



## Marsupialization – A Kidney Sparing Procedure For Renal Hydatid Cyst In Setups Where Laparoscopic Facilities are Not Available

### KEYWORDS

Renal hydatid disease, Marsupialisation, Intravenous pyelography, Nephrectomy, Scolicidal

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**ABSTRACT** A 23 year old female was successfully treated for renal hydatid cyst by techniques of open surgery. A complete nephrectomy being planned initially, we performed a kidney sparing surgery (Marsupialization) and achieved complete removal of the cyst and the daughter cysts. There were no intraoperative or post operative complications. Marsupialization as a kidney sparing surgery can be performed effectively in a centre where laparoscopic facilities are not available

### INTRODUCTION

Echinococcosis in man is a parasitic disease caused by the larvae of small tapeworms, man being an accidental host in the natural history of the disease.

**TABLE 1 – INCIDENCE OF RENAL HYDATID CYST w.r.t. LOCATION**

Site	Incidence
Liver	54%-77%
Lungs	9%-30%
Spleen	0.9%-8%
Kidney	2%-3%
Brain	1%
Other Organs	<1%

Ref-(2, 10, 11)

"Table 1 about here.

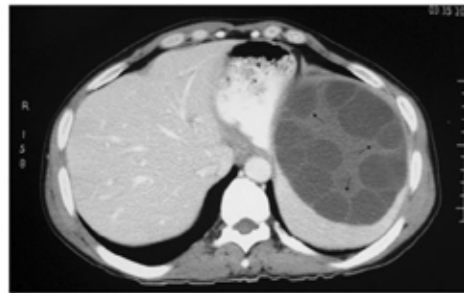
When the genitourinary tract is affected, the site is almost uniformly renal, but prostatic, bladder, paravesical, ureteral, epididymal, and testicular involvement have been reported.[2,8,12,13]

Here we present a case of renal hydatid cyst partially involving the adrenal gland in a 23 year old female, presenting as pain in abdomen.

### CASE HISTORY

A 23 year old female patient presented to the OPD with complaints of Pain left flank and fullness in left hypochondrium since 1 year.

On examination, a mass was palpable in the Left Hypochondrium, firm in consistency. Investigations were showing mild eosinophilia, other routine investigations were in normal limits. CT scan was showing large cystic lesion with multiple internal septations/ peripheral cysts within seen arising from anterior cortex of upper/ midpole of left kidney causing smooth indentation over inferior aspect of body and tail pancreas, inferior wall of body of stomach and splenic vessels extending to the splenic hilum. No communication between collecting system and lesion.



**Figure 1 – CT Scan showing Hydatid cyst**

"Figure 1 about here.

An open procedure was planned for treatment of cyst. Marsupialization of the cyst was planned and a possibility of Partial nephrectomy was also considered. At the time of surgery, we approached the kidney through a left subcostal incision.

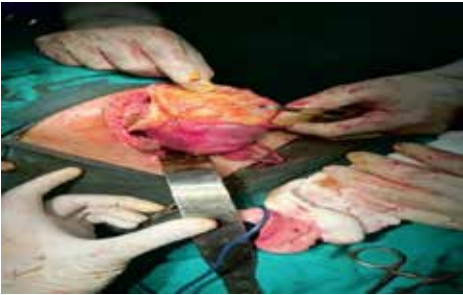
- The kidney along with the cyst wall was exposed.
- Clear fluid, about 20ml was aspirated and was sent for cytology and biochemical examination.
- Scolicidal agent was injected into the cyst. Reaspiration of the fluid was done.
- Cyst was opened and small daughter cysts were taken out. Fluid was drained.



**Figure 2- Cyst wall opened**

"Figure 2 about here.

After removal of daughter cyst, the wall was found to be adherent closely to the adrenal gland. Part of adrenal gland which was adherent was removed completely. Marsupialization of the cyst was done. Abdomen was closed in layers.



**Figure 3- After removal of daughter cysts**  
"Figure 3 about here.



**Figure 4- Cyst wall seen after removal of the daughter cysts. Excess wall was excised and then remaining part marsupialised.**

"Figure 4 about here



**Figure 5-The cyst being marsupialised. A drain was inserted in the perinephric cavity.**

"Figure 5 about here.



**Figure 6 – Daughter cysts after excision**  
"Figure 6 about here.

## RESULT

Post op IVP after 1 month showed normal functioning bilateral kidneys.



**Figure 7- IVP after 1 Month**

Marsupialization can be thus used as an organ sparing surgery in setups where laparoscopic facilities are unavailable and also where patients are unable to afford laparoscopic surgeries.

