SMGroup

SM Journal of Pediatric Surgery

Case Report

Hydatid Cyst of the Kidney Open in the Urinary Tract About One Observation

Rachid Khemakhem[1], Houda Rahay[1], Faouzi Nouira[1], Sofiène Ghorbel[1], Fouzia Chennoufi[1], Wiem Douira[2], Lamia Gharsallah[3], Ibtisem Bellagha[2], Sihem Barsaoui[3] and Said Jlidi[1]

[1]Department of pediatric surgery, Children's Hospital of Tunis, University of Tunis El Manar, Tunisia
[2]Department of pediatrics, Children's Hospital of Tunis, University of Tunis El Manar, Tunisia
[3]Department of pediatric radiology, Children's Hospital of Tunis, University of Tunis El Manar, Tunisia

Article Information

Received date: Jun 06, 2016
Accepted date: Nov 04, 2016
Published date: Nov 09, 2016

***Corresponding author**

Dr. Khemakhem Rachid, Department of pediatric surgery, Children's Hospital of Tunis, University of Tunis El Manar, Tunis, Tunisia, Tel : 00216 97 546 249 or 00216 71 577800, Email: kakoum_rochdi@yahoo.fr

Keywords Hydatic Cyst; Kidney; Children

Abstract

Echinococcosis or hydatic cyst disease of the kidney is extremely rare in children and constitutes only 2-4% of all cases of hydatid disease. It can be complicated by opening in the urinary tract and cause obstructive renal failure.

We present a pediatric case of hydatid cyst of the kidney opened in the urinary tract and causing obstruction and urinary tract dilatation. The presentation is as acute pyelonephritis and the diagnosis was confirmed by renal ultrasound and CT. Surgical treatment is urgent and must be as conservative as possible by excision of the cyst and preservation of the renal parenchyma.

The kidney location of hydatic cyst is uncommon and represents only 2-5% of visceral involvement. The rupture of the cyst in the urinary tract is a complication that can be sometimes the first manifestation of this disease. Treatment should be undertaken urgently to best preserve the renal parenchyma.

Observation

SAMEH H. is a 10 years old girl, born and residing in SILIANA who presented left flank pain with fever associated with burning on urination few days before consultation.

On admission to our department, clinical examination shows a fever of 39 °c, tenderness in the left flank and a pain with left lumbar shock. Upper urinary tract infection was suspected but urine culture was negative.

Renal ultrasound was performed and showed a left kidney increased in size, with a heterogeneous formation measuring 7x5 cm at his upper pole, containing serpiginous non vascular structures with dilated ipsilateral upper urinary tract suggestive of a complicated hydatic cyst of the kidney (Figure 1).

Intravenous urography showed a picture of incomplete left renal pelvic, with no opacification of the upper caliceal group and a dilated renal pelvic (Figure 2).

A Magnetic Resonance Imaging was performed confirming the diagnosis of hydatic cyst of the left kidney open in the urinary tract. The liver and the rest abdominal cavity are free. There was no lung localization of hydatic disease on chest radiograph (Figure 3).

Figure 1: Renal ultrasound showing the appearance of a complicated hydatid cyst of the kidney.

Figure 2: IVU showing an amputation of the upper caliceal group with dilation of middle and lower caliceal group.

Surgical exploration found a hydatic cyst of the upper pole of the left kidney widely open in the pelvis. It was performed a removal of the proligerous membrane and a resection of the protruding dome with repair of the urinary tract and a nephrostomy after abundant wash of the urinary cavities with hypertonic saline solution (Figure 4). The postoperative course was uneventful.

Discussion

Hydatic cyst is a parasitic tumor secondary to the development of the embryo of Echinococcus granulosis [1,2,3]. It is an endemic disease in Tunisia and the Maghreb countries, and represents a major health problem.

