

# Renal abscess with fistula to the spleen

## Absceso renal con fístula a bazo

Manuel Alejandro Meza-Jasso,\* Stephanie Serrano-Collazos,† Andrés Reyes-Aranda§

### Keywords:

renal abscess, fistula, pyelonephritis, spleen.

### Palabras clave:

absceso renal, fístula, pielonefritis, bazo.

### ABSTRACT

Renal abscesses are an accumulation of pus in the renal parenchyma. They are rare and potentially fatal, related to risk factors and comorbidities mainly to renal lithiasis, diabetes mellitus, urinary anatomical alterations, and complicated pyelonephritis, among other factors, with bacteriological isolation mainly of *Escherichia coli*, in addition to other bacteria such as *Staphylococcus aureus* and *Klebsiella pneumoniae*. They represent 0.2% of all intra-abdominal abscesses, and 10% of renal abscesses are complicated with spontaneous rupture, sepsis, and shock as the most severe consequences; they have an incidence of two to four cases per 10,000 people per year. They have a very vague clinical presentation, and the diagnostic suspicion is generally delayed, so it is common to be discovered when they present significant progress in their pathogenesis, requiring more intensive management. We present the case of a young, healthy patient with no other risk factors, such as malformations or comorbidities, who developed a renal abscess secondary to pyelonephritis, unusually complicated with fistulation to the spleen.

### RESUMEN

Los abscesos renales son una acumulación de pus en el parénquima renal, son raros y potencialmente mortales, relacionados a factores de riesgo y comorbilidades principalmente a litiasis renal, diabetes mellitus, alteraciones anatómicas urinarias, pielonefritis complicadas, entre otros factores; con aislamiento bacteriológico principalmente de *Escherichia coli*, además de otras bacterias como *Staphylococcus aureus* y *Klebsiella pneumoniae*. Representan 0.2% de todos los abscesos intraabdominales y 10% de los abscesos renales se complican con ruptura espontánea, sepsis y choque como consecuencias más graves, tienen una incidencia de dos a cuatro casos por cada 10,000 personas al año. Tienen una presentación clínica muy vaga y generalmente la sospecha diagnóstica se retrasa, por lo que es común sean descubiertos cuando ya presentan un avance significativo de su patogenia, siendo necesario manejo más intensivo. Se presenta el caso de una paciente joven, sana y sin otros factores de riesgo como malformaciones o comorbilidades, que presentó un absceso renal secundario a pielonefritis complicándose inusualmente con fistulización hacia bazo.

\* General surgeon.  
Attending physician  
ascribed to the General  
Surgery Service.

† General surgeon.

§ Second-year resident  
physician of the General  
Surgery Specialty.

Hospital General de  
Zona No. 3 San Juan del  
Río, Instituto Mexicano  
del Seguro Social.  
Querétaro, Mexico.

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## INTRODUCTION

Renal abscesses are an infectious pathology defined as an accumulation of pus encapsulated and confined in the renal parenchyma. They are rare entities because not all cases are reported, and the need for complementary examinations for their identification is not available in all centers; they are potentially mortal due to their anatomical location, delay in diagnosis, late establishment of treatment, and affection of renal function (1-14%)<sup>1,2</sup> which are commonly related to renal lithiasis (48%),<sup>1</sup>

diabetes (38%),<sup>1,2</sup> anatomical alterations of the urinary tract (13.3%),<sup>1</sup> and secondary to complicated pyelonephritis (14.3%),<sup>1</sup> among other causes, with bacterial isolation as the primary causal agent, mainly *E. coli* (54%), *S. aureus* and *K. pneumoniae*.<sup>1,3</sup> They have a low incidence due to those factors mentioned above, which rarely occur without risk factors and other pathologies (1.1 cases per 10,000 people without risk factors and 4.6 per 10,000 people with diabetes).<sup>4-6</sup> Their prevalence is higher in Asian populations, although the pathology has not been studied or reported in the rest of the world. It has

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also been related to dietary habits, although an established relationship has yet to be demonstrated.<sup>1</sup> A clinical case of clinical progression and a review of the published literature regarding renal abscesses and their complications are presented.

### PRESENTATION OF THE CASE

We present the case of a 40-year-old previously healthy woman with a history of two previous cesarean sections in 2004 and 2007, denying other history and morbidities; one month before her hospitalization, she was transfused for anemia. The details, diagnosis, or medical studies performed are unknown. She also had a weight loss of 8 kg, pain in the left hypochondrium with irradiation to the back, colicky pain that worsened on the inspiration during three months of evolution, with a presentation that fluctuated over time with greater intensity and that subsided spontaneously or with self-medicated analgesics such as paracetamol and ibuprofen. Shortly before her medical evaluation, she reported that dyspnea of medium efforts was added. She went to a private clinic when she

presented an aggravation of the symptoms with the presence of pain, but with greater intensity than usual, nausea without vomiting, anorexia, adynamic, and sensation of thermal rise without acute measurement; during her medical evaluation, a simple tomography of the thorax and abdomen was performed where a left pleural effusion of 20% and a probable left renal abscess with extension to the spleen were found without further medical data specified by the patient; there is no medical summary of this event.

