

# An Uncommon Presentation of Hydatid Cysts: Renal Hydatid Disease in Two Children

Neslihan Çiçek Deniz<sup>1</sup>, Nurdan Yıldız<sup>1</sup>, İbrahim Gökçe<sup>1</sup>, Ülger Altuntaş<sup>1</sup>, Eda Kepenekli<sup>2</sup>, Halil Tuğtepe<sup>3</sup>, Tufan Tarcan<sup>4</sup>, Harika Alpay<sup>1</sup>

<sup>1</sup>Department of Pediatric Nephrology, Marmara University Faculty of Medicine, İstanbul, Turkey

<sup>2</sup>Department of Pediatric Infection, Marmara University Faculty of Medicine, İstanbul, Turkey

<sup>3</sup>Department of Pediatric Surgery, Marmara University Faculty of Medicine, İstanbul, Turkey

<sup>4</sup>Department of Urology, Marmara University Faculty of Medicine, İstanbul, Turkey

## Abstract

*Echinococcus granulosus* is the most widespread, serious human cestode infection in the world. It is especially endemic in developing countries. It may involve many organs but the most involved organs are the liver and the lungs. Renal involvement is rare, comprising only 2% to 4% of cases. Renal cyst may be isolated or with cysts in other organs. In this report, we present two cases, the first with isolated renal hydatid cyst and the second with multiple renal cysts and a hepatic cyst. We aimed to draw attention to hydatid cyst disease in the differential diagnosis of renal cysts in children. (*J Pediatr Inf* 2014; 8: 44-6)

**Keywords:** Hydatid cyst, kidney involvement, differential diagnosis, abdominal pain

## Introduction

*Echinococcus granulosus* is one of the most frequent parasitosis and it is endemic in Turkey. The larval form results in formation of hydatid cysts in various parts of the body. In children, the lung is a common site, whereas in adults 70% of cysts develop in the right lobe of the liver. Peritoneal cavity, spleen, kidney, bowel, brain, bone, retroperitoneal space, abdominal wall, myocardium and the thoracic wall are unusually involved; renal involvement is seen in only 2-4% of all cases (1, 2).

Ultrasonography (USG) is the most useful radiologic test for diagnosis. Computed tomography (CT) and magnetic resonance imaging (MRI) are highly sensitive for lesions. The most common serologic test used for hydatid disease is indirect hemagglutination assay (IHA) (3, 4).

Medical and surgical therapies are usually combined in the treatment. Puncture, aspiration, injection, resection (PAIR) is a surgical procedure especially preferred in single lesions (5, 6).

Here, we reported two patients with renal hydatid cyst. We aimed to draw attention to hydatid cyst disease in the differential diagnosis of renal cysts in children, although it is very rare.

## Case Reports

### Case 1

A six-year-old girl was admitted with abdominal pain. Physical examination, complete blood count, blood urea nitrogen (BUN), creatine, alanine aminotransferase (ALT), aspartate aminotransferase (AST) and electrolytes were normal. A cystic lesion 49x36 mm in dimension was visualised in the left kidney by USG. Computed tomography of the abdomen demonstrated a unilocular cystic lesion in the left kidney 56x50 mm in dimension and the wall thickness of cyst was 2 mm (Figure 1). Indirect hemagglutination test was found positive in the titers of 1/512. No cyst was visualised in other organs by echocardiography, thoracic, abdominal and cranial CT. After six months of mebendazol therapy, complete cyst resection was performed. She is currently healthy in the follow ups.

Received: 23.12.2012  
Accepted: 03.04.2013  
Available Online Date:  
12.10.2013

### Correspondence

#### Address:

Neslihan Çiçek Deniz, MD  
Department of Pediatric  
Nephrology,  
Faculty of Medicine,  
Marmara University,  
İstanbul, Turkey  
Phone: +90 216 625 45 45  
E-mail:  
dmeslihancciek@yahoo.com

©Copyright 2014 by  
Pediatric Infectious Diseases  
Society - Available online at  
www.jpediatrinf.org  
DOI:10.5152/ced.2013.43



### Case 2

A seventeen-year-old boy was admitted with respiratory distress and abdominal pain. In his physical examination, hepatomegaly was found. Complete blood count, BUN, creatine, ALT, AST, electrolytes and chest roentgenogram were normal. Abdominal USG showed cystic lesions of 82x65 mm in the right hepatic lobe, 56x51 mm dimensions in the right kidney and three cystic lesions of 55x53 mm, 37x35 mm, 32x26 mm in the left kidney. Abdominal CT revealed cystic lesions in the liver and kidneys (Figure 2). Indirect hemagglutination test was found positive in the titers of 1/320. Cranial MRI and thoracic CT were normal. PAIR was performed for the cystic lesion in the liver. The patient has been taking mebendazol therapy for 12 months, and is being followed for the reduction of cystic dimensions in kidneys.

