

## HYDATID DISEASE

### A Critical Approach to the Diagnostic Measures

Dr.A.Sıtkı ÖZDAMAR<sup>1</sup>, Dr.E.Yener GÜLTEKİN<sup>2</sup>, Dr.Cüneyd ÖZKÜRKCÜGİL<sup>1</sup>,  
DR. Kazım ÇİMEN<sup>1</sup>, Dr Ali GÖKALP<sup>1</sup>  
KOÜ Tıp Fakültesi. Üroloji ABD<sup>1</sup> KOCAELİ ve C.Ü. Tıp Fakültesi. Üroloji ABD<sup>2</sup> SIVAS.

#### HİDATİK KİST: Tanısal Yöntemlerin İrdelenmesi

##### ÖZET

*Bu retrospektif çalışmada, renal ve adrenal hidatik kist olgularının klinik ve tanı yöntemleriyle elde edilen bulguları gözden geçirdik ve bu bulguların ışığında doğru tanı ve tedavi için yöntem belirlemeye çalıştık. 7 olgumuzda tanımız tedavi sonrası ile uyumluydu. Olguların 6'sında böbrekte, 1'inde ise sol adrenal yerleşimli hidatik kist mevcuttu. Kitlelerin tedavi öncesi orijini tanımlayabilmek için radyolojik ve laboratuvar testler yapıldı.*

*Hidatik kist olgularının semptomları ve muayene bulguları nonspesifik olduğu için, tedavi öncesi en yararlı tanı yöntemi radyolojik çalışmalardır. Bilgisayarlı tomografi; özellikle serolojik testler ile kombine edildiğinde; ultrasonografi ve intravenöz piyelografiden daha üstündür.*

*Hastalık nadir olmasına karşın, üriner sistemde yer işgal eden kitle varlığında ayırıcı tanıda kist hidatik olasılığında akla gelmeli ve tedavi öncesi doğru tanı elde edebilmek için gayret sarfedilmelidir.*

*Anahtar Kelimeler: Kist hidatik, böbrek, adrenal.*

##### SUMMARY

*In this retrospective study, we evaluated the clinical manifestations and the diagnostic findings of renal and adrenal hydatid disease, and to propose guidelines for correct diagnosis and treatment. A positive diagnosis of hydatid disease was made in 7 patients. 6 were renal hydatid cysts and the other was located in the left adrenal gland. Radiological investigation and laboratory tests were performed for correct pretreatment diagnosis of the masses.*

*As the symptoms and physical findings are nonspecific for hydatid disease, the radiological investigations are the dominant diagnostic features. Computed tomography seems more accurate in the diagnosis of the hydatidosis than ultrasonography and intravenous pyelography and especially if it is combined with immunologic testing.*

*Despite its rarity, hydatid disease should be considered in the differential diagnosis of space-occupying lesions of the urinary tract. Every effort should be done for correct pretreatment diagnosis.*

*Key Words: Hydatid disease, kidney, adrenal*

The major endemic sites of hydatidosis are Australia, Argentina, Greece, Spain, and the Middle-East (the sheep-raising countries) (1). The method of infestation and the path of dissemination in man is the same as in any other intermediate host. Three species of Echinococcus genus are known to affect man: E. oligarthus, E. multilocularis and E. granulosus, but it is latter that is most frequently encountered in the kidney (2,3).

##### PATIENTS AND METHODS:

We had 6 patients with renal hydatid disease and 1 patient with adrenal hydatid disease during last 12 years in Cumhuriyet and Kocaeli University Urology Department. Their symptoms and findings are given in Table-1. Their ages were ranged 30 to 54 (mean 41.71) and the female:male ratio was 6:1. 6/7 of the patients had primary disease while 1 had synchronous hepatic

hydatidosis. All renal cysts were located in the right kidney, 2 of them located in the upper pole and the others were in the lower pole. The patient with left adrenal cyst had a palpable huge mass in the upper left abdomen. Flank pain was the major complain (6/7), 2 had complained of hematuria and one had had an episode of renal colic. The 54 year-old patient had no urinary symptoms and her diagnosis was made while undergoing radiological investigation of her hepatic hydatidosis. Intravenous pyelography (IVP), ultrasonography (US) and in 5 patients computed tomography (CT) was used for radiological investigation (Fig-1). If the radiological diagnosis was a cystic space-occupying mass, then immunologic testing, Casoni skin test and indirect hemagglutination test, were performed for the confirmation of the radiological diagnosis. All patients were treated with surgical measures in addition to medical treatment

