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Emphysematous prostatitis: A case report

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ABSTRACT

We report the case of a 48-year-old man with ischemic stroke, diabetes and chronic renal failure admitted for fever with LUTS associated with nausea and vomiting.The physical examination showed a depressible abdomen, painful prostate on digital rectal examination.A biological inflammatory syndrome with diabetic ketoacidosis. The abdominopelvic CT scan confirmed the diagnosis by the presence of gas in the prostate,and the CBUE was positive for *Enterobacter cloacae*.The patient was treated with appropriate antibiotic therapy with transrectal aspiration of the prostate collection,but the evolution was marked by the worsening of the patient's condition leading to his death after two weeks of treatment.

Introduction

Emphysematous prostatitisis a rare inflammatory condition, characterized by gas collection and purulent exudates within the prostate. It is seen in diabetic patients with bladder outlet obstruction or bladder catheterization.

It typically presents with fever, irritative LUTS and pelvic or perineal pain.

Mortality rate varies between 1% and 16%.[1] while the reported etiologic pathogens in this infection include *Escherichia coli*, *Klebsiella pneumoniae*.[2]*Proteus mirabilis*, Citrobacter, enterobacter cloacae, and yeasts.

Case report

A 48-year-old man with a history of chronic renal failure, ischemic stroke and insulin-dependent diabetes, presented with complaints of fever, malaise, oliguria, haematuria, nausea, vomiting lasting for 4 days. On physical examination he was febrile (38 °C),his blood pressure was normal (110/80 mmHg),his abdomen was depressible.Digital rectal examination demonstrated a painful prostate.

Investigations revealed leukocytosis: 12 900, renal failure with creatinine at 399μmol/l,high C-reactive protein:137mg/l, urea at 30mg/l, hyperglycemia, acidosis,and positive acetonuria. An initial clinical diagnosis of male urinary tract infection with diabetic ketoacidosis was suspected.

An abdominopelvic CT scan without contrast injection showed emphysematous lesions in the prostate (Figs. 1 and 2) and seminal vesicles, both kidneys were normal, with no dilatation of the excretory cavities.

Cytobacteriological examination of urine and blood culture were done

Empirical intravenous antibiotics were initially administered (cefotaxime and ciprofloxacine),then changed to imipeneme and ciprofloxacine in accordance to the culture reports which isolated *Enterobacter cloacae*, and a suprapubic catheterization was performed (Fig. 3).

On day 3, the patient became apyretic but an aggravation of the biological inflammatory syndrome with increase of the white blood cells to 20000, CRP to 200mg/l and a severe metabolic acidosis led to an emergency hemodialysis.

An abdominopelvic control scan showed prostatic hydroaeric collections. A trans-rectal aspiration was carried out under ultrasound guidance bringing back 50ml of purulent liquid, the bacteriological examination isolated the same germ isolated in the urine.

On day 4, the patient presented a generalized convulsive seizures, he was apyretic, laboratory data demonstrated regression of the biological inflammatory syndrome, with white bloodcells at 16 000 and CRP at 123mg/l, and a correct metabolic balance apart from chronic renal failure.A head CT scan performed was normal. Therefore the origin of the seizures was attributed to the antibiotics.The decision was to change