### Discussion

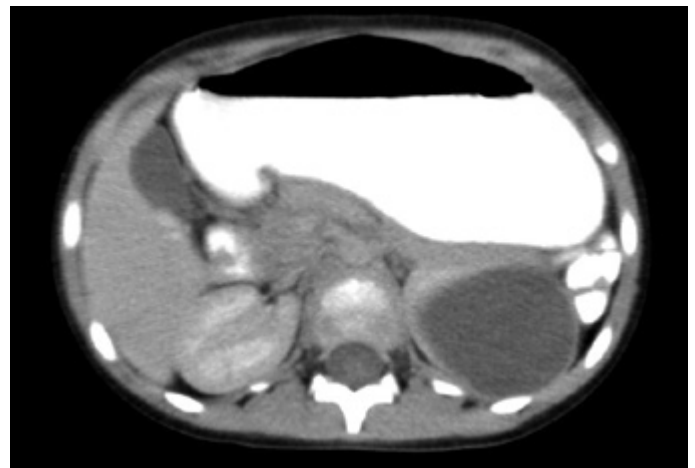
Hydatid cyst disease is prevalent worldwide, but especially in Mediterranean Countries, Middle East and Australia. Turkey is still an endemic country for hydatid disease and the incidence in children is 150 cases per 100.000 children (7). The rupture, infection and compression of the cysts may cause symptoms. Although the disease is sometimes asymptomatic, abdominal and chest pain, abdominal mass, fever, weight loss, anaphylaxis, jaundice and neurological signs are the most frequently seen symptoms (1, 8). One of our cases presented with abdominal pain and the other with respiratory distress and abdominal pain.

Hydatid disease can be diagnosed easily by clinical history, imaging studies and serological tests in many cases. Enzyme-Linked ImmunoSorbent Assay and IHA are the most common serologic tests for diagnosis, though negative serology does not exclude hydatid disease (9, 10). Ultrasonography is the most common imag-

ing method. Chest roentgenograms, CT and MRI are also used. In our patients both serologic tests and radiological investigations confirmed the diagnosis.

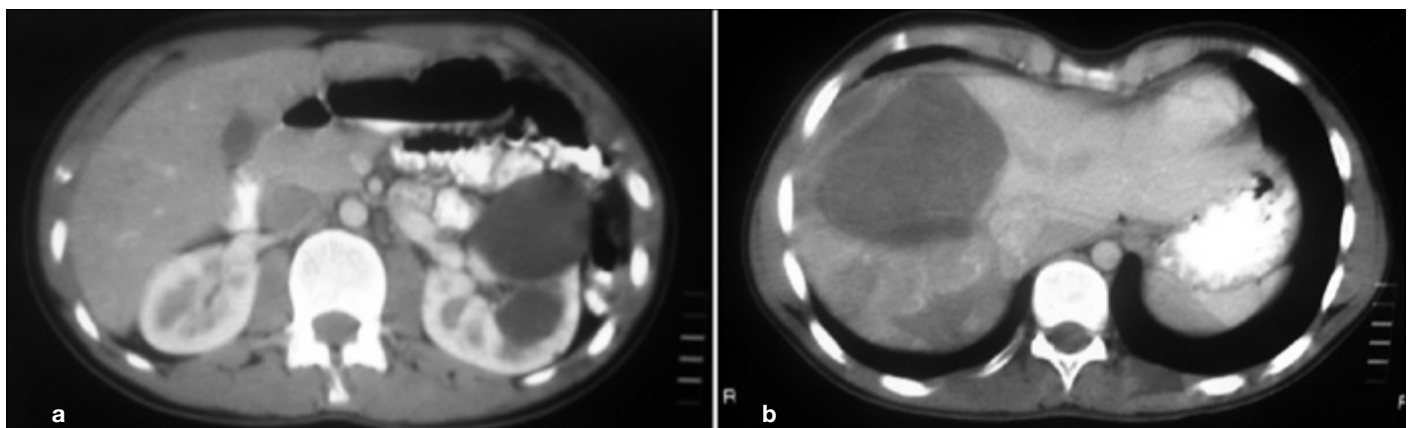
Hydatid disease of the kidney is extremely rare in children and constitutes only 2-4% of all cases of hydatid disease (2). There was an isolated renal cyst in our first case and she had a history of animal contact, so hydatid cyst was suspected in the differential diagnosis of isolated renal cyst. Serological tests confirmed the diagnosis. In our second case; cysts were detected both in liver and kidneys, therefore hydatid disease was diagnosed radiologically and was supported with serological findings.

