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Inflammation and infection

Isolated emphysematous prostatitis: A very rare entity

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ABSTRACT

Emphysematous prostatitis is characterized by their rarity and its severity. It often occurs in older diabetics. This study reports a new case of an isolated emphysematous prostatitis in a 66-year-old patient which presented with mental confusion and severe sepsis. Computed tomography revealed intra parenchymal air bubbles of the prostate which evolved well after early resuscitation and rapid and effective antibiotic therapy. Emphysematous prostatitis is an uncommon but potentially serious disorder that has the potential for causing problems if not diagnosed at the early stage and treated promptly.

1. Introduction

Emphysematous urinary tract infections (EUTIs) is a rare and severe form of life-threatening acute necrotizing and gas forming infection often associated with features of sepsis first described in 1671 and that may have a poor prognosis according to a few previous reports with a high mortality rate (3–18%) and up to 70% in some series.¹ The reported predisposing factors for these gas-forming UTIs include an immunosuppressed status, diabetes mellitus, liver cirrhosis, alcoholism, and recent urethral instrumentation.² Isolated emphysematous prostatitis is a rare condition, which was reported in few case reports.

2. Case presentation

A 66-year-old man presented to our emergency department with febrile with Lower Urinary Tract Symptoms (LUTS). His medical history was notable for hypertension and type 2 diabetes. The patient's temperature was 40 °C, blood pressure was 90/50 mm Hg, heart rate was 120 beats/min, respiratory rate was 24 breaths/min, and oxygen saturation of 96% on room air body. The patient presented a mental confusion that had been evolving for three days. His Glasgow score was 11. The digital rectal examination finds a non-suspicious prostate, sensitive, without objectifying any renitent collection. The biological workup performed on admission noted an inflammatory syndrome (white blood cells at 21.3 G/L with neutrophilic polynuclear predominance and C - reactive protein at 444 mg/L) with renal insufficiency

(plasma creatinine at 404 μmol/L) without hyperkalemia. Blood glucose was 22.6 mmol/L with negative ketone levels. The patient underwent an abdominal non injected computed tomography which revealed a heterogeneous prostate with hypo dense infracentimetric collections and intraparenchymal air bubbles, both kidneys were normal, with no dilatation of the excretory cavities (Fig. 1). The diagnosis of acute severe emphysematous prostatitis was retained. Empirical intravenous antibiotics were initially administered (Cefotaxime and Amikacin). Then changed to imipeneme in accordance to the culture reports which isolated *Escherichia coli* producing extended-spectrum beta-lactamase. A transurethral catheterization was performed. The evolution was favourable. The patient was discharged after 14 days of imipeneme treatment. He has been readmitted 6 weeks after, a transurethral resection of the prostate was performed. The histological examinations concluded to a benign prostatic hyperplasia. The patient is currently asymptomatic.

3. Discussion

Gas-forming urinary tract infections are an extremely rare disease but have a high mortality rate, especially emphysematis prostatitis characterized by gas and purulent exudate. Mortality rate is 6–30% before the advent of effective antibiotics therapy. The current reported mortality rate is 3–18%.¹ This condition develops preferentially in predisposed patients include an immunosuppressed status, diabetes mellitus, liver cirrhosis, alcoholism, and recent urethral instrumentation. Patients with

