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Concomitant presentation of hydatid cyst of kidney and liver - A rare case report

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ABSTRACT

Hydatid cyst, a zoonotic disease, caused by larval stage of Echinococcus granulosus occurs worldwide. The most common sites of involvement by hydatid cyst are liver followed by lung. Kidney involvement in hydatid cyst is very rare accounting for only 2 – 3% in endemic areas. We report a case of 57 year old male who presented with right upper abdominal lump and diagnosed as a case of hydatid cyst of both kidney and liver. He underwent right nephrouretrectomy and hepatic pericystectomy. Postoperative histopathology report was consistent with hydatid cyst. This case was reported for its concomitant presentation of kidney and liver and to discuss salient radiological features and management of renal hydatid cyst.

Keywords: Echinococcosis, Hydatid cyst, Kidney, Liver

Echinococcal disease or Hydatid disease is caused in humans by larval stage of any one of following species E. granulosus, E. Multilocularis, or E. Vogeli. Hydatid disease has a worldwide distribution with most of the cases seen in sheep rearing areas with high prevalence in China, Central Asia, Middle East, Eastern Africa, and some parts of South America [1]. In India, it is more prevalent in central parts. Liver is the most common site of infestation (54%-77), because liver acts as the initial filter for this organism [2]. Larvae that escape from liver were next filtered by lungs (9%-30%). When genitourinary tract involved, the common site is usually renal (2%-3%) but bladder, prostate and testicular involvement have also been reported [3,4]. Renal involvement coexisting with hepatic disease is very rare [5]. Case reports of isolated kidney involvement or co-existing kidney and liver involvement are suggestive of very low incidence even in endemic areas [6].

CASE REPORT

A 57 yr old male farmer presented with complaint of pain and gradually increasing swelling in right upper abdomen of 3 months duration. There was no history of fever, urinary problems, jaundice, bleeding manifestations, or blood transfusions. On examination, he was afebrile, conscious, and his vitals were stable. Abdominal examination revealed a firm; non tender lump of size 6x6 cm in right hypochondrium, right lumbar region and it was ballotable. Rest of the abdomen and systemic examinations were normal. Clinical diagnosis of right renal mass (? renal malignancy) was made.

On laboratory investigations, his renal and liver function tests were normal. His complete hemogram revealed eosinophilia. Plain X-ray abdomen and chest did not reveal any significant anomaly. Abdominal ultrasonography revealed a cystic lesion with internal

hyperchogenic foci in upper pole of right kidney of size 6x5 cm and another similar lesion in right lobe of liver. Computed tomography of abdomen revealed 6x5cm hypodense lesion with internal cystic areas and thin peripheral rim of calcification, hydroueteronephrosis (grade II) and dilated ureter up to the distal end and cystic lesion of size 5x3 cm in the right lobe of liver segment VII with peripheral rim of calcification (Fig. 1,2,3).

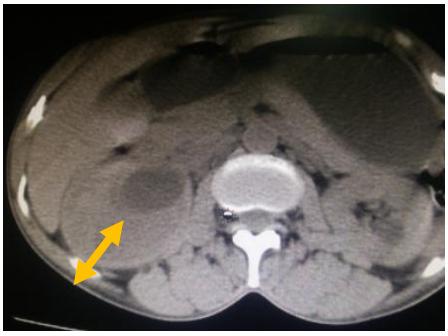

Figure 1 - CT showing type III renal hydatid cyst

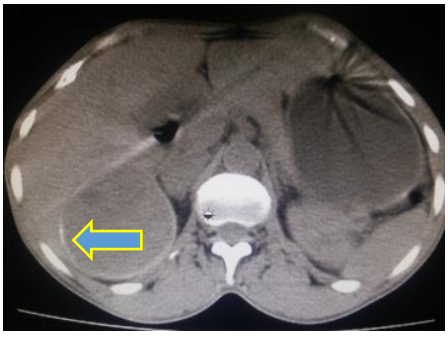

Figure 2 - CT scan abdomen showing hydatid cyst in upper pole of right kidney with rim of calcification

