PRIMARY HYDATID CYST OF KIDNEY: A RARE ENTITY

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ABSTRACT

Primary renal echinococcosis, a rare disease involving the kidney, accounts for 2-3% of human echinococcosis. We present a case of 55 yr. old female with dull aching pain and passage of grape skin like structures in urine. Evaluation with IV urography, ultrasound and CT scan was done. Radiologically, a diagnosis of primary renal hydatid cyst was made as there was no evidence of cyst at other locations. Circular filling defects with mild hydronephrosis was noted on IVU suggesting possibility of rupture. Diagnosis was confirmed at surgery.

KEYWORDS

Hydatid Cyst, Echinococcus, Kidney.

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INTRODUCTION

Hydatid cyst of the kidney is a very rare condition caused by the larval stage of *Echinococcus granulosus*. *Echinococcus* larvae are most commonly retained in the liver (60% cases) followed by the lungs (20% cases). The incidence of renal involvement is about 2% of all hydatid disease in humans.¹ Isolated renal involvement is even rarer. The average patient age is about 30 years. It is more common in women.²

Here, we report a rare case of isolated primary hydatid cyst of the kidney that was evaluated clinically and investigated by x-ray, abdominal ultrasonography, intravenous urography, CT and finally confirmed by histopathology.

CASE REPORT

A 55 year female presented with dull pain in the right lumbar region for one year and the occasional passage of grape skin like structures (Ruptured daughter cysts) in urine since 6 months. On and off burning micturition was also present since 6 months. Abdominal examination did not reveal any palpable lump. The rest of the systemic examination was normal.

The routine laboratory findings revealed high ESR (55mm in first hour) with a serum creatinine measuring (1.4mg/dL). The routine urine examination was normal except for 8-10 puss cell/hpf. Eosinophil count was within normal limit.

IMAGING FINDINGS

The X-ray chest PA view was normal. X-ray of the kidney and urinary bladder region (Fig. 1) showed enlarged left kidney shadow. Crescent shaped calcification is noted at the lower pole of renal shadow.

Fig. 1: Plain X-ray showing crescent shaped calcification, IVP shows filling defect and distortion of lower and middle calyces

Ultrasonography (US) revealed a well-defined anechoic multicystic lesion with multiple septae measuring 65x59mm in size occupying middle and lower pole of the enlarged left kidney. Echogenic material was present between the cysts. No calcification or hydronephrosis seen in the kidney. No flow was picked upon colour Doppler in the septae or walls. Right kidney was normal in size and echo texture. Rest of abdominal scan was within normal limit.

Fig. 2: USG

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Fig. 3: NCCT Abdomen

On the IVP, contrast excretion was normal from both kidney. The upper calyces of left kidney are normal with distortion of middle and lower calyces was present. Multiple round filling defect is seen representing the multiple daughter cysts. Left upper ureter was dilated. Plain CT (Fig. 3) finding revealed multilocular cystic mass involving middle and lower pole of kidney. Calcification is present in cyst wall in lower part. Varying HU value was noted at different places. CT urography showed filling defect, most likely due to rupture of pericyst.

Fig. 4: NCCT and CECT excretory phase coronal Postoperative specimen

Nephrectomy was done. Examination of the nephrectomy specimen (Fig. 4) revealed grossly thinned out cortex with the dilated pelvicalyceal system and the dilated spaces were filled with whitish grape like cyst of different sizes.

DISCUSSION

Echinococcosis is a worldwide zoonosis produced by the larval stage of the *Echinococcus granulosus*. Humans are an intermediate host of *Echinococcus granulosus* through ingestion of water or vegetables contaminated by its eggs.³ The ovum digested in the duodenum and the parasitic embryos passes through the intestinal wall to reach the portal venous system; therefore, the most frequently involved organ is the liver.⁴ Secondary involvement due to haematogenous dissemination may be seen in almost any anatomical location. Kidney involvement in echinococcosis is extremely rare (2%–3% of cases), even in areas where hydatid disease is endemic.⁵ Renal hydatid cysts usually remain asymptomatic for many years. There are no pathognomonic clinical signs except cystic rupture into the collecting system, which leads to acute renal colic and hydatid-uria.^{6,7}

Cystic rupture into the collecting system, causing hydatiduria is pathognomonic, though seen in only 10-20% of

renal hydatidosis and is usually microscopic.⁷ Gross passage is rather uncommon, but has a tremendous diagnostic utility.

IMAGING FINDINGS

Imaging findings in hydatid disease depend on the stage of cyst growth, (i.e. whether the cyst is unilocular, contains daughter cysts or is partially or completely calcified). Plain films are usually nonspecific and mostly non-revealing. A thin rim of calcification delineating a cyst is suggestive of an echinococcal cyst.

Excretory Urography

Excretory urography provides assessment of renal function. Calyceal distortion is the predominant finding, followed by caliectasis and non-functioning kidney, possibly caused by the mass effect of cystic lesions.⁸ USG and Computed Tomography (CT) scans are the common imaging modalities for the diagnosis of hydatid disease.⁴

Sonography

The characteristic sonographic finding is anechoic lesions with well-defined margins. In the classification system of Gharbi et al.⁹ Hydatid cysts are classified into five types on the basis of their sonographic appearance.⁹ Type I hydatid cysts appear as well-defined, purely anechoic spaces that may be indistinguishable from simple renal cysts. The “Falling snowflakes” sign, which is characterized by multiple echogenic foci of hydatid sand, is a pathognomonic finding for hydatid cyst.¹⁰ In type II hydatid cysts, a focal or diffuse detachment of the inner germinal layer results in a floating membrane inside the cyst. Type III hydatid cysts with multi-septated daughter cysts. Type IV hydatid cysts contain coarse infolded membranes and internal echoes. Calcification with a ring-like pattern occurs in the pericystic layer of the wall of the hydatid cyst in type V lesions.¹⁰ In our case it is of type-III hydatid cyst.

CT

Typical CT findings for renal hydatidosis include a cyst with a thick or calcified wall, a unilocular cyst with a detached membrane, a multiloculated cyst with mixed internal density and daughter cysts with lower density than the maternal matrix.¹¹

MRI

Has been gaining popularity for investigating hydatid disease involving soft tissues.¹² The MRI shows the cysts adequately, but MRI offers no real advantage over CT scan in renal hydatid cyst.

In general, surgery is the treatment of choice in renal hydatid cyst. Kidney-sparing surgery (Cystectomy with pericystectomy) is possible in most cases (75%). Nephrectomy (25% of cases) must be reserved for destroyed kidneys.¹³ Albendazole is medical treatment of choice in disseminated hydatid disease, localized disease with poor surgical risk, ruptured cysts and significant intraoperative spillage. The technique of sonographically guided percutaneous aspiration, injection and re-aspiration is safe and effective for the treatment of renal hydatidosis.¹⁴ All type I and type II lesions as well as some type III lesions without non-drainable solid material are appropriate for this technique.

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