Table-1: The age, sex, symptoms and findings of our patients

Patient n:	1	2	3	4	5	6	7	
Age	30	54	38	44	42	39	45	mean 41.71
Sex	F	F	M	F	F	F	F	F:M= 6:1
Flank pain	+	-	+	+	+	+	+	6/7
Hematuria	-	-	-	microscopic	microscopic	-	-	2/7
No urinary symptom		+						1/7
Renal colic	-	-	+	-	-	-	-	1/7
Hydaturia								0/7
Coexisting other organ cyst hydatid		+						1/7
ESR	44	52	48	36	16	30	34	
Eosinophilia	-	+	-	-	minimal	-	minimal	3/7
CST + IHT	+	+	+	-	+	+	+	6/7
IVP*	+	+	-	-	-	-	-	2/7
US*	+	+	-	-	+	-	+	4/7
CT*		+	+	-	+	+		4/5

F: Female; M: Male; ESR: Elevated sedimentation rate (mm/h) (normal: <12mm/h); CST + IHT: Casoni skin test + indirect hemagglutination test; \*: Positive (correct) radiological diagnosis for hydatid disease

### RESULTS:

The female:male ratio was 6:1 and mean age was 41.71 (range 30 to 54). The main symptom was flank pain (6/7). 2/7 of them complained of hematuria and one of them complained of renal colic. One patient had coexisting other organ hydatid cyst (hepatic disease) and she had had no urinary symptom. None of them had hydaturia (Table-1). All radiological investigations demonstrated a space-occupying lesion in all patients. In 2/7 of IVP's, 4/7 of US's and 4/5 of CT's the diagnosis was hydatid disease (Table-1). CT was more sensitive than US and IVP (80% vs 57.1% and 28.5%). The radiological diagnosis was confirmed by immunologic tests (Casoni skin test and indirect hemagglutination test), and in 6/7 of the patients, we obtained positive immunologic test results.

### DISCUSSION:

In humans, the liver is principally involved by echinococcus (70%), the other sites are lung (10%), spleen, brain, adrenal, pelvic cavity, spine, retroperitoneum, myocard, bone and urogenital organs.

Hydatid disease of the urinary tract is uncommon, accounting for only 2 to 3% of all such cases. Fortunately, bilateral renal involvement is unusual. Rarely, the bladder, prostate and seminal vesicles may be infested. Solitary adrenal hydatid cyst is a very rare entity and there are few reports in the literature (4-11). The fluid inside the hydatid cyst is highly antigenic and if spilled, can give rise to an anaphylactic reaction or new cyst formation (12). In the kidney, or in other urogenital sites, most of the evolution of

pathologic lesions is dominated by slow, concentric growth of the hydatid cyst over a number of years, so the clinical manifestations usually occur in adults (4,13). The mean age of our patients was 41.71 (range 30 to 54), and the female:male ratio was 6:1, this high ratio may due to more frequent contact of women with (infested) animals than males.

Renal hydatid disease may remain silent for years, it can manifest itself in three ways. Simply, the enlargement of one or more cysts produce signs and symptoms of a large renal mass. Rupture into the collecting system produces flank pain, hematuria and occasionally renal colic associated with ureteral obstruction during passage of cyst (hydaturia) and cyst debris. Hydaturia is the only pathognomonic finding of the renal hydatidosis. Finally and potentially most serious, secondary infection of a cyst will give rise to the typical symptoms and signs of renal abscess (4,14). Most patients with only renal involvement are asymptomatic but depending upon the location and size, may give rise to pressure symptoms and dull flank pain and occasionally hematuria (13,15,16). In our patients, the main symptom was flank pain (6/7). 2/7 of them complained of hematuria and one had had renal colic. One of them had coexisting other organ hydatid cyst (hepatic disease) and she had had no urinary symptom. All these signs and findings are not pathognomonic for renal hydatidosis.

