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Case Report

An Unusual Presentation of Renal Hydatidosis: Mimicking a Staghorn Calculus

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Abstract: Renal hydatidosis is a rare condition, constituting less than 3% of all hydatid cases. It can mimic common urological conditions, such as staghorn calculi, leading to diagnostic challenges. We present a case of renal hydatidosis initially suspected as a staghorn calculus. A 56-year-old woman presented with a one-year history of progressive right-sided lumbar pain and intermittent hematuria. Imaging revealed a staghorn calculus with significant pelvicalyceal dilation. Laparoscopic surgery for stone removal uncovered multiple calcified hydatid cysts. Postoperative hydatid serology was positive, confirming renal hydatidosis. The patient was treated with albendazole, and a favorable clinical outcome was achieved. This case highlights the importance of considering hydatid disease as a differential diagnosis for renal stones, especially in endemic regions, to ensure appropriate surgical management.

Keywords: Renal Hydatidosis, Staghorn Calculus, *Echinococcus Granulosus*, Laparoscopic Surgery, Case Report.

INTRODUCTION

Hydatid disease, caused by the Echinococcus granulosus tapeworm, typically affects the liver and lungs, with renal involvement being rare (under 3% of cases). In endemic regions like North Africa, clinicians should maintain a high suspicion for hydatidosis when evaluating renal masses or stones, especially in patients with atypical symptoms. This vigilance is crucial, as the subtle presentation of renal hydatidosis can lead to misdiagnosis and complicate treatment options.

This case report highlights an unusual instance of renal hydatidosis that initially presented as a staghorn calculus, emphasizing the diagnostic challenges that can arise in such scenarios.

The similarities in presentation between renal hydatidosis and more common urological conditions, like nephrolithiasis, highlight the need to include hydatid disease in differential diagnoses, particularly in endemic areas. By documenting this case, we aim to elucidate the complexities of diagnosing and managing renal hydatidosis, thereby enhancing understanding of this rare condition and raising awareness among healthcare professionals.

CASE REPORT

A 56-year-old woman residing in a rural area of Dar Bouazza, Morocco, presented with a one-year history of progressive right-sided lumbar pain and intermittent episodes of hematuria. Notably, she had no history of fever, lower urinary tract symptoms, or passage of stones, and her past medical history was unremarkable. On clinical examination, the patient was afebrile (37°C) with stable vital signs, showing no signs of pallor or edema, and her general condition was well maintained. Abdominal examination revealed right lumbar tenderness, but there was no hypogastric tenderness or palpable masses, while pelvic examination and lymph node assessment were unremarkable. Laboratory were normal. A CT urogram revealed a staghorn calculus measuring 50 x 40 mm (1123 Hounsfield units) occupying the renal pelvis and extending into the middle and lower calyces, accompanied by significant pelvicalyceal dilation. Laparoscopic pyelolithotomy was planned for stone extraction (Figure 1).

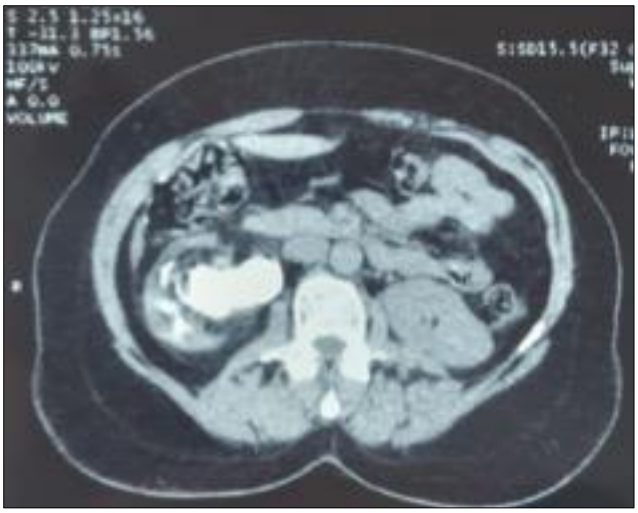

Figure 1: A staghorn calculus measuring 50 x 40 mm (1123 Hounsfield units) occupying the renal pelvis and extending into the middle and lower calyces

During the procedure, after opening the renal pelvis and removing the stone, multiple calcified hydatid cysts were discovered within the renal pelvis and collecting system, appearing as calcified, empty vesicles. The cavity was thoroughly irrigated with saline. Postoperatively, hydatid serology tested positive for Echinococcus granulosus (Figure 2).