On admission to our hospital, she was conscious; her vital signs showed a blood pressure of 90/60 mmHg, heart rate of 92 beats per minute, respiratory rate of 18 breaths per minute, peripheral oximetry with ambient air saturation of 90%, temperature on admission of 37.6 °C, which during his management in the emergency room averaged 38 °C. The physical examination showed basal hypoventilation of the left lung and pain in the left hypochondrium and epigastrium without peritoneal irritation or muscle resistance. The rest of the physical examination was without alterations or data relevant to the clinical picture. Laboratory tests showed hemoglobin 10.5 mg/dl, hematocrit 29.4%, white blood cells 8,800/ $\mu$ l, neutrophils 78%, lymphocytes 14.8%, fibrinogen 597 mg/dl, alkaline phosphatase 119 IU/l, lactate dehydrogenase 191 IU/L, lipase 117 U/l and C-reactive protein 37.5 mg/l, and creatinine 0.7 mg/dl. The urinalysis showed amber urine with pH 5, leukocyte esterase 500 cells/ $\mu$ l, protein 25 mg/dl, 10-15 erythrocytes per field, leukocytes 25-30/field, and abundant bacteria. A new contrasted abdominal tomography scan showed a 20% left pleural effusion, a kidney with cysts communicating with the spleen, and splenomegaly with abscesses inside (*Figure 1*). She had clinical deterioration six hours after admission with decreased blood pressure, maintaining mean arterial pressures between 60-70 mmHg, tachycardia with 110 to 120 beats per minute within the average range, diaphoresis, persistent and increased abdominal pain, so it was decided to urgently admit the patient to the operating room to perform an exploratory laparotomy. The left retroperitoneal space was checked with the Cattell-Braasch maneuver, finding an intense perisplenic



**Figure 1:** Coronal section of a simple abdominal CT scan coronal section: the left kidney with a lesion in the upper pole communicating to the spleen with fluid inside is seen.

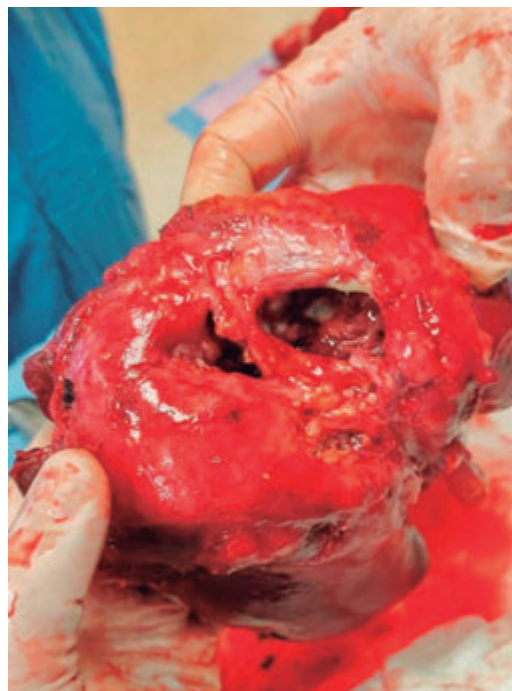


**Figure 2:** Anatomical pieces extracted during surgery. The left kidney is seen adhered to the spleen.

inflammatory reaction and adhesions between the spleen and left diaphragm, liver, kidney, and retroperitoneal area; the left kidney had a loss of anatomy in the upper pole with abscessed cysts and communicated with the spleen with the presence of an abscess inside (Figures 2 and 3). Splenectomy and *en bloc* nephrectomy were performed; pus was found inside both pieces and sent to pathology for study, and a Penrose-type drain was placed and directed to the surgical bed. In the histopathological examination, both organs were found adhered with irregular edges, abscessed areas, congestion, and fibrinopurulent material. In conclusion, a left kidney with abscessed acute pyogenic pyelonephritis (renal and splenic pyogenic abscesses) negative for malignancy was found.

The patient continued to evolve post-surgery for ten days in the hospital, in good general condition, with vital signs in adequate ranges, afebrile during his stay, treated with double analgesic drugs (paracetamol and tramadol), antibiotic therapy with imipenem during her stay,

with Penrose drainage that was maintained with minimal serohematic output with a progressive decrease (from 80 ml the first day after surgery and 30 ml the last day) and was withdrawn on the sixth day of the operation. She presented adequate tolerance to the oral diet that evolved progressively, with creatinine and urea control in normal ranges (highest creatinine 1.6 mg/dl and highest urea 56 mg/dl) being evaluated by the nephrology service with subsequent referral to their ambulatory office without requiring management by nephrology at this time. The patient attended a follow-up appointment one month after discharge, reporting minimal pain in the wound and surgical region, with healed wounds and no signs of infection, with tolerance to regular oral diet, with standard and frequent bowel movements and urination, asymptomatic, presenting general control lab tests all in normal ranges (creatinine 1.1 mg/dl, urea 28 mg/dl). After this consultation, the patient did not attend again.