Calcified cysts will be revealed on plain x-rays but must be differentiated from malignancy or cysts of other origin. The excretory urogram is helpful if the cyst communicates with the

collecting system. If not, it will appear as any other renal mass [4]. Mixed echogenicity on US and multilobular cyst with mixed density on CT are the diagnostic features of hydatid cysts. Shetty et al. found that CT was more sensitive (88 Vs 50%) and accurate (94 Vs 75%) than US in the diagnosis of urinary tract hydatid disease (17). Blandy suggested that, if there is a presence of "cysts within cysts" on the US, the cysts should not be aspirated for fear of anaphylactic reaction (12). Di Palma and et al. reported that, the cysts as small as 1 cm in diameter can be demonstrated by CT. According to them, CT findings alone allowed a correct diagnosis of the nature of the cyst in 61.5% of their cases and when combined with immunodiagnostic tests for hydatid disease in 94.5% of the patients (7). In our study, all radiological investigations demonstrated a space-occupying mass but in 2/7 of IVP's, 4/7 of US's and 4/5 CT's the diagnosis was hydatid disease. CT was more sensitive than US and IVP (80% vs 57.1% and 28.5%). The radiological diagnosis was confirmed by immunologic tests (Casoni skin test and indirect hemagglutination test). The sensitivity of CT and immunologic test combination was higher than CT alone (85.71% vs 80%).

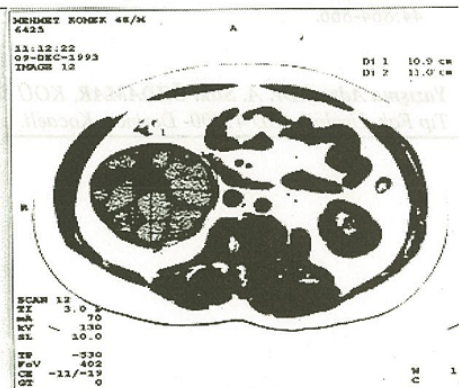


Fig-1: Multilobular renal cyst with mixed density on CT

Several laboratory tests are available to aid in diagnosis. All rely on the intense antigenicity of the foreign cyst material. The simplest is the Casoni intradermal skin test but this requires fresh hydatid fluid and is often not positive. A complement fixation test and serial hemagglutination titers are most accurate in assessing cure and prognosis (4). 6/7 of our cases had had positive Casoni skin test and indirect

hemagglutination test. All the patients received these tests after the radiological diagnosis (a space-occupying cystic mass) was obtained. In our opinion, there is no need for immunological testing for hydatidosis before the radiological diagnosis is obtained, because of the economic aspect and unnecessaryness in every renal mass. Patients may also demonstrate peripheral eosinophilia (20 to 50%) (15). Eosinophilia and elevated sedimentation rates were found in 3/7 and 6/7 of our cases, but these tests are nonspecific and give no idea about hydatid disease.

Cyst aspiration as a means of diagnosis and treatment remains controversial. Though some investigators concluded that, the cysts may be evacuated by US-guided aspiration (4,18), the others do not suggest this because the risk of fatal anaphylaxis and the risk of residual viable ova might be left behind (16). Partial or total nephrectomy is still the preferred treatment. Spillage must be avoided. For preventing of spillage, after aspiration of cyst contents, the cyst cavity should be refilled with 10% formalin for 10 minutes; it is recently recognized as dangerous due to the risk of absorption and systemic toxicity. Agents such as hypertonic saline solution (15% NaCl), 0.5% AgNO<sub>3</sub>, 80% alcohol or chlorine-hexidine are effective and appear to be safe. The prognosis is good if the cyst-bearing tissue has been removed without operative dissemination (4,15).

