Renal tuberculosis mimicking renal malignancy in Sudanese adolescence

Sami Mahjoub Taha a, Yassin Mohammed Osman b, Ali El Naeim c, Mogahed Ismail Hassan Hussein d,⁎, Elgaili Mohamed e, Asma Mohammed Warrag Omer f

a University of Gezira, Faculty of Medicine, Surgery Department, Wad Medani, Sudan
b University of El Managil, Faculty of Medicine, Surgery Department, Gezira, Sudan
c Gezira Hospital of Renal Disease and Surgery, Surgery Department, Wad Medani, Sudan
d University of Gezira, Faculty of Medicine, Anesthesiology Department, Wad Medani, Sudan
e University of Gezira, Faculty of Medicine, Pathology Department, Wad Medani, Sudan
f University of Gezira, National Cancer Institute, Sudan

ABSTRACT

INTRODUCTION: Renal tuberculosis (RTB) has no specific presentation and symptoms can be absent in up to 8% of cases in developing countries. Most patients present with symptoms like fever, burning micturition, pyuria, weight loss, and loin pain. In very rare occasions RTB can present as a renal mass mimicking renal cell carcinoma RCC.

CASE REPORT: We report a case that was initially diagnosed as renal cell carcinoma and histopathology revealed renal tuberculosis.

DISCUSSION: Tuberculosis is more common than renal cell carcinoma, the WHO states that 1 in every three individuals have TB worldwide, but something to keep in mind is that the incidence of RCC is increasing by the rate of 1% since the year 2006. Hence uncommon presentations of common diseases are more common than common presentations of uncommon diseases, then when doctors encounter a patient who is presenting with renal mass especially in countries that are endemic with TB a probability of uncommon presentation of UGTB should be considered to avoid missing the chance of treating a medically curable condition.

Most of the reported cases in the literature about pseudo tumor presentation of UGTB indicate that most of the cases presented with unilateral mass mimicking RCC and TB is detected after radical nephrectomy.

CONCLUSION: RTB can mimics RCC clinically and radiologically, which creates a diagnostic challenge. The chance of diagnosing renal TB in a patient presenting with renal mass is extremely lower than the chance of missing it for RCC, this because of the lack of evidence-based diagnostic approaches.

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1. Case report

We report a case in line with the SCARE criteria [1]. A case of a 19 years old high secondary school student from western Sudan who was presented with right loin pain and weight loss for two months, he complains of intermittent low-grade fever, and fatigue, there was no hematuria, night sweating, cough or history of contact with a patient of tuberculosis. On abdominal examination, he was cachexic, not pale or jaundiced, the right kidney was bimanually palpable, temperature was 37.1 °C, blood pressure 110/70 mmHg, and pulse rate regular at 76 beats/min. Laboratory investigations revealed hemoglobin of 9 g/dl, total leukocyte count 12,200 C/mm3, and elevated erythrocyte sedimentation rate of 95 mm/hr. Renal function test and other biological investigation results were normal.

Urinalysis demonstrated acidic pH, leukocytes 1+, protein nil, erythrocytes 1+, nil leukocyte casts, and negative culture of the urine for pyogenic agents.

CT urography revealed right-solid mass involving the entire kidney and shows heterogeneous enhancement with multiple enlarged para-aortic lymph nodes, the lesion was suggestive of renal cell carcinoma. The urinary bladder was normal. Both ureters were normal as well as the left kidney and no hydronephrosis (Figs. 1 and 2). Considering the clinical presentation as well as laboratory and radiological investigations, a provisional diagnosis of renal cell carcinoma was made, and the patient underwent an open right radical nephrectomy through the right para–median incision using the trans-peritoneum approach. Intraoperative findings were normal peritoneum, liver and bowel. The right kidney
was completely involved and mobile. Radical nephrectomy was done and the specimen was sent for histopathological examination. The patient’s postoperative course was uneventful. The patient was discharged on the third day, he came after 7 days for follow up, his relatives noticed right-side weakness and accordingly CT brain was requested. It revealed features of brain abscess and surprisingly, histopathological examination of the specimen revealed microscopic features tubercles granuloma (Figs. 3–5). In concordance with the previous histopathology tuberculous brain abscess was highly suspicious. The patient was referred to the neurosurgery department where a decision of drainage was taken. PCR confirmed TB. The patient received antituberculous and continue to follow up with the neurosurgery department.

2. Discussion

Urogenital tuberculosis (UGTB) is the second most common presentation of extra-pulmonary TB with an incidence of 30%–40%, and it comes second to TB of lymph nodes [2]. The occurrence of UGTB among patients with pulmonary TB varies from 2% to 20% depending on the country of residence, about 2%–10% in the developed countries and it increases up to 20% in developing countries [3,4].

