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A Rare Case of Renal Hydatid Cyst- Case Report and Review of Literature

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1. Introduction

Intraabdominal cysts can have variable etiologies, they may be infestation e.g., hydatid cysts or simple cysts e.g., hepatic, pancreatic, splenic cysts, retroperitoneal cysts, chylolymphatic cysts, omental cysts or cystic tumors. Hydatid cyst is caused by larvae of Echinococcus granulosus, it is a serious disease, potentially lethal if not treated. The most common location of hydatid cysts in abdomen is liver – usually right lobe of liver. Renal hydatids are quiet uncommon and mostly confused with simple or complex renal cysts and cystic appearance of hydronephrosis. Diagnosis of renal hydatid is diagnosis of exclusion of above mentioned entities. As happens in most of hydatid cysts hydatid has to be differentiated from simple cysts or complex cysts.

2. Methods

50 year old lady presented in OPD with history of non-specific heaviness over the right side of mid abdomen for the past 3 months. She had no history of fever, urticaria, abdominal trauma, pancreatitisor urinary symptoms. Her initial laboratory investigations were within normal limits. USG showed a unilocular cyst with a few membrane like septae of about 15x15 cm size at upper pole of right kidney underneath liver. CT scan (abdomen) done to differentiate the cyst revealed the presence of a single, 15x15 cm size right suprarenal cyst with membrane abutting liver arising from right kidney with no significant post-contrast enhancement. Cyst was unconnected to renal pelvis seen in excretory phase of CT. No solid nodules were seen within the lesion, nor was there any adjacent fat stranding or regional lymphadenopathy or other similar lesions. Both kidneys showed normal attenuation and enhancement. Significant hydronephrosis and hydroureter were ruled out (Figure 1). The opacification of both renal arteries and veins was normal with no evidence of renal vein invasion or thrombosis. Antiechinococcal antibody tests were not done as eosinophil counts were normal. On the basis of lack of other history suggesting other differentials and CECT s/o cyst with membranes diagnosis of right renal hydatid with extrarenal extension was made .She was given 5 days of Albendazole therapy 400 mg twice to get antihelminthic effect. After anesthesia fitness patient was operated via midline incision. duodenal kocherization done and gut mobilized towards left , liver retracted upwards, There was single 15x15 cm tense cyst at mid part of right kidney with compressed renal parenchyma and gerota's fascia stretched over media part of cyst (Figure 2). Cyst was isolated with 10% betadine soaked gauze all over and vey carefully aspirated to know the content, which was clear fluid. Extreme care was taken to avoid spillage of even microdrop of cyst content. After removal of 100 cc fluid, 10% betadine was instilled into cyst cavity as there was no cyst-pelicalyceal connection. After 10 min of scholicidal action it was removed and cyst excision with evacuation of membranes was done. Almost 90% of the cyst wall, membranes and fluid was removed under controlled conditions and only was adherent of mid renal capsule was left – near total cystoppericystectomy was performed. Post-operative drain had no significant amount and was removed on day 2 and patient was discharged on day 3 with advise to continue Albendazole for 3 cycles of 3 weeks with gap of 2 weeks in between. Patient was followed upto 1 year 7 had no s/o recurrence in USG.

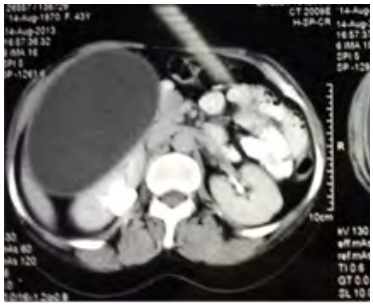

Figure 1: Unilocular Large Right Renal Hydatid with Compression of Enal Parenchyma

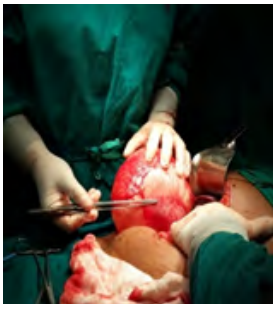

Figure 2: Renal Hydatid with Overstretched Perirenal Fat Being Dissected

3. Discussion

Hydatid cyst is caused by larvae of Echinococcus granulosus, and may be potentially lethal if not treated. This worm has dog as a definitive host and, intermediate host is sheep, and human are an accidental host. Most affected epidemiological areas are Mediterranean Basin, Australia, New Zealand, NorthAfrica, Eastern Europe, the Balkans, Middle East and South America. The hydatic cyst is mainly found in the liver (70%), Lung25%, renal (2%) & rarely in omentum, mesentry, spleen, kidney, pancreas. It is usually asymptomatic and grows at ~1 cm per year and hence discovered accidentally on a routine abdominal ultrasound. However, it may present with jaundice, intestinal obstruction, lump, respiratory or urinary symptoms [1,2]. Kidney involvement is usually observed in the form of a single cyst located at the level of the renal cortex. Vague symptoms like lower back pain, hematuria, or an abdominal lump or specific symptom like Hydatiduria can be present in only 10-20% [2,6]. CECT can be particularly helpful in the preoperative planning phase if surgical intervention is to be utilized in determining the renal parenchyma involvement.