Dog is the definitive host of Echinococcus granulosus. Ship is the usual intermediate host, but humans are accidental intermediate hosts that become infested by ingestion of water or vegetables contaminated by its eggs. After being accidentally ingested, the embryos break out from the eggs, then penetrate the intestinal mucosa and enter the systemic circulation.

Once the parasitic embryo passes through the intestinal wall, it can reach the portal vein or the lymphatic system. The liver plays an important defensive role, it stopped the majority of parasites and is the most commonly involved site (75%), and subsequently there is

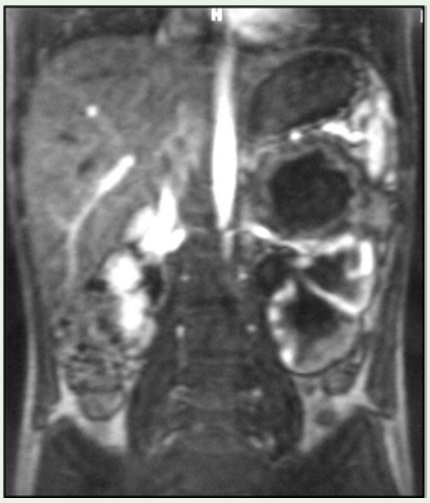

Figure 3 (b): MRI appearance of the left kidney hydatic cyst opened in the urinary tract: longitudinal section.

pulmonary involvement (15%), which acts as the second filter and site of involvement for hydatic cysts. Other systemic dissemination may occur at almost any anatomical location in the human body. Renal location is rare (2-5% of visceral) and is usually seen associated with other locations [1,2,3].

In our experience, of a serie of 276 intra-abdominal hydatic cysts, only 10 renal cysts were encountered, two were isolated thereby achieving a frequency of 3.62%. It is most often discovered incidentally during the review of another location and is rarely complicated by rupture into the urinary tract.

As in our patient, the hydatic cyst of the kidney is usually unilateral, with cortical and subcapsular location, preferably polar. The growth of hydatic cyst of the kidney is usually slow and silent explaining the discovery of large masses before the onset of clinical manifestations. Moreover, the clinical presentation is nonspecific: back pain, abdominal mass, hematuria [1].

The rupture of hydatic cyst of the kidney in the urinary tract is the most common complication and it causes the diffusion of the content in the excretory tracts. It is observed in 80% of cases. The

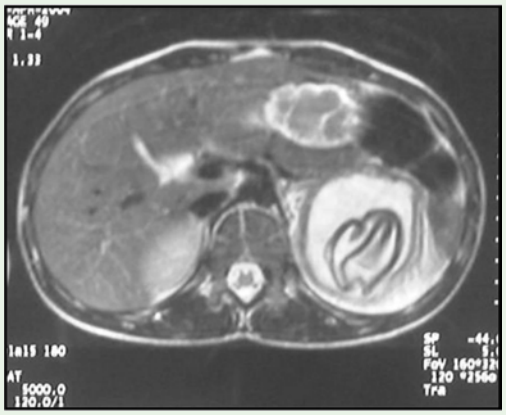

Figure 3 (a): MRI appearance of the left kidney hydatic cyst opened in the urinary tract: cross section.

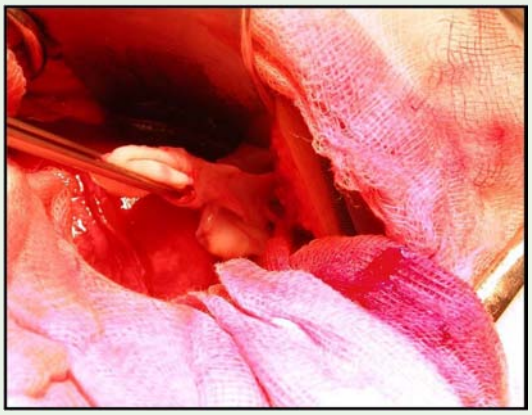

Figure 4: Intra-operative appearance, extraction of the proligerous membrane.

pathognomonic sign is consisting of hydaturia, but it is found in only 10-28% of cases [4]. Sometimes it's on the occasion of an abscess of the kidney that the diagnosis is suspected.

