



Primary Renal Echinococcosis – a Rare Location of Hydatid Disease

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Abstract

Hydatid disease is a condition affecting mainly the liver or, to a lesser extent, the lungs. We present an uncommon case of a primary renal echinococcosis in a young man complaining of intermittent hematuria, dull flank pain, and palpable mass in the left lumbar and lateral abdominal area which increases its size over time. After initial self-treatment with painkillers and antibiotics, the patient was referred to a urological clinic, where the physical examination revealed a large tumour mass in the left kidney. Ultrasound showed a large multilocular renal cyst, with a CT highly suspicious for renal echinococcosis (15×12.8×24.2 cm). Serological tests confirmed presence of IgG against *Echinococcus*. The patient was operated using the lumbar approach and nephrectomy was performed. The man recovered completely after surgery without the need for further treatment.

Keywords

CT scan, echinococcosis, kidney, nephrectomy

INTRODUCTION

Echinococcus granulosus is a tapeworm causing a parasitic disease in humans called echinococcosis. Definitive hosts are canines, often domestic dogs, where intermediate hosts are usually grazers, incidentally also humans in close contact with infected dogs.¹ After oral parasitic oncospheres, they enter the human blood stream through the duodenal mucosa, later forming hydatid cysts. They are usually located in the liver and lungs (90%) and much less commonly in other organs. Primary and isolated hydatid disease of the kidney is extremely rare – less than 3% of all cases.²

The disease is typically spread across stockholding regions: world areas affected are New Zealand, South America, Middle East, and some regions in China.³ In Europe, *E. granulosus* is still a frequent public health problem in parts of the Mediterranean region, Bulgaria, and

Wales.⁴ Renal echinococcosis is often symptomless until cysts grow up considerably causing pressure with general unspecific symptoms like palpable mass and dull pain in the upper abdomen or lumbar area, less commonly hematuria and presence of hydatid vesicles in the urine.

Diagnostic tools are the ultrasound study, a contrast enhanced CT, and antibody laboratory tests. Treatment protocols for renal echinococcosis are not established, some authors recommend surgery (cyst extirpation, partial or total nephrectomy) as simple aspiration is associated with very high recurrence rates.¹ Others report very good results using puncture, aspiration, injection of scolicial solution and re-aspiration (PAIR) technique.⁵ Medical management with bi-imidazoles like albendazole or mebendazole is recommended in combination with PAIR procedure in inoperable cases. Post-nephrectomy course of albendazole may prevent recurrences.⁶

CASE REPORT

A 32-year-old man presented with a three-month history of astheno-adynergia, dull left lumbar and upper left abdominal pain which was getting gradually stronger. He had had intermittent slight hematuria for 15 days and subfebrile temperature, usually in the afternoon (max 37.6°C). He resided in a rural mountain area in North-Western Bulgaria since his childhood where he helped his parents with the stockholding, possessing several domestic dogs. After self-treatment with ibuprofen and antibiotics – ciprofloxacin, he visited his GP, who referred him to a urological clinic. The physical examination revealed a satisfactory general condition and a palpable mass in the left lumbar area. Standard laboratory tests at admission showed normal creatinine and urea, normal liver enzymes, slightly elevated CRP, and a normal complete blood count except for the slight leukocytosis and eosinophilia. Urine dipsticks indicated microscopic hematuria, leukocyturia, and protein (Table 1).

The abdominal ultrasound examination found a large multilocular cyst in the left kidney. No hydronephrosis was present. The ultrasound image was verified with a CT scan – it showed a multilocular peripherally enhancing cystic lesion (15×12.8×24.2 cm) with mixed internal attenuation and calcifications. The cystic lesion replaced almost the entire left kidney with the remaining parenchyma located ventrally (Fig. 1).

A serology test was performed and the result examined in a specialized laboratory: it was positive for antibodies to serum *Echinococcus granulosus* cyst fluid antigen B (anti-EgB).

After establishment of the diagnosis, a left-side open nephrectomy with lumbar extraperitoneal approach was proposed and performed (Fig. 2). The procedure proceeded without complications and with minimal blood loss; two drains were placed and removed at day 4 postoperatively. The patient was discharged seven days after operation. No additional medical treatment was prescribed.

The pathohistological report confirmed the diagnosis. The patient was followed up at 6 and 12 months with no evidence of recurrence.

DISCUSSION

Primary isolated renal echinococcosis is very rare and in our case the only affected organ was the left kidney. The patient had most of the non-specific symptoms of the hydatid disease – dull pain, palpable mass, fatigue, subfebrile temperature. Intermittent visible hematuria was described as a non-frequent symptom and our patient reported it, although it did not affect his hemoglobin level. The complete blood count was also non-specific for the disease and slightly elevated white blood cells and eosinophilia may be registered.