## Discussion

Renal hydatid cyst is an insidious disease, and patients often have nonspecific clinical signs or symptoms. Common symptoms are palpable flank mass, hypertension, dull flank pain, haematuria, and renal colic. The only important sign of the disease is gelatinous material (grape skins, daughter cysts) in the urine, due to the rupture of the cyst into the collecting system.[12,14]

The only abnormal finding in the routine blood examination of patients with hydatid disease which is diagnostic is eosinophilia, which is reported in 40% to 50% of cases. [2,12]

Radiologically, a hydatid cyst of the kidney presents as a mass lesion and can be further explored by intravenous pyelography, ultrasonography, CT, or MRI.[15] USG and CT show a uniloculated or a multiloculated cystic structure that may have some heterogenous echoes on sonography or have enhancement of rim on CT. If the cyst is intact, a space-occupying lesion displacing the calices is seen on Intravenous pyelography. The parasite can be encircled by the contrast material, if there is degeneration of a pericyst. [16] Radioisotope scanning and angiography may be useful in the preoperative evaluation of a partial nephrectomy.

[17] T1- and T2-weighted MRI can be used to demonstrate the typical signs of hydatid disease; a low-density rim on T2-weighted MRI suggests but is not pathognomonic of hydatid disease.[18,19]

Although safe puncture of the cyst through a translumbar approach for diagnostic sampling has been reported,[20] cyst puncture should be avoided, because there is a risk of allergic reactions, which includes anaphylactic shock.

Percutaneous evacuation of a cyst can be done alternatively, but there is controversy concerning the residual cavity following the procedure. A scolicalid agent injection has been reported to be used successfully.[21] Although albendazole is believed to be superior to mebendazole, both have been used in several studies for the treatment of patients with hydatid disease; results, however, are mostly unsatisfactory.[2,22,23] In one study, 4 patients were treated with a combination of percutaneous drainage and medical prophylaxis with albendazole and praziquantel.[24] It was reported that it is a safe and effective method to prevent renal loss and decrease morbidity and length of hospital stay. The combination of praziquantel and albendazole has been used in other studies for the management of patients with hydatid disease.[25,26]

The type of surgery chosen for the management of renal hydatid disease is dependent on the individual patient and can be nephrectomy, partial nephrectomy, or marsupialization. [2,12,14] Beyribey and colleagues[27] reported the first pedicled omentoplasty for patients with renal hydatid disease, a technique which is used in the management of hepatic hydatid disease. There were no intraoperative or postoperative complications, and the mean follow-up period was 34 months. Ex vivo renal surgery and orthotopic autotransplantation are also reported in a case.[5]

Bencheqroun and associates[28] have reported the use of total nephrectomy at 40% for management of renal hydatid disease. They stated that renal sparing surgery was sometimes difficult and had the potential for severe complications one of which is a urinary fistula. Management of renal hydatid disease was with partial or total nephrectomy was also stated by Vazquez and coworkers. [29] In a similar way, Sengor and colleagues[30] performed nephrectomies on 4 of 11 patients. Percutaneous drainage has been introduced as a new treatment alternative to decrease the morbidity of open surgery and preserve renal function. Previous studies of this technique in selected cases have given promising results. There is the potential for fatal complications, such as anaphylactic shock. There is a need for considerable experience of the surgeon to perform percutaneous drainage, so surgical exploration is still an acceptable treatment option for patients with renal hydatidosis. Use of scolicalid agents perioperatively, such as iodine, hydrogen peroxide, ethanol, iodine, hydrogen peroxide, formalin, hypertonic saline, silver nitrate, has been advocated by some authors too.[2,12] The agent is instilled or injected into the cystic cavity after aspiration of the cyst.

Treatment for patients with renal hydatid disease should be individualized. For patients with nonfunctioning kidneys particularly, surgical modalities may be considered. Close post operative follow-up is advocated, especially for patients living in areas where *hydatid disease* is endemic, to watch for reinfestation.

Treatment of the renal hydatid cyst is surgical. Parenchyma saving surgery is the mainstay of the treatment taking the benign nature of the disease into consideration. With advances in minimally invasive surgeries, its benefits can be given to patients with renal hydatidosis. Conservative surgical treatment occupies a dominant role, and removal of a prominent dome will suffice. In a majority of cases, re-expansion of renal parenchyma occurs.[51,52] Minimally invasive surgery has proved to be successful in the treatment of hydatid cyst in the liver and lungs.[53,54]

Traditional surgery was considered to be the main treatment modality for renal hydatid cyst disease with good results. Nowadays, laparoscopic management; minimally invasive approach, seems to be promising and can offer better benefits to patients. However, the clinical satisfaction associated with traditional surgery and the lack of laparoscopic facilities in many parts of the world where the disease was more endemic, were also important factors limiting its use so literature reports about this approach are very restricted. Moreover, further reports are necessary to confirm its enduring efficacy. [55,56]

## CONCLUSION

Looking at above discussion, in our patient, open approach was considered. Complete evacuation of the daughter cysts. After removal of the daughter cysts, excess wall was excised and cyst marsupialization was done. Patient was given albendazole daily for 1 month following the surgery. Marsupialization proved to be a better approach in patients who cannot afford laparoscopy and also where laparoscopic facilities are not available.

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