Renal brucelloma: an exceptional disease

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Section: Uroradiology & genital male imaging
Area of Interest: Kidney
Procedure: Diagnostic procedure
Technique: Ultrasound
Technique: CT
Special Focus: Occupational / Environmental hazards
Case Type: Clinical Cases
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Patient: 84 years, male

Clinical History:

The patient had a history of chronic renal failure attributed to renal TB shown by imaging findings and recurrent urinary tract infection for 15 years.

Imaging Findings:

Figure 1: US: calcified right renal mass with posterior acoustic shadow and cystic lesions.
Figure 2: Several cystic masses, some of them calcified in lower caliceal group associated with cortical scarring in right kidney.
Figure 3: New cystic masses and former ones appear now complicated with increased density and wall calcification. These findings suggest an evolution of an active granulomatous disease.

Discussion:

Brucellosis or Malta fever is a zoonotic multisystemic condition [1] with a wide clinical impact [2]. Same as tuberculosis (TB), it is a chronic granulomatous disease of worldwide distribution [2, 3] although the Middle East is the most affected area.

Brucella melitensis is the species that most frequently causes human brucellosis. Transmission to humans occurs through dairy products, direct contact with infected animals [1, 2, 5] or inhalation of small particles. It is considered an occupational disease [1]. The incubation period is between 2-4 weeks. [4]

Usual clinical manifestations are ondulant fever and constitutional syndrome accompanied by hepatosplenomegaly and lymphadenopathy in many cases. [4]

Genitourinary tract involvement is the second complication by frequency. Prostate and testes are usually affected [4], the renal disease being exceptional. When it occurs, renal parenchyma can be injured causing pyelonephritis, glomerulonephritis [7] and lesions whose histology reminds of chronic tuberculosis changes [6] including granulomatous infiltrations, caseous necrosis and calcifications [1], as in the presented clinical case.

In a previous renal US performed years ago a renal calcified mass was observed. (Fig. 1).

Afterwards, in an abdominal CT carried out to complete the study, a partially calcified cyst cluster was described. The combination of these findings was attributed to TB changes. Urine sediment demonstrated sterile pyuria that supported the diagnosis of TB given the incidence in our environment. (Fig. 2).

However, several urine cultures for mycobacteria were performed, all of them being negative. Also, Mantoux with
normal chest X-ray was performed, so follow-up was decided. Then our patient arrived to the emergency room with intestinal occlusion suspicion so a new NECT was performed. New renal cysts were found, some of them with high density, and the known ones where slightly enlarged with new calcifications that suggested a progressive disease. (Fig. 3). Urine cultures were repeated and one of them was positive with atypical growth. In the extended study for categorization, the PCR (Polymerase Chain Reaction) was positive for Brucella melitensis.

Renal brucelloma is an exceptional presentation of brucellosis disease that can be misdiagnosed as renal TB. To the best of our knowledge just six cases of renal brucelloma have been reported in the literature. Therefore, this condition can be passed over in our quotidien practice when we face a complex calcified renal mass.

**Differential Diagnosis List:** Renal brucelloma, Renal tuberculosis, Renal brucellosis, Renal cell carcinoma, Renal simple /complicated cyst, Metastases, Segmental multicystic dysplastic kidney, Multilocular cystic nephroma, Localized cystic renal disease, Renal abscess

**Final Diagnosis:** Renal brucelloma

**References:**

Figure 1

a

Description: Calcified mass in right kidney. **Origin:** Department of Radiology, Hospital Severo Ochoa, Leganés (Madrid).

b

Description: Renal cysts with calcified mass in lower pole of right kidney. **Origin:** Department of Radiology, Hospital Severo Ochoa, Leganés (Madrid).
**Figure 2**

**a**

*Description:* New cystic masses and former ones appear now complicated with increased density and wall calcifications. These findings suggest an evolution of an active granulomatous disease. *Origin:* Department of Radiology, Hospital Severo Ochoa, Leganés (Madrid).

**b**

*Description:* New cystic masses and former ones appear now complicated with increased density and wall calcifications. These findings suggest an evolution of an active granulomatous disease. *Origin:* Department of Radiology, Hospital Severo Ochoa, Leganés (Madrid).
Description: New cystic masses and former ones appear now complicated with increased density and wall calcifications. These findings suggest an evolution of an active granulomatous disease. Origin: Department of Radiology, Hospital Severo Ochoa, Leganés (Madrid).

Description: Coronal image: new cystic masses and former ones appear now complicated with increased density and wall calcifications. These findings suggest an evolution of an active granulomatous disease. Origin: Department of Radiology, Hospital Severo Ochoa, Leganés (Madrid).
Description: Sagittal image: New cystic masses and former ones appear now complicated with increased density and wall calcifications. These findings suggest an evolution of an active granulomatous disease. Origin: Department of Radiology, Hospital Severo Ochoa, Leganés (Madrid).
Figure 3

a

Description: Several cystic masses with calcifications centred around the lower calyceal group of the right kidney. **Origin:** Department of Radiology, Hospital Severo Ochoa, Leganés (Madrid).

b

Description: Several cystic masses with calcifications centred around the lower calyceal group of the right kidney. **Origin:** Department of Radiology, Hospital Severo Ochoa, Leganés (Madrid).
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Description: Coronal image: Several cystic masses with calcifications centred around the lower calyceal group of the right kidney. Origin: Department of Radiology, Hospital Severo Ochoa, Leganés (Madrid).