Renal tuberculosis RTB has no specific presentation and symptoms can be absent in up to 8% of cases in developing countries [2]. Most patients present with symptoms like fever, burning micturition, pyuria, weight loss, and loin pain. In very rare occasions RTB can present as a renal mass mimicking renal cell carcinoma RCC [5].

When UGTB manifests as the renal mass it is called pseudo tumor type and it may present in two ways: one with only multiple parenchymal nodules in the kidney and no urinary tract involvement, histopathology shows well-defined nodules that vary in size [5], this type might be confused with renal hydatid cyst or xanthogranulomatous pyelonephritis. The other way UGTB may present with is as a nodular parenchymal disease that mimics RCC clinically and radiologically [2].

Tuberculosis is far more common than renal cell carcinoma, the WHO states that 1 in every three individuals have TB worldwide, but something to keep in mind is that the incidence of RCC is increasing by the rate of 1% since the year 2006. Hence uncommon presentations of common diseases are more common than common presentations of uncommon diseases, then when doctors encounter a patient who is presenting with renal mass especially in countries that are endemic with TB a probability of uncommon presentation of UGTB should be considered to avoid missing the chance.
of treating a medically curable condition. RCC is not an uncommon
disease when it is considered alone but in comparison with TB it is,
and even renal mass is not a common presentation of RCC and only
occur in one-fourth of the patients.

Most of the reported cases in the literature about pseudo tumor
presentation of UGTB indicate that most of the cases presented with
unilateral mass mimicking RCC and the diagnosis are always made
after radical nephrectomy [5–7].

Kays reported a case of 52 years old women who were pre-
sented with fever, gross hematuria, fatigue and a positive medical
history of pulmonary TB, on examination, there was no palpa-
ble kidney. Erythrocytes sedimentation rate was 150, with normal
renal function. Right renal mass was detected by the US. Unlike our
patient who had a negative history of pulmonary TB and biman-
ually palpable renal mass, in both patients renal functions were
normal and ESR was high. CT scan was done and showed a het-
erogeneous enhancing renal mass, radical nephrectomy was done
and histopathology revealed caseating granuloma, they confirmed
TB by QuntaFERON-TB gold test unlike the case we are presenting
which was confirmed by PCR [5].

Tiryaki and his colleagues reported a case of bilateral renal
mass due to TB. Unlike the case we are presenting here, their
patient was having renal failure and the masses were detected by
the abdominal ultrasound (U/S). This sort of presentation occurs
in immune-compromised patients which were due to CKD in the
reported case. The diagnosis was made by the percutaneous U/S-
guided renal biopsy and PCR [8].

Pushkar report showed that UGTB and RCC can have a combined
presentation, he reported a middle-aged gentleman who is known
to have chronic kidney disease, the patient presented with left renal
mass, U/S-guided biopsy and histopathology revealed RCC with
multiple enlarged lymph nodes. After nephrectomy and lymph dis-
section, it turned out to be involved with mycobacterium under the
microscope [9].

Elbarghachi reported a patient who was presented with lion pain
and left renal mass, the patient was pale, he is a chronic smoker
with no past medical history of TB, he had normal renal and liver
function. CT scan showed an irregular non-calciﬁed mass, he was
planned for partial nephrectomy with a provisional diagnosis of
renal TB, and histopathology revealed RCC and postoperative CXR
showed multiple lung masses [10].

UGTB can present with a radiological feature that mimics RCC, in
CT scan the renal cortex appears thin with masses formation in soft
tissues and calcifications can be found [5]. The differential diagnosis
of enhancing renal mass is an abscess, primary renal tumor-like RCC
and lymphoma or secondary metastasis [5].

The diagnosis is conﬁrmed by the growth of mycobacterium
tuberculosis in urine or tissue culture. The treatment of urogeni-
tal tuberculosis is similar to that of extra-pulmonary tuberculosis
at other sites. The initial regimen consists of four drugs (isoniazid,
rifampin, pyrazinamide, and ethambutol) for 2 months, followed
by two drugs (isoniazid, rifampin) for 4 months if the isolate is
susceptible to ﬁrst-line therapy.

In conclusion; GUTB can mimics RCC clinically and radiologically
which creates a diagnostic challenge, the chance of diagnosing TB in
a patient presenting with renal mass is extremely lower than the
chance of missing it for RCC, this because of the lack of evidence
diagnostic approaches.
Declaration of Competing Interest

None.

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Ethical approval

Were not required for this case report.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Sami Mahjoub Taha: Conceptualization, Methodology, Editing, Supervision.
Ali El Naeim: Data collection, patient follow up.
Mohamed Derouiche: Writing – Original draft preparation. Writing - Reviewing and Editing.
Yassin Osman: Operator.
Elgaili Mohamed; Investigation of the specimen.
Asma Mohammed Warrag Omer; preparation of the slides and providing images.

Registration of research

NA.

Guarantor

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