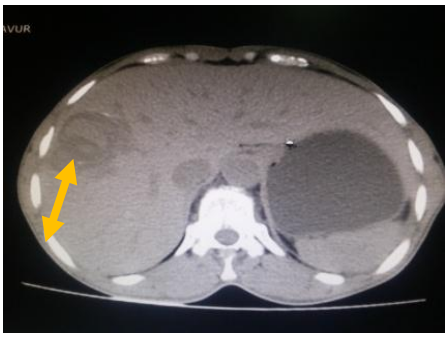

Figure 3 - CT scan showing hydatid cyst in right lobe of liver

There was no contrast uptake and excretion in the right kidney. These findings were suggestive of hydatid cysts; however, serological examination for echinococcus could not be done due to its non-availability in our institution. Computed tomography of chest and brain was done to rule out multiple hydatid cysts, and these were normal.

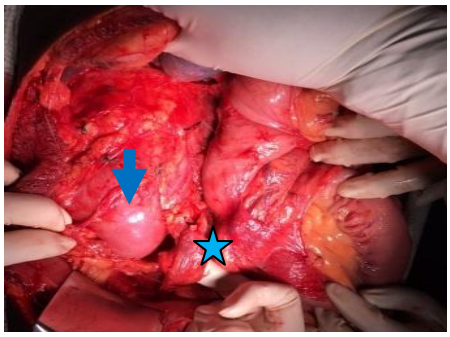

Figure 4 - Intraoperative picture of right renal hydatid cyst (arrow) with dilated ureter (star)

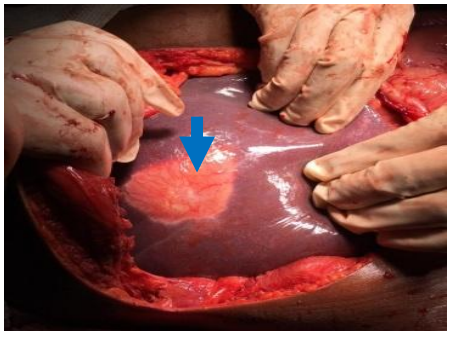

Figure 5 - Hydatid cyst right lobe of liver (arrow)

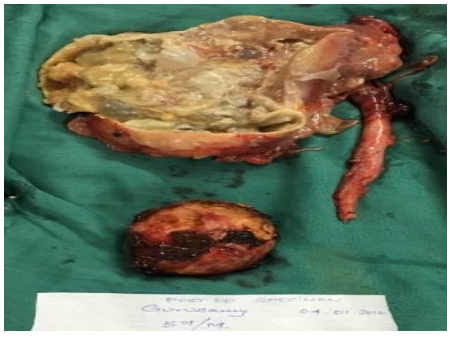

Figure 6 - Postoperative Specimen Renal Hydatid opened (Above), Liver Hydatid (Below)

Patient was started on oral albendazole 400 mg twice a day two weeks prior to surgery. Through transperitoneal approach, En bloc resection of the cyst with right nephroureterectomy and hepatic pericystectomy in the right lobe of liver along with omentoplasty was done. Per-operatively there was no spillage of cyst contents. Resected specimen shows calcified cyst wall with clear fluid and multiple daughter cysts. Postoperative period was uneventful. Patient was advised to continue oral

albendazole for eight more weeks. Histopathological examination was consistent with hydatid cyst. Patient was reviewed after two months and there were no specific symptoms and patient is in good general health.

DISCUSSION

Echinococcosis is a disease most commonly caused by larval forms of E. granulosus species. Adult worm lives parasitically in the intestine of definite host dogs, wolves and other wild carnivores. The ova which passed are ingested by grazing animals. Humans get infected by taking contaminated water or vegetables. On reaching the intestine, ovum is freed from its cuticle. After entering a blood capillary, it gets carried by bloodstream to liver or lungs where it can develop into hydatid cyst. They are slow growing lesions at a rate of about 1cm/year [7].