In endemic countries, hydatid disease should be considered as one of the major causes of space-occupying lesions of the urinary tract and the adrenal gland and in non-endemic countries, it must be also remembered in the differential diagnosis of renal masses. Every effort should be done for correct pretreatment diagnosis. For the diagnosis of hydatid disease, CT seems to be more sensitive and accurate than IVP and US, and if it is combined with immunological tests the sensitivity and accuracy rates seems to be higher.

#### REFERENCES:

1. Rausch RL: On the occurrence and distribution of *Echinococcus sp.* (Cestoda, Taeniidae) and characteristics of their development in the intermediate host. *Am J Parasitol* 1967; 42:19-23.
2. Cahill KM, Cox KB: Enteric-associated helminthic infections. In Hoerprich PD (ed): *Infectious Diseases. Maryland: Harper and Row, 1973:856-898.*

1. Hartman DS: Radiologic pathologic correlation of the infectious granulomatous diseases of the kidney. *Monogr Urol* 1985; 6:3-8.
2. Dale G: Echinococcus disease of the kidney. In Kaufman JJ (ed): *Current Urologic Therapy*. Philadelphia: WB Saunders Comp, 1980: 48-49.
3. Milanese A, Camana GP, Carbone P: Echinococcosis cyst in the pelvic cavity. Presentation of a case. *Minerva Urol Nefrol* 1991; 43:301-303.
4. Martinez Marsal E, Mora Nadal J, Closas Capdevila M, Busquets Dalmau N, Sarquella Mateu P: Solitary adrenal gland hydatid cyst. *Actas Urol Esp* 1992; 16:333-336.
5. Di Palma A, Ettore GC, Scapati C: The role of computerized tomography in the diagnosis of hydatid disease. *Radiol Med (Torino)* 1991; 82:430-436.
6. Hindricks G, Bocker D, Konertz W, Bongartz G, Borggreffe M: Polycystic disease of the kidneys complicating the diagnosis of myocardial echinococcosis. *Eur Heart J* 1993; 14:141-142.
7. von Sinner WN: Case report 616: Hydatid disease (HD) involving multiple bones and soft tissue. *Skeletal Radiol* 1990 ;19:312-316.
8. Lunardi P, Missuri P, Ercoli L: Multiple cerebral hydatid disease: case report with magnetic resonance imaging study. *Neurosurgery* 1992; 30:436-438.
9. von Sinner WN, Hellstrom M, Kagevi I, Norlen BJ: Hydatid disease of the urinary tract. *J Urol* 1993; 149:577-580.
10. Blandy J: Urinary tract infection. In Blandy J (ed): *Lecture Notes on Urology*. Oxford: Blackwell Scientific Publications, 1982:76-94.
11. Smith JH, von Lichtenberg F, Lehman JS: Parasitic diseases of the genitourinary system. In Walsh PC, Retik AB, Stamey TA, Vaughan ED (eds): *Campbell's Urology*. Philadelphia: WB Saunders Comp., 1992: 883-927.
12. Göğüş O, Bedük Y, Topukçu Z: Renal hydatid disease. *Br J Urol* 1991; 68:466-469.
13. Cohen MS: Granulomatous nephritis. *Urol Clin North Am* 1986; 13:647-659.
14. Gottesman JE, Kelly MR: Idiopathic renal hematuria: Differential diagnosis and management of causes. In Kaufman JJ (ed): *Current Urologic Therapy*. Philadelphia: WB Saunders Comp., 1980: 92-93.
15. Shetty SD, al-Saigh AA, Ibrahim AI, Malatani T, Patil KP: Hydatid disease of the urinary tract: Evaluation of diagnostic methods. *Br J Urol* 1992; 69:476-480.
16. Zambelli S, Carnevale G, Prata M, Barbero E, Mastinu A, Vergara E: Hydatidosis of the psoas muscle: Description of a case and review of the literature. *Arch Esp Urol* 1991; 44:864-866.

**Yazışma Adresi: Dr. A. Sıtkı ÖZDAMAR, KOÜ Tıp Fak. Üroloji ABD 41900- Derince, Kocaeli.**