**Figure 3:** Anatomical pieces extracted during surgery. Both organs are seen to be communicated by an abscess.

## DISCUSSION

Renal abscesses are an infrequent pathology,<sup>1,2,7</sup> because they are underreported due to their vague clinical presentation, low diagnostic suspicion, and the need for complementary tests for their identification. Its incidence varies between 2.24-4.6 cases per 10,000 people per year.<sup>3,4</sup> Abscess formation generally occurs in the context of pyelonephritis in the majority of cases; it usually occurs more frequently in patients who also present other risk factors such as vesicoureteral reflux or renal lithiasis,<sup>5,6</sup> in addition to accompanying pathologies and other conditions that contribute to its development as has already been mentioned, mainly with comorbidities such as diabetes and the sum of several of them.<sup>7-9</sup> It rarely presents without risk factors and anatomical abnormalities.<sup>1,7,10</sup> The diagnostic possibility should be considered in the presence of a patient with risk factors or urinary symptoms. Once the clinical suspicion is established, the diagnostic approach should be completed with contrasted tomography to evaluate the presence of the abscess characteristics and plan the drainage or surgical treatment. Treatment with antibiotic therapy should be started immediately since its progression represents a high risk of morbimortality, with an increased risk of infection progression with renal function impairment, the possibility of shock, and other complications.<sup>1,4,5</sup> This is an infrequent pathology, as has been previously mentioned. We present this case since we consider it of interest and relevance as a contribution to the medical literature and current epidemiology due to its peculiarity since the patient did not have risk factors to develop a renal abscess, much less complications given the particularity in which it progressed. There are few reports in the medical literature of cases that have been complicated in a particular way to other organs, such as the lung; however, no other reports of abscesses that have been complicated with fistulation to the spleen were found, so this is a peculiar case.

## CONCLUSIONS

Renal abscesses represent an infectious pathology not very frequent, which is why they should be considered as a differential diagnosis in similar cases or the approach of a case with urinary tract infection of complex control, aggressive presentation, and delicate clinical condition, as well as to be referred promptly if necessary. They can present a high morbimortality rate when they appear and can be complicated with the involvement of other adjacent organs and systems, as described in the literature, deteriorating the quality of life of the affected person, or even causing death if not treated timely and effectively. It should be treated by a multidisciplinary team, usually requiring hospitalization and specialty assessment. We must also raise awareness about the rational use of bacterial resistance and the indiscriminate use of antibiotics since this may be a factor in the future presentation of more renal abscesses with greater severity, ineffective non-medical treatment, and aggressive clinical manifestations that may compromise a more significant number of cases. Whenever necessary, surgical treatment should not be delayed.

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## REFERENCES

1. Liu XQ, Wang CC, Liu YB, Liu K. Renal and perinephric abscesses in West China Hospital: 10-year retrospective-descriptive study. *World J Nephrol.* 2016; 5: 108-114.
2. Yamamichi F, Shigemura K, Kitagawa K, Arakawa S, Tokimatsu I, Fujisawa M. Should we change the initial treatment of renal or retroperitoneal abscesses in high-risk patients? *Urol Int (Basel).* 2017; 98: 222-227.
3. Argüello RV, Dalton CK, Hernández VD, et al. Renal abscesses. *Acta Med.* 2020; 18: 216-217. doi: 10.35366/93904.
4. Carrillo-Córdova L, Sarabia-Estrada R, Jiménez-Villavicencio J, Vitar-Sandoval J, Rivera-Astorga H, Lemus-Mena G, et al. Relevance of the history of perirenal abscess in patients undergoing simple retroperitoneal nephrectomy. *Urol Colomb.* 2018; 27: 282-286.
5. Fullá J, Storme O, Fica A, Varas MA, Flores J, Marchant F, et al. Renal and perinephric abscesses:

- a series of 44 cases. *Rev Chilena Infectol.* 2009; 26: 445-451.
6. Ko MC, Liu CC, Liu CK, Woung LC, Chen HF, Su HF, et al. Incidence of renal and perinephric abscess in diabetic patients: a population-based national study. *Epidemiol Infect.* 2011; 139: 229-235.
  7. Tang RY, Cheong BM. Multiple bilateral renal abscesses in a previously healthy young patient. *Med J Malaysia.* 2017; 72: 250-251.
  8. Lai SW, Lin HF, Lin CL, Liao KF. Splenectomy and risk of renal and perinephric abscesses: A population-based cohort study in Taiwan. *Medicine (Baltimore).* 2016; 95: e4438.
  9. Dubbs SB, Sommerkamp SK. Evaluation and management of urinary tract infection in the emergency department. *Emerg Med Clin North Am.* 2019; 37: 707-723.
  10. Rubilotta E, Balzarro M, Lacola V, Sarti A, Porcaro AB, Artibani W. Current clinical management of renal and perinephric abscesses: a literature review. *Urologia.* 2014; 81: 144-147.

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**Correspondence:**

**Manuel Alejandro Meza-Jasso**

**E-mail:** manuelmezza90@gmail.com