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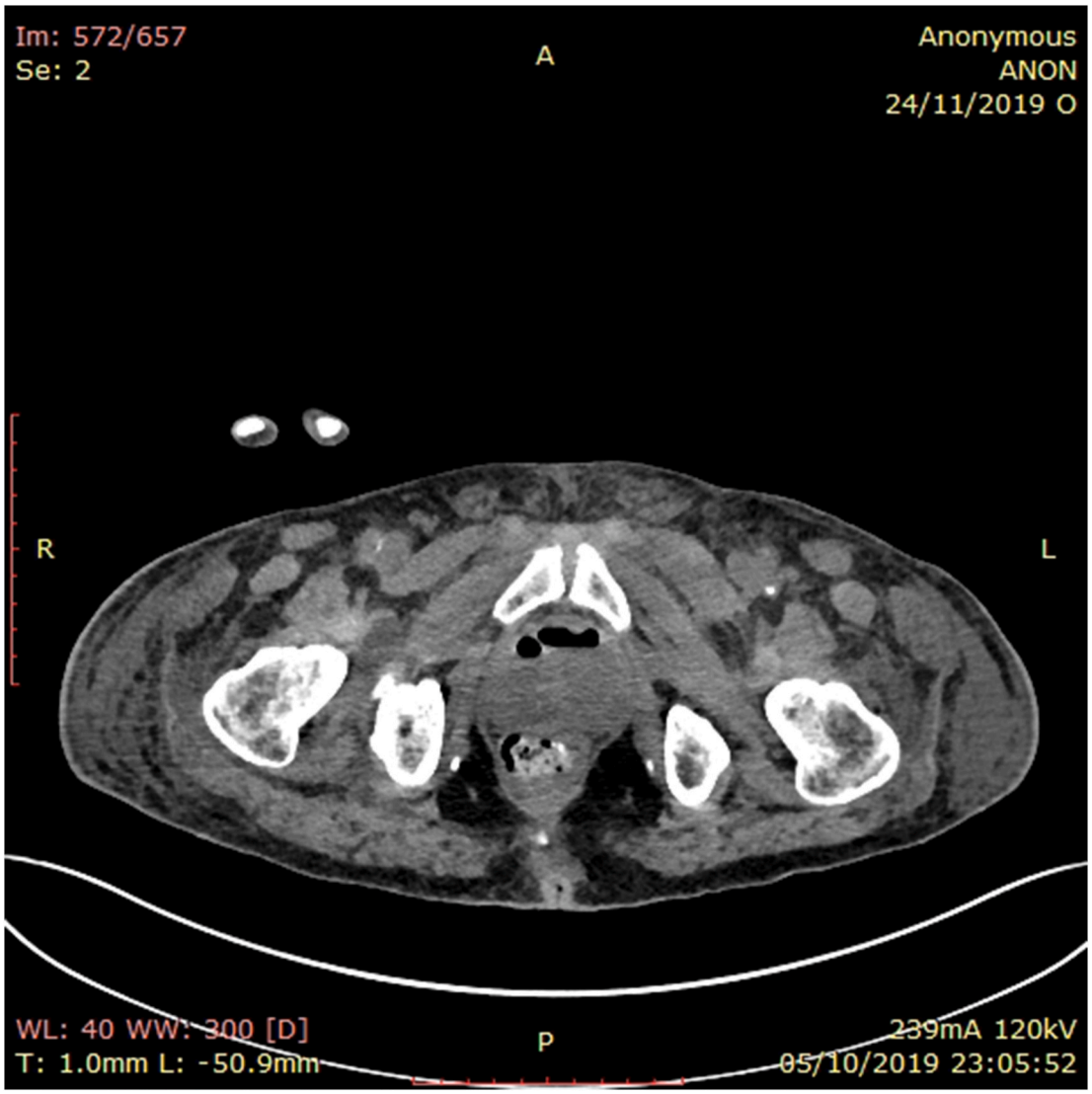

Fig. 1. Abdominopelvic CT scan revealed a gas accumulation in the prostate gland.

them by piperacillin and flagyl which were not tested.

After 2 weeks of antibiotic adaptation, the evolution was marked by the worsening of the patient's state of consciousness with septic shock, requiring his transfer to the intensive care department where an orotracheal intubation was performed and he was put on norepinephrine in high dose.The patient died in a multi-organ failure table.

Discussion

Prostatic abscess is an uncommon condition but potentially serious disorder, 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%.[3] The presenting signs and symptoms of emphysematous prostatic abscess are highly variable. Fever, abdominal pain, dysuria, perineal discomfort and even rectal tenesmus have been reported, Rectal examination typically reveals increased prostate size and prostatic fluctuance.

The diagnosis of emphysematous prostatic abscess is based on clinical history, rectal examination and imaging modalities.PelvicCT scan confirms diagnosis by the presence of gas in the prostatic parenchyma and possibly the extraprostatic extension of the inflammation.[3]

Transrectal ultrasound is used in the diagnosis of prostaticabscess, in the guidance of aspiration and drainage.[3]

Often the bacteria responsible for the empysematous prostatitis are Gram-positive(N. gonorrhae), but lately became rather Gram-negative which are often associated with bladder emptying disorders, with enterobacteria being the most common pathogens.[3]

Patients with diabetes mellitus are prone to urinary tract infections. Elevated tissue glucose levels in diabetes provide a good environment for gas-forming microbes. However, bacterial gas production does not fully explain the pathologic and clinical manifestations of emphysematous urinary tract infections.

Infections by gas-forming organisms like *E. coli*, Klebsiella, Proteus and Citrobacter species occur with increased frequency in patients with diabetes.[4]

However, cases of emphysematous prostatitis caused by *Enterobacter cloacae* are extremely rare, and are hardly mentioned in contemporary literature.

The treatment of empysematous prostatitis is based on antibiotics associated with collection drainage and this can be done by the transrectal route as in our case, or by the transperineal or transurethral route.