The primary treatment for hydatid disease is still surgical excision of the cysts. Detailed examination of the thorax and abdomen must be done by imaging studies before surgery. The choice of the surgical approach depends on three basic elements: the volume of the mass, the relation of this mass with neighboring tissues and the extra-renal and abdominal localization of another hydatid cyst (11). Medical treatment with benzimidazole, such as albenda-



**Figure 1.** Renal cyst at abdominal CT

CT: computed tomography



**Figure 2.** Cystic lesions in kidneys (a) and liver (b) at abdominal CT

CT: computed tomography

zole and mebendazole is recommended in pre and post operative periods in order to sterilize the cyst, to decrease the chance of anaphylaxis, and the tension in the cyst wall and to reduce the recurrence post-operatively (4, 12). Complete cyst resection was performed in our first patient after six months of mebendazol therapy. The PAIR procedure is an effective, safe and well-tolerated choice in children. It is a less invasive method, especially preferred for single cystic lesion (6). PAIR was performed for the cystic lesion in the liver in our second case. He is still being followed for multicysts in both kidneys, he is asymptomatic and on the 12<sup>th</sup> month of mebendazol therapy.

## Conclusion

Renal hydatid disease should be kept in mind in the differential diagnosis of children presenting with renal cysts, especially in endemic areas, although it is extremely rare. Prognosis is good with early diagnosis and appropriate treatment in patients with a single lesion.

**Informed Consent:** Written informed consent was obtained from patients who participated in this case.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept - N.Y., H.A.; Design - N.Ç.D., N.Y.; Supervision - H.A.; Funding - İ.G., E.K.; Materials - T.T., Ü.A.; Data Collection and/or Processing - İ.G., H.T.; Analysis and/or Interpretation - H.A., N.Y.; Literature Review - N.Ç.D., Ü.A.; Writing - N.Ç.D., N.Y.; Critical Review - H.T., T.T.; Other - E.K., İ.G.

**Conflict of Interest:** No conflict of interest was declared by the authors.

**Financial Disclosure:** The authors declared that this case has received no financial support.

## References

1. Blanton R. Echinococcosis. In: Kliegman RM, Stanton BF, St. Geme JW, Schor NF, Behrman RE (eds); Nelson Textbook of Pediatrics 19th edition. Philadelphia: Elsevier Saunders. 2011, p. 1237-9. [\[CrossRef\]](#)
2. Amrani A, Zerhouni H, Benabdallah FF, et al. Renal hydatid cyst in children: report of six cases. *Ann Urol* 2003; 37: 8-12. [\[CrossRef\]](#)
3. Zmerli S, Ayed M, Horchani A, et al. Hydatid cyst of the kidney: diagnosis and treatment. *World J Surg* 2001; 25: 68-74. [\[CrossRef\]](#)
4. Oral A, Yigiter M, Yildiz A, et al. Diagnosis and management of hydatid liver disease in children: a report of 156 patients with hydatid disease. *J Pediatr Surg* 2012; 47: 528-34. [\[CrossRef\]](#)
5. Ben Brahim M, Nouri A, Ksia A, et al. Management of multiple echinococcosis in childhood with albendazole and surgery. *J Pediatr Surg* 2008; 43: 2024-30. [\[CrossRef\]](#)
6. Kahrman G, Ozcan N, Donmez H. Hydatid cysts of liver in children: percutaneous treatment with ultrasound follow-up. *Pediatr Radiol* 2011; 41: 890-4. [\[CrossRef\]](#)
7. Ok UZ, Ozkol M, Kilimcioglu AA, et al. A province-based study using sampling method to investigate the prevalence of cystic echinococcosis among primary school children in Manisa, Turkey. *Acta Trop* 2007; 103: 116-22. [\[CrossRef\]](#)
8. Aydın M, Adiyaman G, Dogruman-Al F, et al. Determination of anti-echinococcus IgG antibodies by ELISA in patients with suspected hydatid cyst. *Turkiye Parazitol Derg* 2012; 36: 61-4. [\[CrossRef\]](#)
9. Orhun A, Müller-Stöver I, Holtfreter MC, et al. Epidemiological and clinical characteristics of patients with echinococcosis-management in an infectiological service in Germany. *Dtsch Med Wochenschr* 2012; 137: 1039-44.
10. Babayigit A, Olmez D, Uzuner N, et al. A rare presentation of hydatid cyst in a child. *Tuberculosis and Thorax* 2007; 55: 95-8.
11. Rami M, Khattala K, ElMadi A, et al. The renal hydatid cyst: report on 4 cases. *Pan Afr Med J* 2011; 8: 31. [\[CrossRef\]](#)
12. Abu-Eshy SA. Some rare presentations of hydatid cyst (Echinococcus granulosus). *J R Coll Surg Edinb* 1998; 43: 347-52.