Renal hydatid cysts are rare and comprise 2 to 3% of all diagnosed cases of hydatid disease. It is not clear how the hydatid embryo reaches the kidney in cases of primary hydatid disease but it is postulated that it must pass through portal system into liver and retroperitoneal lymphatics [7]. Some authors say that the echinococcal larvae may reach the kidneys via the lymphatics or the bloodstream or by direct invasion [8] where they form a reactive cyst. A typical hydatid cyst is composed of 3 layers: a pericyst, an exocyst, and an endocyst (germinal layer) containing daughter cyst, scolices, and hooklets. The cyst may take 5 - 20 years to reach a pathologic size [8-9].

Renal hydatid cyst patient may present with non specific clinical signs and symptoms. He may present with dull flank pain, palpable flank mass, hypertension and hematuria. The only pathognomonic sign of the disease is hydatid gelatinous material in urine caused by the rupture of the cyst into the collecting system seen in only 10-20% of renal hydatidosis and is usually microscopic [9]. Gross passage is rather uncommon, but has a tremendous diagnostic utility. The cysts passed in the urine are daughter cysts and they lack the third layer pericyst.

Most of the patients with hepaticr hydatid cyst remain asymptomatic for many years or have nonspecific symptoms or may present with pressure effect of the hydatid cyst or its complication. The pressure effect of cyst can produce pain in abdomen and obstructive jaundice. Common complication of the cyst were infection, and rupture. Rupture into the biliary tree causes cholangitis, fever, and abdominal pain. Intrathoracic rupture leads chronic cough, dyspnoea, chest pain, haemoptysis, or coughing up membranes. Fatal anaphylaxis or ascites may occur in case of intraperitoneal rupture of the cyst. Infection of the cyst leads to septicaemia in some cases.

Imaging modalities are the most useful in diagnosis of hydatid disease. Plain x-ray may show a soft tissue mass or ring shaped calcification in the affected region. Ultrasonography helps in diagnosis when the daughter cysts and hydatid sand are demonstrated. On changing the patient's posture under real time, there is shifting of hydatid sand which give rise to characteristic "falling snowflake pattern" [10-11]. Computerized tomography scan has 98% sensitivity to demonstrate the daughter cysts. It usually demonstrates an expansile, hypoattenuating tumor with a well-defined wall and daughter cysts within the parent cyst. The central cystic part of the lesion has an attenuation of 30-35 HU, in contrast to the much lower attenuation of the fluid in the surrounding cysts (5-15HU), giving the mass a whorl like or rosette appearance. The classification proposed by Gharbi and associates provides a morphologic description viz. 1) Type I - has a pure fluid collection. 2) Type II - fluid collection with a spit wall (floating membrane). 3) Type III - fluid collection with septa (honeycomb image). 4) Type IV - heterogeneous echographic patterns and 5) Type V - has thick walls.

Magnetic Resonance Imaging usually reveals a solitary, high-signal-intensity mass consisting of multiple thick walled lesions and outlined by a thick hypo intense rim. The high signal intensity is due to the characteristic high fluid content of the mass. The small peripheral cysts are usually hypointense relative to the central component. The MRI shows the cysts adequately, but MRI offers no real advantage over CT scan [11]. The specific diagnosis of hydatid disease can be made by identifying proctoscolices or hooklets in cyst fluid but usually fluid aspiration is not recommended due to risk of fluid leakage and anaphylaxis reaction. Serological tests demonstrating elevated IgG levels are not routinely indicated but can be used to confirm diagnosis in suspected cases and for epidemiological surveillance [12].

Any surgical intervention planned should be adherent to the principle of complete removal of cyst wall and its contents without spillage and preventing anaphylactic reactions. Nephrectomy remains the treatment of choice for complicated renal hydatid cysts such as cysts

communicating with collecting system, destroyed and non functional kidneys [13]. Kidney sparing surgery consists of cystectomy with ablation of hydatid membrane and of small vesicles or a partial nephrectomy in uncomplicated cysts but carries a higher risk of relapse and it needs proper case selection [14-15].

There are few reports of laparoscopic removal of renal hydatid cysts with no postoperative complications. Retroperitoneoscopic closed pericystectomy approach has been reported [15]. Minimal access approaches mandate the need for special trocar and cannula system to avoid spillage. Percutaneous drainage procedures under scolicidal coverage with ethanol have also been reported. Percutaneous procedures are used in candidates not fit for surgery, relapses, and in uncomplicated non-communicating uniloculated Gharbi type I and II cysts.

