A rare case of renal hydatid cyst

Clinical History:


Imaging Findings:

On Ultrasound examination (images not provided), Multiple, calcified lesions are seen casting strong posterior acoustic shadowing in bilateral kidneys within the dilated calyces with gross bilateral hydronephrosis.

On Plain CT-KUB multiple, large, laminated/ring calcified, lesions are seen within bilateral collecting systems with gross bilateral hydronephrosis. Fig.1a at mid kidney and fig.1b,1c at left lower renal pole level, shows similar lesion involving both kidneys with part of metallic D-J (Double J) stent seen in both renal pelvis and proximal ureters. Extremely thinned out renal parenchyma seen. Figure 1b and 1c also showed mild fatty stranding of left paranephric fat and thickening of posterior renal fascia consistent with pararenal inflammation. Coronal images (Fig.2 a,b,c) showed similar lesions in both kidneys with parts of draining stents in the bilateral collecting system. Left kidney appeared relatively small in size.

Discussion:

The two main types of hydatid disease (HD) are caused by Echinococcus (E) Granulosus and E multilocularis. The former is frequently encountered type in human beings. Liver (50-70%) and lungs (20-30%) are most commonly affected. Rarely affected organs are heart, breast, thyroid, soft tissue of neck and kidneys[1].

The cyst fluid is clear which contains transudate of serum and proteins and is antigenic. Care is taken not to spill the fluid during cyst aspiration/excision which can cause septicaemia and anaphylaxis [2].

On imaging, 4 types of cysts can be seen. Type I cyst is a simple cyst with no internal architecture. Type II cyst contains daughter cysts and matrix. Sometimes “racemose” or “wheel spoke” appearance can be seen. Type III cyst is a calcified cyst (dead cyst) which can be best seen in CT. Cysts with features of complication like superinfection and rupture are categorised in Type IV cysts [2,3]
Renal hydatid disease (RHD) is an important but rare disease [4], prevalent in parts of Argentina, Peru, East Africa, Central Asia and China [5].

Imaging features are misleading in complicated cases such as cyst rupture, internal haemorrhage, superadded bacterial infection. Calcification is common [2].

In cases of urinary infestation, plain radiographs may show soft tissue mass or ring-like calcification in renal area. On intravenous urography, the cyst may indent over the cortical outline of the kidney and may deform infundibulum or calyces. The cyst may get secondarily infected or may rupture into the collecting system or peri-nephric tissue. In these circumstances, the patient may present with acute colic and hydatiuria which is pathognomonic of this condition. Solitary or multiple round filling defects may be seen in contrast urography. Ringlike or laminated calcification may be seen [2,6]. Ultrasound may show thin-walled anechoic lesion with internal fine echoes in the dependent location representing hydatid sand.

In our case, the patient was treated with surgical excision of cysts. Pathological examination of excised cysts revealed echinococcosis.

Another treatment option is PAIR (puncture, aspiration, instillation and reaspiration of scolicidal agent). It was shown that Treatment outcomes were improved when surgery or PAIR was combined with benzimidazole. Combination therapy with albendazole and praziquantel showed higher scolicidal activity [7].

**Teaching Points**

Hydatid cyst should be considered in the differential diagnosis of all cystic lesion, especially in endemic regions. Cysts at unusual locations or Complicated cysts may impose diagnostic confusion on imaging. Change 3 - A cystic renal lesion with imaging features like hydatid sand, honeycomb pattern (daughter cysts) and wall/laminated calcifications should alert the radiologist for the hypothesis of hydatid cyst.

Written informed consent for publication has been obtained.

**Differential Diagnosis List:** Urinary Echinococcus infestation (Hydatid cyst), Simple renal cyst, Necrotic renal cell carcinoma, Cystic nephroma, Cystic variants of renal cell carcinoma, Renal abscess

**Final Diagnosis:** Urinary Echinococcus infestation (Hydatid cyst).

**References:**


Virginia Velasco -Tirado, Montserrat Alonso-Sardon, Amparo Lopez-Bernus, Angela RomeroAlegria, Francisco
BMC infect dis 18:306( PMID:29976137)
Description: Axial Plain CT section through the mid pole of kidneys showing calcified lesions in bilateral kidneys with grossly dilated collecting system. Part Of D-J stent seen in both renal pelvis.

Origin: ©Department of radiology and Imaging, Gandhi Medical College and Hamidia Hospital, Madhya Pradesh, Bhopal, India.
Description: Axial Plain CT section through the lower pole of the left kidney shows multiple, large, calcific lesions in the right kidney. A tiny part of the calcific lesion is also seen in the left kidney. Mild fatty stranding of left paranephric fat and thickening of posterior renal fascia also seen. Part of the D-J stent seen in both proximal ureters. Origin: ©Department of radiology and Imaging, Gandhi Medical College and Hamidia Hospital, Madhyapradesh, Bhopal, India.

Description: Axial Plain CT images through the lower pole of the right kidney show multiple laminated, calcific lesions in the grossly dilated right collecting system. Left kidney has ended at this level with mild paranephric fatty stranding on the left side. Origin: ©Department of radiology and Imaging, Gandhi Medical College and Hamidia Hospital, Madhyapradesh, Bhopal, India.
Figure 2

Description: Coronal, Plain CT image showing multiple laminated, calcific lesions in right mid pole calyx and both lower pole calyces. Part of D-J stents in both renal pelvis and within the urinary bladder.

Origin: ©Department of radiology and Imaging, Gandhi Medical College and Hamidia Hospital, Madhya Pradesh, Bhopal, India.
Description: Coronal, plain, CT image showing similar lesions as figure 2a with part of D-J stent in the left distal ureter. Origin: ©Department of radiology and Imaging, Gandhi Medical College and Hamidia Hospital, Madhya Pradesh, Bhopal, India.
Description: Coronal, Plain, CT image showing Calcific lesions in left kidney and right lower pole calyx. Grossly dilated bilateral renal collecting systems. The relatively small size of the left kidney with mild paranephric fat stranding. Origin: ©Department of radiology and Imaging, Gandhi Medical College and Hamidia Hospital, Madhya Pradesh, Bhopal, India.