The transrectal and transperineal approaches are recommended in older patients in emergent conditions such as septic shock and with increased anesthetic risk. Transurethral resection of prostate (TURP) or transurethral incision of prostate (TUIP) is indicated if patient's condition can tolerate the procedure and general anesthesia.[4]

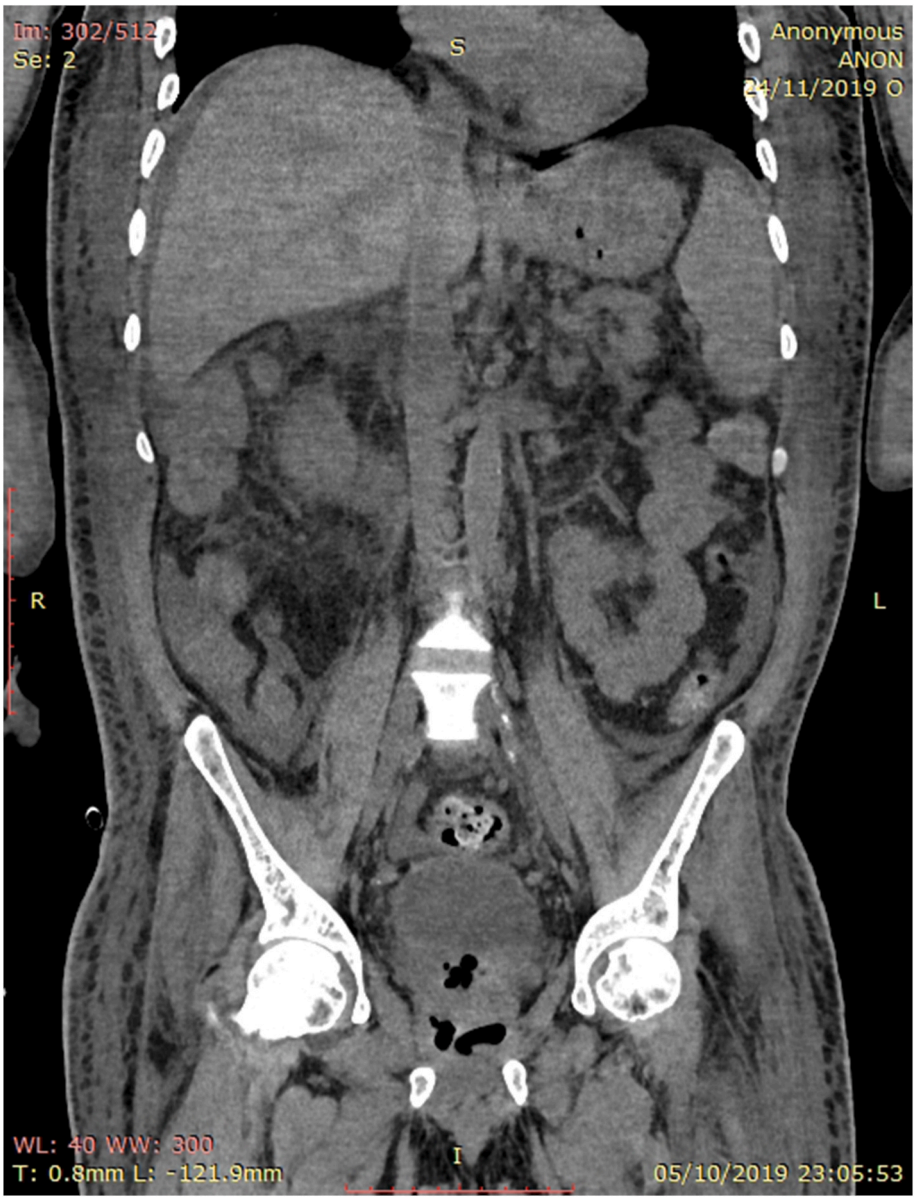

Fig. 2. Coronal abdominopelvic CT revealed a gas accumulation in the prostate gland.

Fig. 3. Sagittal section of the abdomino-pelvic scanner which shows the presence of gas in the prostatic parenchyma and which shows the suprapubic catheter.

As a general rule, in patients with complicated prostatitis of acute urine retention, as in the case of our patient, the urine must be drained by a suspubian catheter, because urethral instrumentation can worsen sepsis. However, in some cases where cystostomy is contraindicated, a transuretral catheter could be used carefully.[5]

For antibiotic therapy the use of third-generation cephalosporin or quinolone alone, or in combination with metronidazole or gentamicin, have been reported. Prolonged administration of antibiotics for 4–6 weeks is essential to completely eradicate the pathogens.[5]

Conclusion

Emphysematous prostatic abscess is an uncommon but relatively serious infectious disease that may cause complications if not diagnosed at an early stage and treated appropriately. The mortality rate is more than 30% according to the reported literature.In patients with DM and other associated risk factors, we should maintain a high degree of suspicion when they do not respond well to medical management, CT scan and transrectal ultrasound may help in making this difficult diagnosis.

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