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Reno-Colic and Reno-Psoas Fistula in Renal Tuberculosis: Case Report

Dr. Shiyam Sundaran P[1],*Dr. P Manasa[2], Dr. Baskar A[3],Dr. Isha Shah[4]
Postgraduate Resident, Department of Radiology, Sree BalajiMedical College and Hospital, Chrompet, Chennai, Tamil Nadu, India. Email ID: 11shiyam96@gmail.com
Postgraduate Resident, Department of Radiology, Sree BalajiMedical College and Hospital, Chrompet, Chennai, Tamil Nadu, India. Email ID:manasagupta95@gmail.com
Assistant Professor, Department of Radiology, Sree BalajiMedical College and Hospital, Chrompet, Chennai, Tamil Nadu, India. Email ID: baskaranbu1992@gmail.com
Postgraduate Resident, Department of Radiology, Sree BalajiMedical College and Hospital, Chrompet, Chennai, Tamil Nadu, India. Email ID:ishah.95@gmail.com
Corresponding Author: Dr. P Manasa
Email ID: manasagupta95@gmail.com

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Abstract
Renal tuberculosis poses diagnostic challenges due to diverse clinical presentations and varied radiographic findings. We present a 68-year-old male with chronic tuberculous infection evident on contrast-enhanced CT. Imaging revealed a contracted left kidney with perinephric fat stranding, hypodense areas, and retroperitoneal lymphadenopathy. Fistulous tracts between the upper pole of the left kidney and adjacent structures indicated tuberculous kidney with reno-colic and reno-psoas fistulous changes, complicated by Pott's spine. This underscores the need to consider renal tuberculosis in patients with nonspecific symptoms and suggestive imaging, highlighting prompt multidisciplinary management for optimal outcomes.
Keywords: Renal tuberculosis, Reno-colic fistula, Reno-psoas fistula

Introduction

Renal tuberculosis (TB), a type of genitourinary TB, constitutes 15-20% of extrapulmonary TB cases and can produce a range of distinctive radiographic findings. This disease can affect both the "renal parenchyma and the urinary collecting system", along with the calyces, renal pelvis, ureter, bladder, and urethra, leading to diverse clinical manifestations and imaging appearances[1]. The renal system is the second most frequently impacted region by extrapulmonary TB. Because of the varied and unusual clinical presentations of urinary TB, it is often easily misdiagnosed[2].

Typically, tuberculous granulomas originate in the kidneys and can transfer to the ureters, bladder, and testicles. There can be a significant delay among the early infection and the finding of urogenital TB. Early stages of "granulomatous kidney disease might present with proteinuria, pyuria, and impaired kidney function", while isolated hematuria is additional potential indication of renal TB. When the infection spreads to the ureters and bladder, it can lead to the development of lower urinary tract symptoms. Indications resembling those of a urinary tract infection, such as pyuria and hematuria without bacterial development, may indicate the presence of urogenital TB. In advanced cases, the disease can lead to "obstructive

uropathy", bladder imperfections, and further kidney function deterioration[3]. Imaging approaches like "ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI)" can show significant distortions in the ureters, including alternating narrow and dilated segments, reduced bladder volume, hydronephrosis, and kidney shrinkage[4]. "Intravenous urography" might show gobletalteration or cavities indicative of "pelvic TB lesions" and impaired function of the right kidney[5]. While the primary appearance of renal TB can be subtle and broad-based, complications such as fistula formation can lead to complex clinical scenarios. Fistulas between the kidney and adjacent structures, such as the colon and psoas muscle, are rare but serious manifestations of advanced renal TB[6,7]. These fistulous tracts can result in a myriad of clinical symptoms and pose considerable diagnostic and therapeutic challenges. Here we present a case report of a 68-year-old male indicative of chronic tuberculous infection [8].

Case presentation

A 68-year-old male underwent a "contrast-enhanced CT" scan of the abdomen and pelvis, revealing significant findings indicative of chronic tuberculous infection. The left kidney was contracted with perinephric fat stranding, multiple small hypodense non-enhancing areas in the upper pole, parenchymal calcifications, and mild dilatation of the pelvicalyceal system and upper ureter due to an upper ureteral calculus. Notably, there was non-opacification of the left pelvicalyceal system and ureter even on a 15-minute delayed scan (figure 1).

