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Urology

Management of a Rare Emphysematous Pyelonephritis Complicated by a Large Retroperitoneal Collection

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Abstract **Case Report**

Emphysematous pyelonephritis is a diagnostic and therapeutic emergency, the management depends on the radiological classification of Hyaung and Tseng, the patient's condition and the presence of risk factors namely: thrombocytopenia, acute renal failure, shock and disturbances of consciousness.Conservative treatment based on antibiotic therapy, percutane drainage is most often indicated, and nephrectomy is reserved for severe forms. We report a case of rare emphysematous pyelonephritis complicated by a large retroperitoneal collection. The treatment was an antibiotherapy associated with percutaneous drainage and the evolution was favorable.

Keywords: Emphysematous -pyelonephritis - Retroperitoneal- collection- Drainage- emergency.

INTRODUCTION

Emphysematous pyelonephritis is a necrotic infection of the kidney characterized by the presence of gas within the renal parenchyma, excretory cavities or peri-renal spaces. Management must be rapid and urgent to avoid serious complications that could be life threatening to the patient. We report our management of emphysematous pyelonephritis complicated by a large retroperitoneal collection with good progress.

OBSERVATION

60-year-old man, chronic tobacco user, has severe febrile low back pain and deterioration of the general condition for a week associated with abdominal distension motivating the patient to consult the emergency room. On examination, he was a conscious patient, her initial vital signs indicated a blood pressure of 120/80 mmHg, heart rate of 70 beats per minute, temperature of 38.9 °C, and respiratory rate of 18 breaths per minute. Physical examination on admission was in favor a right lumbar fossa sensitive to palpation, with diffuse abdominal distension and palpation of a recurrent, mobile mass extending from the right hypochondrium to the right iliac fossa (Figure 1).

Figure 1: Diffuse abdominal distension

Pelvic touches and lymph node examination was normal. Laboratory tests revealed a white blood cell count of 19.000/mm3, hemoglobin level of 12 g/dl, platelet count of 180.000/mm3, normal kidney function and high fasting blood sugar and HBA1C. Abdominal computed tomography (CT) revealed the presence of a large posterior para-renal collection, hypodense, air bubble seat measuring 112 * 100mm axially extended over 146 mm with infiltration of fat all around

associated with a second collection liquid, extra-peritoneal, extending from the right hypochondrium to the right iliac fossa, similarly characteristic of that described above, measuring 188 * 164mm extended over 260mm, without obvious obstruction (Figure 2).

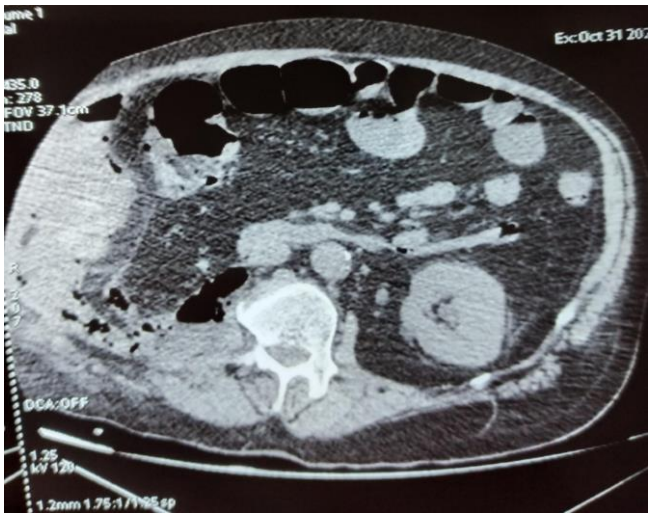

Figure 2: Emphysematous pyelonephritis with a large peri renal and retroperitoneal collection and air

The management was emergency hospitalization, rehydration, insulin therapy after endocrinology advice, tri-antibiotic therapy (ceftriaxon, aminoglycoside and imidazole), and drainage of the para-renal collection by a nephrostomy tube and of the second collection by a Joly drain.

The evolution was favorable with an improvement clinically and biologically, the two drainage tube were functional (nephrostomy probe = 600 cc and JOLY probe = 900cc on D1) bringing back a citrusyellow liquid. A bacteriological and chemical study was carried out which revealed a multi-sensitive germ (Escherchia.coli), the search for BK in the collection and the urine was negative and the HIV and hepatitis serologies were negative. A second abdominal computed tomography (CT) after a week was done and which showed a reduction in volume of the right posterior pararenal and extraperitoneal collections with disappearance of the intra-renal air and excretory tracts of the right kidney and persistence of a few air bubbles in the retroperitoneal collection (Figure 3).