Imaging plays the key role in diagnosing and staging of HC, whereas serology has only a minor, confirmatory role due to high rates of false negative results. It is based on a combination abdominal ultrasound and CT scan.

Ultrasound is the most essential tool for hydatid disease and clearly demonstrates the floating membranes, daughter cysts, and hydatid sand characteristically seen in purely cystic lesions. The diagnosis of hydatid cyst using ultrasound is more reliable and it is specific up-to 80%. The frequent aspect published in pediatric series is type1. Abdominal ultrasound makes the diagnostic and research associations lesions. Elements that suggest the hydatic origin is the fluid nature of the cyst, the mural calcifications, the separation of membrane and the presence of daughter's vesicles. The cyst can be classified in one the five groups according to the Gharbi's classification [3,4].

CT scan is the radiographic examination of reference, completing ultrasound. It confirms the cystic nature of the lesion associated with multiple vesicles suggesting intracystic partitions girls, whose density is relatively attenuated to the mother cyst. CT shows a hypo dense mass before injection of contrast. The membrane is not enhanced after injection, as the septa, an enhancement is observed in case of communication with the urinary tract. It defined the best seat the cyst and its extension, its relationship to urinary tract, the parenchymal consequences and look for other hydatic locations. Some authors do not consider CT indispensable only in case of hydatid cyst type IV and V, whose contents cannot be correctly analyzed by ultrasound alone [1,3,5].

Serology is generally useful in the diagnosis of hydatid disease and it consists of immunoelectrophoresis, indirect Immunofluorescence and ELISA. However, the sensitivity of serological tests is influenced by the site and maturation of the hydatid cysts, assessment approach is reliable in more than 70% of cases. Hydatid cysts in human lungs, spleen, or kidney tend to be associated with lower serum antibody levels, Eosinophilia is reported in 25-50% of hydatid disease cases but it may occur in other parasitic diseases [1,4].

The treatment is surgical and must preserve the functional kidney tissue. Resection of the protruding dome after injection of scolicidal solution is the technique of choice. In case of rupture, the urinary tract is repaired and the residual cavity closed in on itself. Drainage of the renal space is required in all cases. Perikystectomie is also widely accepted technique. Partial or total nephrectomie is reserved to cases of significant destroyed renal parenchyma [2].

Conclusion

The renal location of hydatid cyst is rare, and usually seen with other visceral involvement. It can be complicated by opening of hydatic cyst in the urinary tract, which is the most common complication of this infection. This may involve the renal prognosis by causing urinary tract obstruction.

Treatment is surgical and must be as conservative as possible. Recurrence is another problem that can be prevented by medical treatment after surgery.

References

1. Choi H, Park JY, Kim JH, Moon DG, Lee JG, Bae JH. Primary Renal Hydatid Cyst: Mis-Interpretation as a Renal Malignancy. Korean J Parasitol. 2014; 52: 295-298.
2. Sarmast AH, Sherwani AY, Daugroo SA, Wani MS, Hamid A and Showkat HI. An isolated renal hydatic cystin a 6 years old child: a rare case report. J Res Med Sci. 2014; 19: 279-281.
3. Rexiati M, Mutalifu A, Azhati B, Wang W, Yang H, Sheyhedin I, and et al. Diagnosis and Surgical Treatment of Renal Hydatid Disease: a Retrospective Analysis of 30 Cases. PLOS One. 2014; 9: e96602.
4. Rami M, Khattala K, ElMadi A, Afifi MA, and Bouabddalla Y. The renal hydatid cyst: report on 4 cases. Pan Afric Med J. 2011; 8: 31-37.
5. Amin MU, Siddique K, Aftab PA. Imaging Features of Renal Hydatid Cyst Presenting with Hydatiduria. J Radiol Case. 2009; 3: 6-11.