Table 1. Laboratory results at admission

	Urea	Creatinine	CRP	ASAT	ALAT	WBC	Eo	Hb
Value	5.2 mmol/l	68 umol/l	4.8 mg/dl	25 U/l	40 U/l	12.6 G/l	0.69 G/l	136 g/l
Reference range	2.9–9.3	80–115	<0.5	<35	<40	4.1–11	0.0–0.6	135–180

CRP: C-reactive protein; AST: aspartate transaminase; ALT: alanine transaminase; WBC: white blood cells; Eo: eosinophils; Hb: hemoglobin

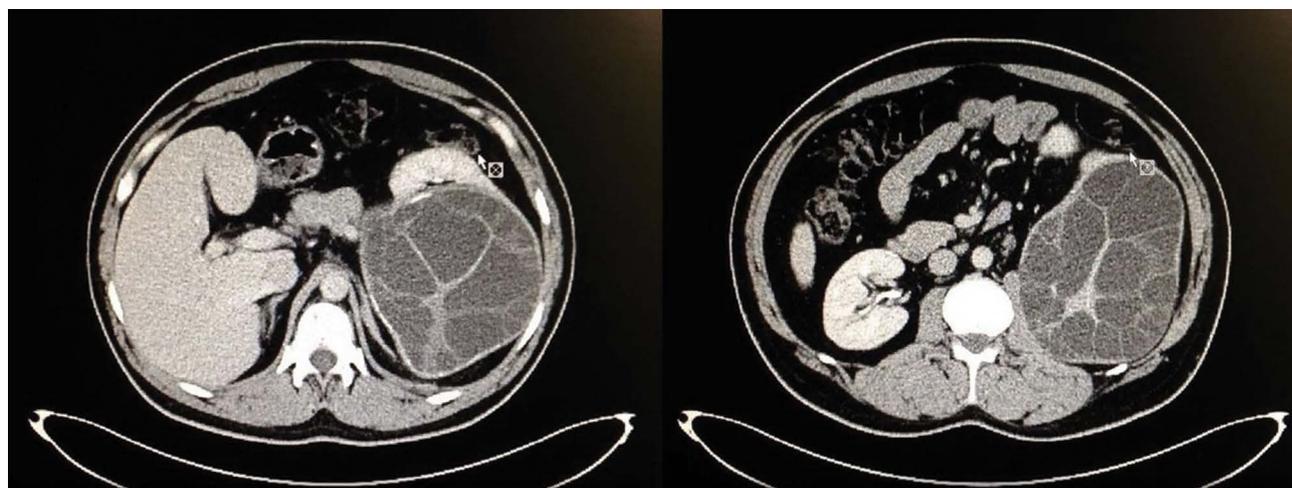


Figure 1. CT scan images of a primary left renal echinococcosis.