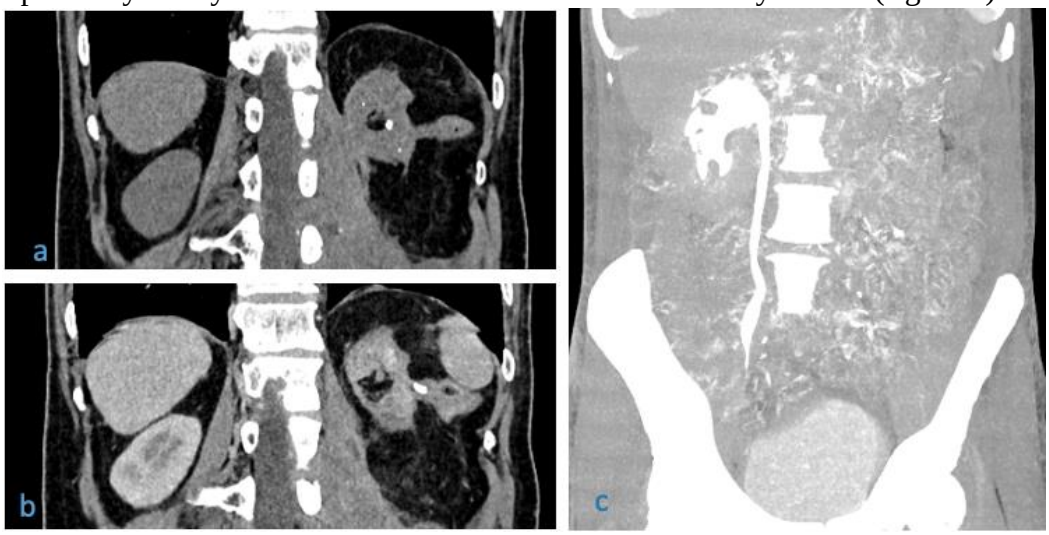

Figure 1: CT coronal

Legend: (a) Non-contrast, (b) Arterial phase, and (c) 15-min delayed MIP image shows Contracted left kidney with perinephric fat stranding and multiple small hypodense non-enhancing areas noted in the upper pole of left kidney with few parenchymal calcifications. Non-opacification of left pelvicalyceal system and ureter on 15-minute delayed scan

Two fistulous tracts were identified: one between the upper pole of the left kidney and the splenic flexure of the colon containing a radiodense calculus, and another between the upper pole of the left kidney and an adjacent left psoas collection at the L1 vertebral level, with evidence of a radiodense calculus within the left psoas collection at the L2-L3 intervertebral level. Retroperitoneal lymphadenopathy was present. Additionally, there was sclerosis and bony destruction involving the left lateral aspects of D12, L1, L2, the entire L3 vertebral body, left transverse processes of L1 and L2, and the inferior end plate of L4, along with loculated hypodense non-enhancing areas along the left psoas and iliacus muscles, suggestive of spondylodiscitis with a left ilio-psoas abscess (Pott's spine) (figure 2).