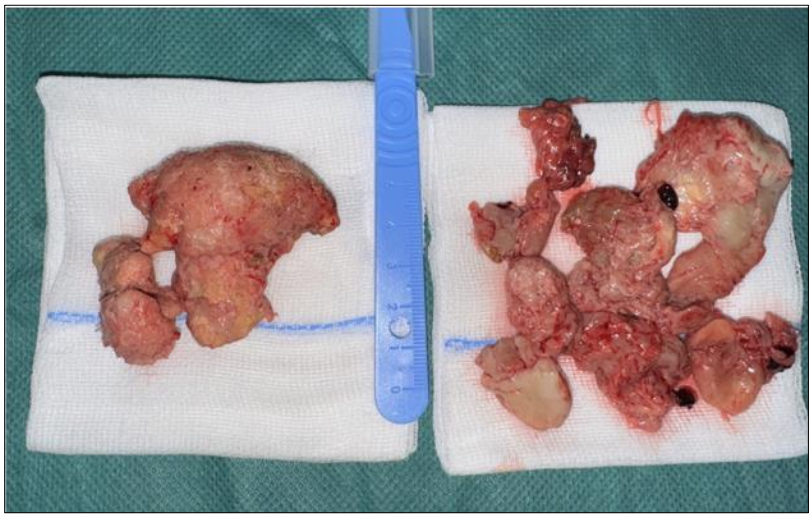

Figure 2: The upper portion shows the extracted staghorn calculus, while the lower portion displays multiple calcified hydatid cyst fragments recovered from the renal pelvis and collecting system

The histopathological analysis of the cystic membranes revealed fibrocollagenous tissue with a laminated, acellular hyaline membrane, accompanied by a germinal layer and multiple calcification foci, indicative of calcified hydatid cysts.

The patient was initiated on albendazole therapy at a dose of 10 mg/kg daily for three months. Follow-up over a three-month period showed a favorable clinical and biological outcome, with no recurrence of symptoms.

DISCUSSION

Echinococcosis, or hydatid disease, is a parasitic infection caused by Echinococcus granulosus, common in sheep-rearing areas. Humans, accidental hosts, contract the parasite by ingesting contaminated food, water, or soil. Though it primarily affects the liver (75%) and lungs (15%), renal involvement is rare, occurring in 1-5% of cases. Symptoms, if present, are often nonspecific and can resemble common renal conditions like staghorn calculi. This can complicate diagnosis and necessitate a shift in treatment strategy, as demonstrated by the discovery of calcified hydatid cysts that initially mimicked renal stones in this (Ramteke *et al*., 2017)

Mehra *et al*., presented a rare case of an isolated hydatid cyst in the renal pelvis that mimicked renal pelvic calculi, similar to our case. Hydatid disease in the urinary tract typically affects the kidney, where cysts are usually located within the renal parenchyma. This case

was initially suspected to be renal pelvic calculi but was correctly identified during surgery and confirmed through histopathological analysis. The authors emphasize that hydatid cysts can resemble renal calculi, which may lead to preoperative diagnostic challenges. Histopathological examination in such cases is crucial for accurate diagnosis, enabling appropriate chemotherapy to prevent (Mehra *et al*., 2020) (setayeshfar *et al*., 2024)

Reza *et al*., further illustrate the rarity of renal hydatid cysts, highlighting them as a significant manifestation of hydatid disease. Notably, renal hydatid cysts may remain asymptomatic for extended periods. In their case report, a patient presented with vague left flank pain, which ultimately led to the diagnosis of a large hydatid cyst measuring 93 × 120 mm in the left kidney, a lesion that likely remained silent for years. (Reza *et al*., 2019)

This underscores the importance of considering renal hydatidosis in differential diagnoses, particularly in endemic areas, where asymptomatic presentations can lead to delayed diagnosis and treatment.

Taur *et al*., reported a 34-year-old man with left flank pain and a Bosniak type 3 complex cystic lesion in the kidney, causing hydronephrosis. After a nephrectomy, a renal hydatid cyst was confirmed. This case, like ours, illustrates the diagnostic challenge of renal hydatid cysts, which can mimic other renal conditions, underscoring the importance of considering hydatid disease in differential diagnoses with nonspecific symptoms and complex cystic lesions. (Taur *et al*., n.d.)

Early identification and intervention are vital in hydatid disease to prevent complications. An effective treatment strategy combines surgical cyst removal and antiparasitic therapy. This case emphasizes the need for a high suspicion of hydatid disease in endemic areas, especially when symptoms mimic common renal pathologies. Clinicians should be aware of this condition to ensure timely diagnosis and appropriate management, ultimately enhancing patient outcomes.

CONCLUSION

Renal hydatidosis, though rare, should always be considered in the differential diagnosis of renal stones, especially in endemic regions where the prevalence of this parasitic infection is higher. This awareness is crucial, as the clinical presentation can often mimic more common urological conditions, potentially leading to misdiagnosis. Intraoperative findings play a vital role in shaping the management strategy; recognizing the unique characteristics of hydatid cysts during surgery can inform surgical decisions, such as whether complete cyst excision is feasible or if other approaches.

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