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Review Article

Emphysematous Pyelonephritis and Cystitis Complicated by Pyonephrosis

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Abstract

The association of pyelonephritis and emphysematous cystitis is a rare pathology caused by gasogenic bacteria. the diagnosis is not easy and made by imaging. We report the case of a 63-year-old patient hospitalized in nephrology for acute renal failure discovered in a context of left hydronephrosis complicated by pyelonephritis. uroscanner revealed emphysematous pyelonephritis complicated by pyonephrosis and an emphysematous cyst. The patient receiving conservative treatment.

Keywords: Cystitis; Pathology; Pyonephrosis; Uroscanner; Emphysematous pyelonephritis cystitis

1. Introduction

Emphysematous pyelonephritis is an infection of the renal parenchyma characterized by the presence of air in the cavities and perirenal spaces most often of bacterial origin. Emphysematous pyelonephritis is a rare disease, first described by Kelly and Mac Callum in 1898 [1] and cystitis in 1961 by H. Bailey [2]. It is a medico-surgical emergency

because it can threaten the vital prognosis by the occurrence of septic shock. The diagnosis is made by imaging in front of urinary signs. The management is complex and in this situation a nephrectomy is most often necessary. The authors report a case of pyelonephritis and emphysematous cystitis in the same patient treated at Zinder National Hospital.

1.1. Observation

Harouna Mayaou is 63 years old, received as an outpatient for impaired kidney function discovered in a context of lumbar pain.

No medical and surgical history was reported. As for the history of the disease, the symptomatology dates back to about 10 days with lumbar pain, reason for which the patient consults in a clinic in the city of Zinder. He received antibiotic therapy with ceftriaxone. Biological explorations showed impaired renal function (creatinine level = 339 micromole / l and urea = 1.09 g / l), hyperleukocytosis at 20,000 / mm3 on the blood count and an Hb level at 14 g / dl. Faced with this AKI, the patient was referred and then hospitalized in the nephrology department. On admission, the general condition was satisfactory, there was good mucocutaneous discoloration and moderate dehydration. Blood pressure = 110/80 mmHg, heart rate = 109 /min and respiratory rate = 21 / min. He presented with an irritative syndrome made up of pollakiuria, micturition burning and urgency. The physical examination noted tenderness of the left lumbar fossa with positive lumbar contact and a positive Jordaneau sign.

The explorations noted:

- The urine dipstick: proteinuria = ++, hematuria = +++; Nitrites =0 and Leucocytes =++
- Cytobacteriological examination of urine = turbid urine with numerous leukocytes but the culture was sterile.
- CRP = 19.8 mg/l
- Kidney ultrasound= the right kidney measures 117 mm for the long axis and the left kidney 189 mm with dilation of the pyelocaliceal cavities

The patient is hospitalized to correct the dehydration with isotonic dirty serum 2 liters per day and the antibiotic therapy started with ceftriaxone 2 g per day, we added ofloxacin 200 mg at a rate of 200 mg morning and evening. The evolution is marked after 4 days of treatment by the disappearance of the clinical signs and the creatinine has returned to 82 micromol/l. Faced with this evolution, we requested a uroscanner which showed a left kidney with bumpy contours. Its pyelocaliceal cavities are dilated of liquid and aeric density. Its cortex, which is enhanced after injection of contrast product, is thinned and measures 3 mm. There is the presence of a 14 mm lower caliceal radiopaque stone. Absence of left renal secretion and excretion. We sent the patient to the urology department, and he received a ureteral stent. A reassessment will be made in 4 weeks for a possible nephrectomy or preservation of the kidney.

Figure 1: CT UROS: axial section without injection of contrast product, passing through the lower pole of the left kidney, showing major pyelocaliceal dilation, associated with lower caliceal lithiasis.

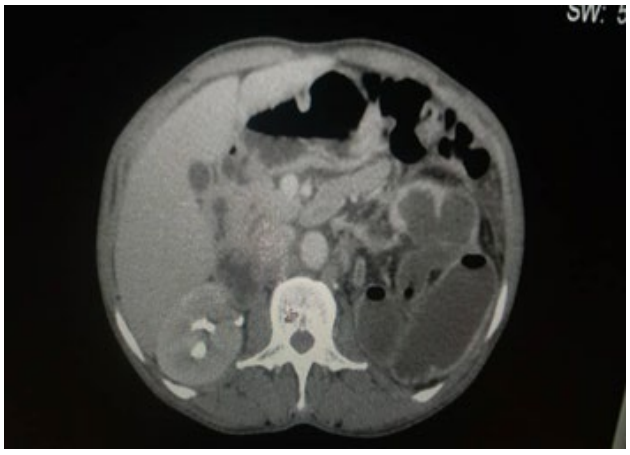

Figure 2: CT UROS: axial slice after injection of contrast product in the late phase showing left nephromegaly, seat of air bubble, without sign of excretion, while pyelocaliceal opacification of the right kidney is observed.

Figure 3: CT UROS: axial section after injection in the late phase, passing through the bladder showing the presence of air in the bladder.

2. Discussion

Emphysematous urinary tract infections are rare and very serious (in some cases). Non-aerobic gas-forming bacteria are the basis of these infections [3]. These are mainly emphysematous pyelonephritis and cystitis. They generally occur in the cases described on fragile ground such as diabetes and bladder neuropathy [2]. The particularity of our patient is the fact that he is not diabetic and that he was not in septic shock. This situation can be explained by the fact that he received early antibiotic therapy. This antibiotic therapy would also explain the absence of germs identified in the culture. In the series of the literature, in more than half of the cases the germ is found the occurrence of renal failure is a criterion of severity, in our context it is multifactorial (infectious and functional). The diagnosis is made by imaging, in particular the uroscanner, which explains the delay in diagnosis. For our observation we requested the uroscanner for the exploration of hydronephrosis in search of a ureteral obstacle in front of the clinical signs of pyelonephritis. In our patient there is no obstacle that could justify this hydronephrosis. But in the series published generally a ureteral lithiasis is found [1]. Management is based on dual antibiotic therapy guided by antibiogram. The urine must also be drained generally by placing ureteral stent [4]. As was the case with our patient. Conservative treatment is based on evaluation of the renal parenchyma. This evaluation allows in the case of non-functionality of the kidney to perform a nephrectomy [5].

3. Conclusion

Emphysematous infections of the urinary tract are rare and, in some cases, life-threatening. The diagnosis must be evoked in front of any severe urinary tract infection with gasogenic germs and confirmed by a uroscanner.

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