted, confirming the diagnosis of prostatic abscess. There was no extension beyond the prostatic cavity. Management consisted of broad-spectrum antibiotic therapy followed by CT-guided drainage of the collection through a posterior approach in a prone position (Fig. 3). This allowed evacuation of the pus followed by flushing of the prostate cavity. Prostate biopsies were taken simultaneously during the procedure. An inflammatory process without neoplastic cells was found in a biopsy's histology. There were no immediate complications and the patient was transferred to the hospital room.

## Discussion

Prostatic abscess is a rare condition in clinical practice since the advent of broad-spectrum antibiotics and the reduction in the incidence of gonorrhoea urethritis. Its incidence varies between 0.5 and 2.5% in patients with prostatitis and is mostly seen in males over the age of 50 [1]. Bacterial infection of the prostate is secondary to seeding either by the hematogenous pathway during bacteremia, or by the retrograde pathway through infected urine or iatrogenic inoculation (prostatic biopsy; transurethral resection of the prostate). Untreated or poorly treated, this acute or chronic prostatitis will progress to prostatic abscess. Before the era of antibiotics, *Neisseria gonorrhoea* and *staphylococcus* were the most common bacteria involved. Nowadays, gram-negative bacilli, especially *E. coli*, are the most common pathogens involved. The main risk factors for prostatic abscesses are immunosuppressive conditions such as diabetes, HIV infection, liver cirrhosis, chronic renal failure and chronic indwelling urinary catheter or genitourinary instrumentation. The clinical picture is dominated by pelvic and perineal pain. It may be associated with signs of bladder irritation (pollakiuria, urinary urgency) or an obstructive syndrome with dysuria or even acute urine retention. General signs such as fever are inconsistent and digital rectal examination reveals prostate sensitivity [2]. Biological examinations show an inflammatory syndrome with hyperleucocytosis. Imaging plays a major part in diagnosis. Transrectal ultrasound has both diagnostic and therapeutic value as a tool to guide a drainage procedure. It shows disorganization of the prostatic architecture with the presence of hy-



**Fig. 2 – Pelvic MRI in axial T2 (a), Sagittal T2 (b), axial DWI (c), showing a formation developed from the prostatic lodge, hyperintense in T2 and DWI. On the T1 FatSat sequence with gadolinium injection, septa and a thickened and enhanced wall are present.**

poechoic areas corresponding to abscessed collections usually predominating in the transitional and central areas. This imaging modality can be painful for the patient, especially in the case of large abscesses. It is also not very sensitive in early forms and tends to underestimate the extent of lesions, making cross-sectional imaging useful. CT can better assess the topography and extent of abscessed collections and guide drainage. It shows well-limited, oval, hypodense formations with regular contours in the prostate parenchyma. These collections have a wall enhanced by contrast product and tend to converge. In the case of a large collection with septa, the differential diagnosis with a cystic tumor lesion is difficult, hence the use of MRI and biopsies for histological examination [3]. The indications for MRI in prostatitis abscesses are not yet clearly codified. Abscessed collections appear hypointense on T1 and hyperintense on T2, in restriction of diffusion in DWI with low ADC [4,5]. The differential diagnosis of prostatic abscesses is cystic tumors of the prostate which are very rare and represented by cystadenoma and cystadenocarcinoma of the prostate; but also cystic tumors of the seminal vesicles [6,7].

The principle of management of prostatic abscesses is based on effective antibiotic therapy, with drainage of abscessed collections. Given the rarity of cases, there is no consensus on management. Some teams recommend drainage if the abscess is larger than 1cm. There are different drainage modalities: image-guided drainage by percutaneous or transurethral approach and surgical drainage. Imaging-guided percutaneous drainage is the least invasive technique.

It is performed under local anesthesia using a transrectal or perineal ultrasound guided approach (TRUS) [8]. TRUS is the most widely used guidance tool and allows real-time monitoring of the procedure. However, it has some contraindications, e.g. anal fistula, severe hemorrhoids, abdominal-perineal amputation, hence the interest in using other guidance modalities, in this case CT. CT-guided prostate drainage is a technique that is not well described in the literature. Percutaneous drainage is increasingly indicated as a first-line procedure with a success rate of 83.3% and few complications [9]. Transurethral drainage is more invasive than the previous technique. It may involve a transurethral incision over the abscess, transurethral deroofting of the abscess cavity, or formal transurethral resection of prostate, with a success rate of approximately 96% [10]. However, because of its complications (bleeding, sepsis, urinary incontinence, retrograde ejaculation), it is indicated as a second-line procedure if percutaneous drainage fails. Surgical drainage via the perineal access is the most invasive technique and is used less and less. It is still indicated if the abscess extends beyond the prostatic cavity. In our patient, given the difficulty of performing a transrectal ultrasound and the large volume of the collection, a CT-guided drainage was chosen (Fig. 3). This allowed the evacuation of 600ml of pus followed by flushing and drainage of the prostate cavity. Cytobacteriological examination of the pus revealed two bacteria, penicillin G-susceptible *E. coli* and 3rd generation cephalosporin-susceptible streptococcus. Anatomopathology was in favor of an inflammatory process



**Fig. 3 – CT guided drainage of prostatic abscess through posterior approach with patient in procubitus position (a). On a follow-up scan 15 days later, the collection disappeared (b).**

without malignant cells. The initial probabilistic antibiotic therapy was adapted according to the antibiogram and the evolution was favorable with an improvement of the clinical and biological parameters. The drain was removed at 7 days. Control imaging (Fig. 3) on day 15 of drainage and antibiotic treatment was satisfactory with disappearance of the abscessed collection, allowing the patient to go home and continue oral antibiotic treatment for a further two weeks before being seen in consultation for re-evaluation.

### Conclusion

Prostatic abscess is a rare entity that most often occurs in the context of immunosuppression. Its management is based on effective antibiotic therapy associated with drainage of the collection. Percutaneous drainage by posterior approach of the prostatic abscess is a minimally invasive and effective technique that can be considered for treatment.

### Patient consent

The patient declares his consent for the publication of his case.

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