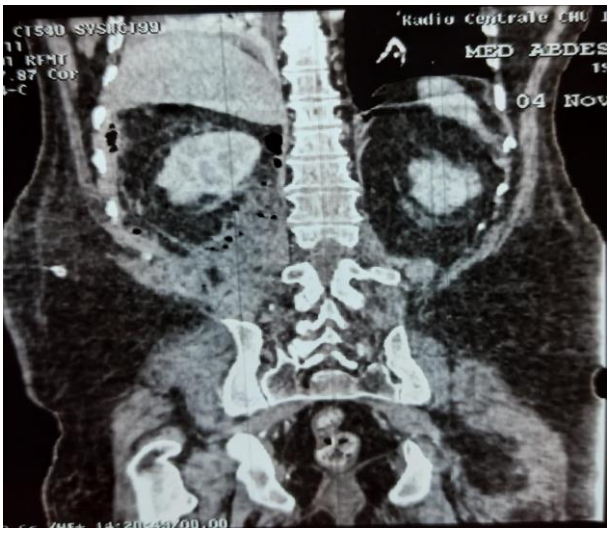

Figure 3: Significant reduction in the large peri renal and retroperitoneal collection, with disappearance of air bubbles from the renal compartment and persistence of a few air bubbles in the retroperitoneal collection

DISCUSSION

Emphysematous pyelonephritis is a rare and serious condition that can be life-threatening through multiple visceral failure and septic shock, it mainly affects diabetic patients in 90% of cases and Escherchia. Coli is the germ most often identified [1]. In most of the series, emphysematous pyelonephritis mainly concerns women with glycemic imbalance and the left kidney was more often affected than the right

kidney [2]. In our case, the patient was a male with glycemic imbalance and the emphysematous pyelonephritis was in the right renal compartment.

The pathophysiology of emphysematous pyelonephritis involves four factors: poor tissue perfusion, high glucose level, the presence of an anaerobic germ and the presence of immunosuppression. The obstruction of the excretory tracts constitutes a factor of aggravation of the emphysematous pyelonephritis because it causes on the one hand, an increase of the intra renal pressure which will be responsible for the worsening of the poor renal tissue perfusion, and on the other hand, obstruction of the excretory pathways leads to stasis of the urine favoring the bacterial multiplication [3].

In our case, the patient did not have an obstruction of the excretory tract. The clinical signs of emphysematous pyelonephritis are nonspecific, but it is usually febrile low back pain sometimes associated with abdominal pain and clinical examination showing tender lumbar fossa and sometimes even impasto or crepitation. Hyperleukocytosis is not always present and patients with diabetic neuropathy are most likely to have a severe form of emphysematous pyelonephritis [1].

The abdominal computed tomography (CT) is the gold standard for the positive diagnosis of emphysematous pyelonephritis and allows the identification of gases in the kidney and peri-renal space. Huang and Tseng have established the most widely used classification of emphysematous pyelonephritis in four radiological stages, depending on the localization of gases in the renal compartment, has a prognostic value and allows therapeutic management [4].

In our case, emphysematous pyelonephritis is classified as stage 3B due to the presence of gas and a large pararenal collection. The therapeutic management depends on the clinical state of the patient, the radiological classification of Hyaung and Tseng and the presence of risk factors namely: thrombocytopenia, acute renal failure, state of shock and disorders of consciousness. Thus, if the patient is hemodynamically and respiratory unstable, he must urgently receive intensive care. If the patient is stable, according to the radiological classification of Hyaung and Tseng, percutaneous drainage and / or the removal of an obstruction combined with antibiotic therapy would give good results for class 1 and 2 emphysematous pyelonephritis, percutaneous drainage combined with antibiotic therapy would be the first-line treatment for class 3 and 4 emphysematous pyelonephritis with at least 2 risk factors, while nephrectomy should be performed quickly for severe forms of extensive emphysematous pyelonephritis (class 3 or 4) with more than 2 factors of risk [1].

In our case, emphysematous pyelonephritis was classified as stage 3 B, without the presence of a risk factor, the patient benefited from percutaneous drainage combined with an antibiotherapy treatment with good clinical and biological progress.

CONCLUSION

Emphysematous pyelonephritis is a diagnostic and therapeutic emergency, abdominal computed tomography (CT) plays an essential role in the positive diagnosis allowing a radiological classification.

Conservative treatment, combining percutaneous drainage and antibiotic therapy, is most often indicated and nephrectomy is only indicated for severe forms of extensive emphysematous pyelonephritis.

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