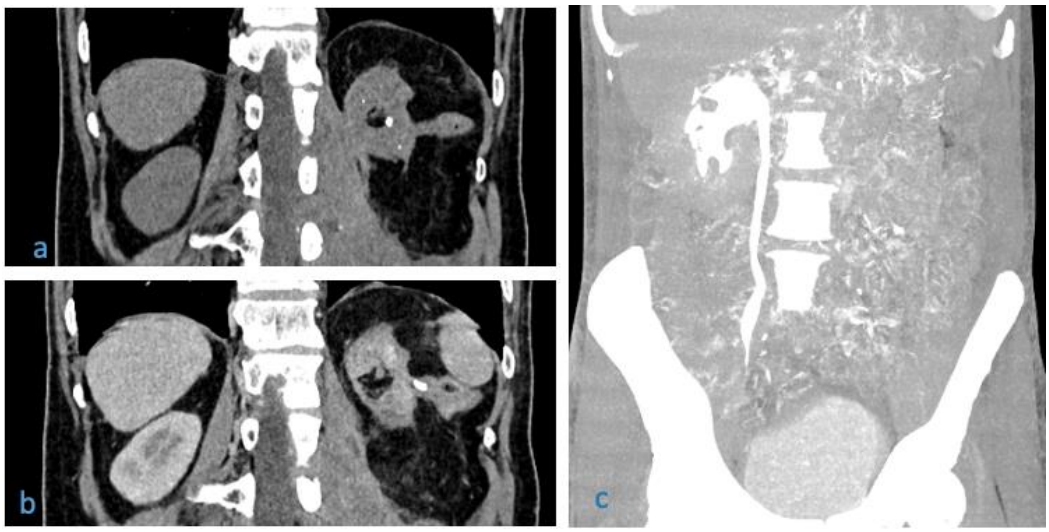

Figure 2: CT Scan

(d) and (e) coronal non-contrast and shows a fistulous tract between the upper pole of the left kidney and adjacent left psoas collection (L1 vertebral level) with radiodense calculus in the left psoas collection at L2-L3 intervertebral level. Another fistulous tract between the upper pole of the left kidney and splenic flexure of the colon with a radiodense calculus within the tract. (f) Sag CT lumbar spine shows sclerosis with bony destruction in the L1 and L2 vertebral bodies, the entire L3 vertebral body, and the inferior end plate of the L4 vertebral body.

These features collectively suggest a diagnosis of tuberculous kidney with reno-colic and reno-psoas fistulous changes, complicated by Pott's spine. The patient requires immediate initiation of anti-tuberculous therapy and multidisciplinary management involving surgical and infectious disease consultations.

Discussion:

Urinary TB ranks as the second most frequently impacted area in extrapulmonary TB cases. Owing to its varied and atypical clinical presentations, urinary TB often poses challenges in accurate diagnosis. Typical TB symptoms like elevated body temperature, reduction in body mass, and nocturnal diaphoresis are rare in cases of urinary TB. Instead, the clinical signs of urinary TB are not specific, including symptoms such as pain in the back, sides, and lower abdomen, blood in the urine, increased frequency of urination, and waking up at night to urinate. These symptoms can also be indicative of a predictable"bacterial urinary tract infection". In a Nigerian study involving 31 individuals with genitourinary TB, 51.6% experienced fever, 22.6% had dysuria, while others reported symptoms such as "back, loin, or abdominal pain/tenderness". Suspicions of TB should be raised, especially in cases of sterile pyuria or when a response is absent to standard antibiotic treatments[2].In cases of renal TB, fibrosis may lead to "strictures in the calyceal stem or at the pelviureteral junction", potentially resulting in the development of chronic abscesses within the parenchymal tissue. Nevertheless, an extension of a tubercular renal eruption to the pararenal space outside "Gerota's fascia" is uncommon[7]. Specifically, the occurrence of a "psoas abscess"inferior to renal TB has been documented in only one prior study, which was authored in Italian[9].

The occurrence of fistulous connections between the kidney and the digestive tract is infrequent, with approximately 130 reported cases in total. Among these, "reno-colic fistulas" are the highly prevalent[10]. The ascending and descending colon are the most commonly exaggerated regions, while occurrences involving the "sigmoid colon and the caecum" have also been documented. The earliest recorded case is attributed to Hippocrates in 460 BC[11].

About 10% of cases exhibit associated cutaneous extensions. Etiologically, these fistulas are categorized as traumatic or spontaneous, with traumatic instances being rare and typically iatrogenic, following surgical procedures. Spontaneous reno-colic fistulas typically arise from primary renal pathologies, most commonly renal TB or calculous pyonephrosis. Other causative factors include "non-calculous pyonephrosis, perinephric abscess, and hydronephrosis rupture". "Renal cancer and papillary necrosis" have been identified in a minority of instances. Clinical manifestations of reno-colic fistulas are seldom diagnostic, however,"pneumaturia and pyuria" may arise. Analysis is primarily radiological, typically through "barium enema or retrograde pyelogram"because of their ability to generate higher pressures compared to the renal collecting systems on intravenous urography. Occasionally, CT scans or fistulograms are employed for diagnosis, particularly in cases with cutaneous extension. In the majority of instances, the affected kidney exhibits non-functionality on excretion urography[6].

Conclusion

This case highlights the need to consider renal TB in subjects with nonspecific symptoms and suggestive imaging findings. The presence of reno-colic and reno-psoas fistulas, along with spinal involvement, underscores the complexity and potential complications of renal TB. Multidisciplinary management, including TB medication, surgical intervention, and supportive care, is crucial for optimal outcomes. Increased awareness and research are necessary to enhance the early detection and treatment of renal TB and its complications.

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