The surgical treatment technique for liver hydatid cyst should be tailored according to the extent of the cyst and its complications. Surgical intervention consists of conservative, radical, and laparoscopic approaches. Deroofing of the cyst, partial cystectomy, total cystectomy with or without omentoplasy, pericystectomy, partial hepatectomy are some of the commonly performed surgical procedures [16]. Medical therapy in the form of oral albendazole is given in poor surgical risk patients, localised small cyst without complications, and in post surgical period. Pre-operative use of albendazole reduces risk of spillage during surgery by cyst wall tension thus reducing the, prevent the chance of anaphylaxis.

CONCLUSION

This case was reported for the concomitant presentation of renal and liver hydatid cyst. We did right nephro-ureterctomy as kidney was non-functional on imaging and hepatic pericystectomy with omentoplasty. Establishing a diagnosis and choosing the right treatment option for hydatid cysts of uncommon location like kidney is difficult and imaging studies are usually conclusive. A variety of surgical procedures are done for renal and liver hydatid disease, which are tailored to suit each individual case.

REFERENCES

1. Yakan S, Kozaciogu Z, Engin O. Isolated renal cyst hydatid operated with preoperative diagnosis of liver hydatid. Journal of Universal Surgery. 2013; 2(1): 1.
2. Diamond HM, Lyson ES, Hui NT, De Pauw AP. Echinococcal disease of kidney. J Uro. 1976; 115:742-4.
3. Poulios C. Echinococcal disease of the urinary tract: review of the management of 7 cases. J Urol. 1991; 145: 924-927.
4. Gogus C, Safak M, Baltaci S, Turkolmez K. Isolated renal hydatidosis: experience with 20 cases. J Urol. 2003.169(1): 186–189.
5. Rami M, Khattala K, ElMadi A, Afifi MA, Bouabddallah Y. The renal hydatid cyst: report on 4 cases. Pan Afr Med J. 2011; 8: 31.
6. Horchani A, Nouira Y. Hydatid cyst of kidney - A report on 147 controlled cases. Eur J Urol. 2000; 38(4): 461-467.
7. Cushieri A, Steele RJC, Moosa AR. Treatment of Hydatid Cyst. In, Essential Surgical Practice. 4th ed. Oxford. 2000: pp 157 -160.
8. Aragona F, Di Candio G, Serretta V, Fiorentini L. Renal hydatid disease: report of 9 cases and discussion of urologic diagnostic procedure. Urol Radiol. 1984;6:182-6.
9. Unsal A, Cimentepe E, Dilmen G, Yenidunya S, Saglam R. An unusual cause of renal colic: Hydatiduria. Int J Urol. 2001; 8: 319–21.
10. Buckley RJ, Smith S, Herschorn S Comisarow RH, Barkin M. Echinococcal disease of the kidney presenting as a renal filling defect. J Urol. 1985; 133 (4): 660-661.
11. Pedrosa I, Saiz A, Arrazola L, Ferreiros J, Pedrosa CS. Hydatid disease: Radiologic and pathologic features and complications. Radiographics. 2000; 20 (3): 795–817.
12. Ciobanca PT, Junie ML. Serological diagnosis and its applicability to prophylaxis and therapy in hydatid cyst in humans. Scientia Parasitologica. 2011; 12(1): 39-46.
13. Shah KJ, Ganpule AP, Desai MR. Isolated renal hydatid cyst managed by transperitoneal nephrectomy. Indian J Urol. 2009; 25: 531-533.
14. Basiri A, Nadjafi-Semnani M, Nooralizadeh A. Case report: Laparoscopic partial nephrectomy for isolated renal hydatid disease. J Endourol. 2006; 20(1): 24–26.
15. Goel MC, Agarwal MR, Misra A. Percutaneous drainage of renal hydatid cyst: early results and follow up. Br J Urol. 1995; 75(6): 724-728.
16. Palanivelu C, Jani K, Malladi V, Senthilkumar R, Rajan PS, Sendhilkumar K, et al. Laparoscopic management of hepatic hydatid disease. JSLS. 2006; 10 (1): 56–62.

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