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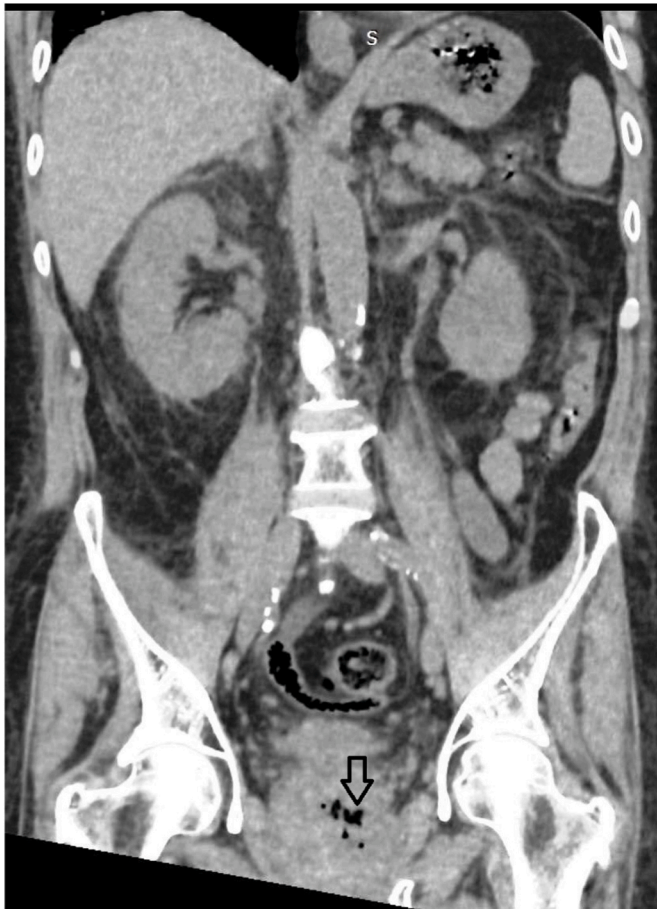


Fig. 1. An abdominal non injected computed tomography showed a heterogeneous prostate with hypo dense infracentimetric collections and intraparenchymal air bubbles (Arrow), both kidneys were normal, with no dilatation of the excretory cavities.

diabetes mellitus are prone to urinary tract infections. Elevated tissue glucose levels in diabetes provide a good environment for gas-forming microbes.² Diabetes is associated with EP in 83.3% of cases.¹ Recently, Gram negative bacteria which are usually associated with bladder emptying disorders became the most common pathogens. We see less and less gram-positive bacilli such as gonococcus in emphysematous prostatitis due to the measure of protection against sexually transmitted infections.³ As for prostate abscesses, no pathognomonic symptoms or signs are specific for emphysematous prostatitis. The major presentations of this entity have been symptoms of dysuria, frequency, and urgency. Common complaints at initial presentation have included fever, acute urine retention, perineal pain, tenesmus, lower abdominal

discomfort and deterioration in general condition. Considered a serious condition, vital functions must be immediately evaluated to rule out a state of septic shock. Thrombocytopenia is considered a criterion of severity.⁴ The positive diagnosis of emphysematous urinary tract infections is radiological and is based on the computed tomography. However, this entity remains under-diagnosed due to the lack of systematic use of a CT scan in the diagnosis of urinary tract infections, particularly for prostatitis. Only a pelvic computed tomography scan can confirm the diagnosis of emphysematous prostatitis by the presence of gas in the prostatic parenchyma and possibly the extraprostatic extension of the inflammation.¹ Transrectal Ultrasound is used in the diagnosis of prostatic abscess, in the guidance of aspiration and drainage. In view of the limited published reviews of this entity, its management is not standardised. In the reported cases, treatment consisted of rapid drainage of the bladder, with early broad-spectrum antibiotic administration. For antibiotic therapy the use of third-generation cephalosporin in combination with amikacin, is the rule in the absence of signs of shock.⁵ In the event of clinical or biological severity, broadening of the spectrum is strongly recommended by Imipenem with amikacin.⁵ Prolonged administration of antibiotics for 4–6 weeks is essential to completely eradicate the pathogens.⁵ Definitive treatment is complete surgical drainage, which is achieved by transurethral resection of the prostate.

4. Conclusion

Emphysematous prostatic is an uncommon but relatively serious infectious disease that may cause complications if not diagnosed at an early stage and treated appropriately. Its diagnosis is a challenge since patients present with nonspecific symptoms. Careful clinical examination and imaging modalities such as transrectal ultrasound and CT may assist in making this difficult diagnosis. Adequate drainage and effective antimicrobial treatment is the ideal therapy for this disease.

Declaration of competing interest

The authors declare that they have no competing interests.

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