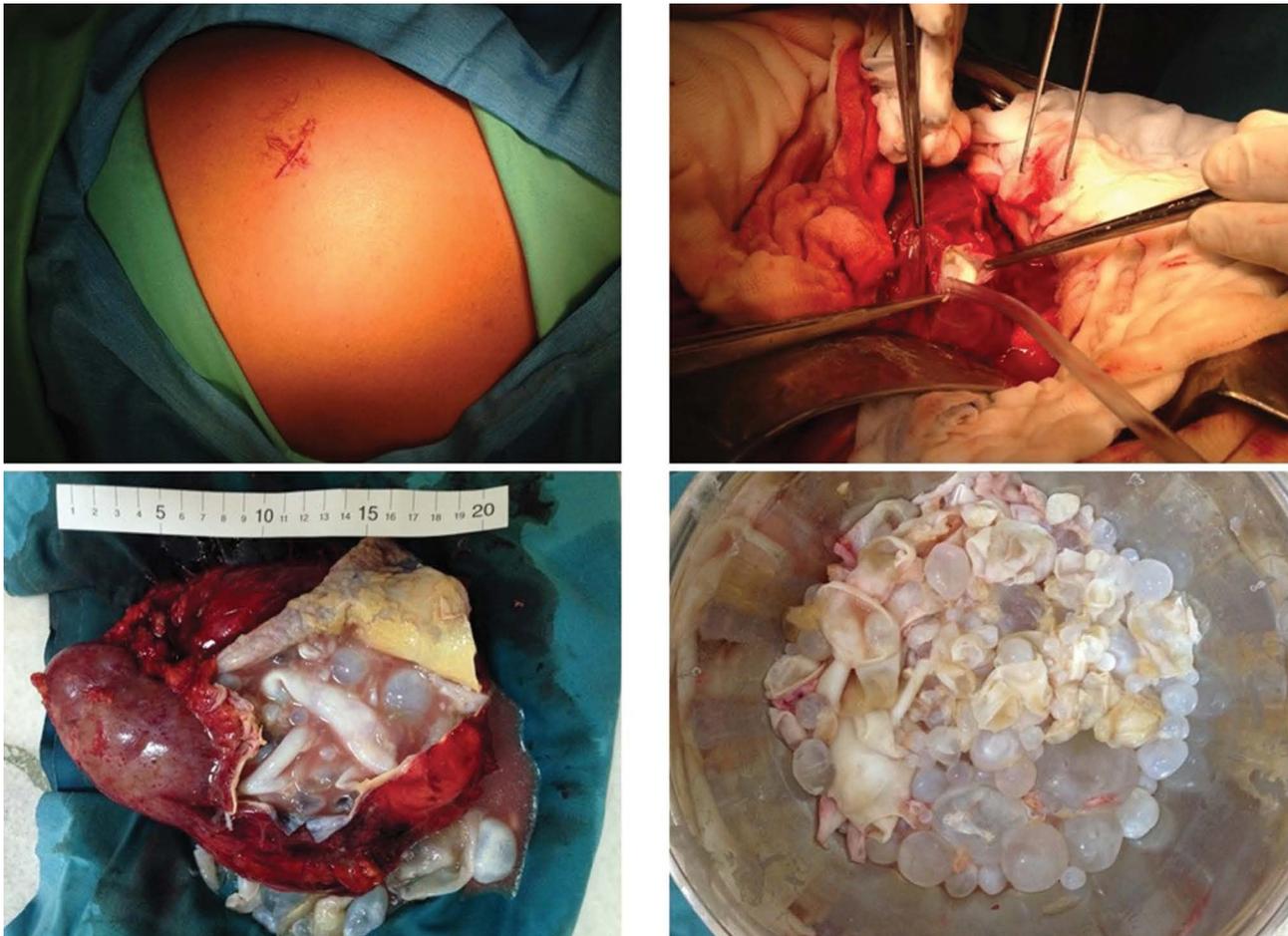


Figure 2. Nephrectomy of a kidney with multilocular hydatid cyst.

Epidemiological history taking is an important part of the diagnostic process, where this disease has typical characteristics – livestock breeding and presence of dogs, living in certain areas in the world and Europe.⁴ In our case, the patient lives in a mountain area in Bulgaria and is a stock keeper, keeping several dogs in his household.

An ultrasound study is very useful and indicative in such cases, but a definitive diagnosis of the condition requires a computed tomography scan. The reported diagnostic accuracy for ultrasound, CT, and antibody laboratory tests are 74%, 87.5%, and 66.6%, respectively.⁷ We performed an antibody test for IgG which was positive, but most authors do not regard this test as mandatory because it could yield false-negative results.

There are no definitive guidelines for the treatment of renal echinococcosis, but it is accepted that both pharmacotherapy and surgery are useful. PAIR (puncture, aspiration, injection, re-aspiration) is a successful method of therapy, suitable for smaller and solitary cysts.⁶ It should be remembered that the fluid of hydatid cyst contains protoscolex and in larger or multiple cysts evacuating the content several times and with caution is necessary to decrease the risk of further spreading the infection or anaphylactic reac-

tions.⁸ In our case, almost the whole kidney was affected by a large multilocular cystic formation and our treatment choice was total nephrectomy. Surgery is reported by some authors to be the best therapeutic method – removing the hydatid cyst of the kidney without getting torn, or depending upon the status and size of the cyst – partial or total nephrectomy.⁷ Some researchers report that scolicedal drugs must be administered before surgery, others recommend albendazole after intervention/surgery in order to clear any residual disease that cannot be detected by imaging or during surgery, citing a high rate of recurrence of hydatid disease.⁹ In our case we did not use them as recommended by a specialist parasitologist and in the follow-up process we did not detect any recurrence.

CONCLUSIONS

Although rare, a primary renal echinococcosis should be suspected and excluded in patients with non-specific symptoms for hydatid disease, combined with lumbar mass and pain, associated with hematuria and epidemiological risk factors.

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Первичный почечный эхинококкоз – редкое место эхинококкоза

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Резюме

Эхинококкоз – это заболевание, которое в основном поражает печень или, в меньшей степени, лёгкие. Мы представляем редкий случай первичного эхинококкоза почек у молодого человека с жалобами на рецидивирующую гематурию, тупую боль в бедре, пальпируемое образование в левой поясничной и боковой области живота, которое со временем увеличивается. После первоначального самолечения обезболивающими и антибиотиками пациент был направлен в урологическую клинику, где при физикальном обследовании было выявлено большое опухолевое образование в левой почке. Ультразвуковое исследование показало большую мультифокальную кисту почек с подозрением на эхинококкоз почек (15 × 12.8 × 24.2 см). Серологические тесты подтвердили наличие IgG против эхинококкоза. Пациент прооперирован из поясничного доступа, выполнена нефрэктомия. Мужчина полностью восстановился после операции, без необходимости в дополнительном лечении.

Ключевые слова

КТ, эхинококкоз, почка, нефрэктомия