Since renal hydatid is rare2% and other differentials predominate It is essential to rule out that cyst is arising from kidney and not from right lobe of liver which is the commonest site of abdominal hydatid. Differentiation of renal hydatid from simple cyst, dilated PCS or complex renal cysts, necrotic and cystic renal cell carcinoma or extra-renal urinoma is essential with help of investigations. USG suggested and CECT abdomen helped us in reaching the diagnosis of renal hydatid by presence of membrane. Raised ESR, raised eosinophil counts and positive hydatid serology can guide towards diagnosis of hydatid cyst. In our case ESR, eosinophil counts were normal and serology was not done in view of literature on serological diagnosis of renal CE, because most patients give false negative results [7]. To confirm hydatid cyst a few key features are helpful

• Presence of membrane/sand/daughter cysts

• CT density of fluid (HU) should be less than 20 HU

• Lack of Nodularity and minimal or no visible vascular supply in the wall of cyst in imaging

• Tumor markers being negative

• Intraoperative finding of non-mucinous fluid and presence of membranes (Figure 3), cyst fluid positive for scolices when stained with congo red dye.

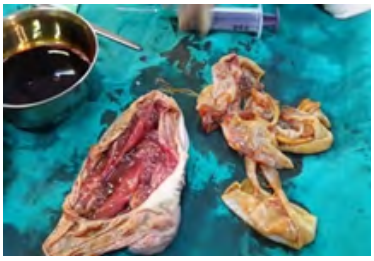

Figure 3: Specimen of Hydatid Cyst with Internal Membranes

Hydatid cyst disease can be classified into 5 classes in Gharbi et al. classification system,: Type 1 is well defined, anechoic cyst with thickened wall. Type 2 displays detachment of the germinative membranes. Type 3 includes multi-cystic multi-septated lesions. Type 4 shows heterogeneous, degenerated cyst with internal echoes. Type 5 involved calcification [3]. Other classification system which is more practical and useful is based on appearance and management plan of hydatid.

InWHO-IWGE standards based on ultrasound characteristics,-mainly for liver hydatid, can suggest stage of cyst and further management plan [6].

CE1 - anechoic cyst with fine echos, s/o hydatid sand-active cyst

CE2 - cyst with septae,honeycomb appearance , unilocuilar primary cyst –active cyst

CE3 - uniloculated cyst with decollated proligere membrane (waterlily sign) (CE3a), or daughter vesicles (CE3b)- transition phase

CE4 - cyst with mixed content hypo/hyperechoic wool clew aspect- degenerative cyst

CE5 - cyst with partially or totally calicified wall – inactive cyst.

Chemotherapy with albendazole as primary or adjuvant therapy may be used for renal hydatid disease that can cause cyst shrinkage and inactivation although it is associated with frequent recurrence and is ineffective6. The surgical approach is the ultimate treatment with a high cure rate, and most of the patients will be completely cured; however, surgery cannot entirely prevent a recurrence. The prescription of albendazole for six months in cycles after cystectomy is suggested for the prevention of recurrence [6,7].

There can be any stage of hydatid which may need various treatment approaches like interventional radiological approaches e.g. PAIR,PEVAC, conservative surgical approaches like near total or partial cystopericystectomy , radical surgical approaches like total cystopericystectomy or organ resection e.g. nephrectomy or hepatectomy or pulmonary lobectomy etc [4,5,8].

Surgery is the treatment of choice for renal hydatid cysts. Superficial renal hydatid cysts that do not involve the renal parenchyma can be treated by cystectomy or pericystectomy. However, in cases in which the cyst extends deep into the renal parenchyma, partial nephrectomy can be performed & attempt must be made to preserve as much of the parenchyma as possible. These nephron-sparing surgeries are possible in 75% of the cases, and total nephrectomy should be reserved only for cases in which the entire kidney is occupied by the cyst.Laparoscopic treatment of renal hydatid cysts is feasible and can be used for all the surgical options for management of renal hydatid disease- transperitoneal or retroperitoneal cystopericystectomy, laparoscopic partial nephrectomy and total nephrectomy are the safe alternatives. Because renal hydatid disease is a benign disorder, an attempt should be made to save as much of the renal parenchyma as possible [4].

4. Conclusion

Diagnosis of hydatid cyst should be always kept in mind in endemic areas as differential diagnosis ofintra abdominal cysts. In cases of renal hydatic conservative surgical approach can help in renal preservation which should be attempted with pre and post-operative anti echinococcal medical treatment & intraopeartive cautious dealing of the cyst to prevent recurrence.

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