



Case Report

Isolated primary Hydatid cyst of kidney: A case report of asymptomatic patient

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Abstract

We report an isolated primary hydatid cyst of kidney in a pregnant asymptomatic woman. We also present salient diagnostic feature of asymptomatic patients of hydatid cyst.

Keywords: Renal, hydatid cyst, asymptomatic pregnant woman.

Introduction

Hydatid cyst of kidney is a very rare condition (2-3%) caused by the larval stage of *Echinococcus granulosus* (Warren *et al.*, 2002). It is endemic in parts of the Middle East, South America, Australia, New Zealand and Alaska (Vuitton, 1997). Isolated renal involvement is even rarer (Yaycioglu *et al.*, 2006). We report a rare case of primary renal echinococcosis in an asymptomatic pregnant female with emphasis on cytological, histopathological and radiological diagnosis.

Case report

A 23-year old primi gravida, otherwise asymptomatic came for routine antenatal checkup. Per abdomen was within normal limits without lump/mass, tenderness and discomfort. Her blood investigations were normal with no eosinophilia. Renal function tests were normal. Her ultrasound (USG) showed lesion in left renal fossa arising from left kidney. Abdominal examination did not reveal any abnormal mass. Rest of systemic examination was normal. CT scan revealed a well defined round to oval hypodense well capsulated, non enhancing, retroperitoneal, cystic lesion measuring 111x109x90 mm showing multiple thin septi within, with daughter cyst like areas within. This lesion involving mainly upper and part of mid pole of left kidney. The collecting system, ureter and bladder were devoid of any such lesions. Her routine blood investigations were normal with no eosinophilia and normal renal function tests. X-ray chest Paviw was normal. Since patient was asymptomatic and renal functions were normal, it was decided to continue pregnancy. Kidney- sparing pericystectomy surgery was planned after 9 months of delivery. The resected specimen showed a large capsulated cyst with multiple whitish grape like daughter cysts of different sizes inside.

Showing well defined round to oval hypodense well capsulated non enhancing retroperitoneal, cystic lesion in left renal fossa showing multiple thin septi within with daughter cystlike areas. Lesion involve mainly upper and mid pole of left kidney. Collecting system devoid of the lesion on these sections displacing and compressing left adrenal gland, vessels peripherally in relation to the lesion.

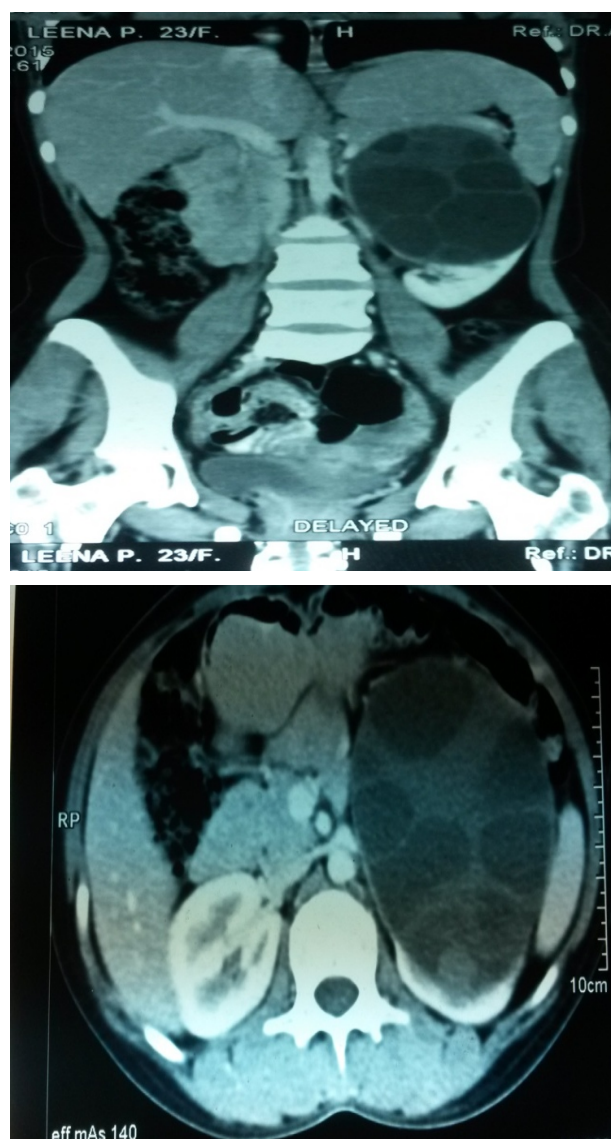


Fig 1. CT N MRI Image enlarged lesion on left side kidney.

The cytological examination of cystic fluid showed scolices and hooklets of *Echinococcus granulosus*. The

histological sections revealed laminated membrane with Brood's capsule confirming the diagnosis of hydatid disease.



Fig 2. Surgical specimen showing echinococcal daughter cysts and capsules.

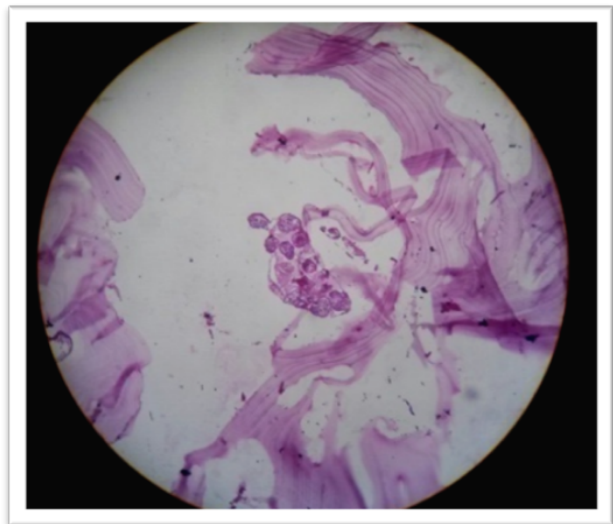
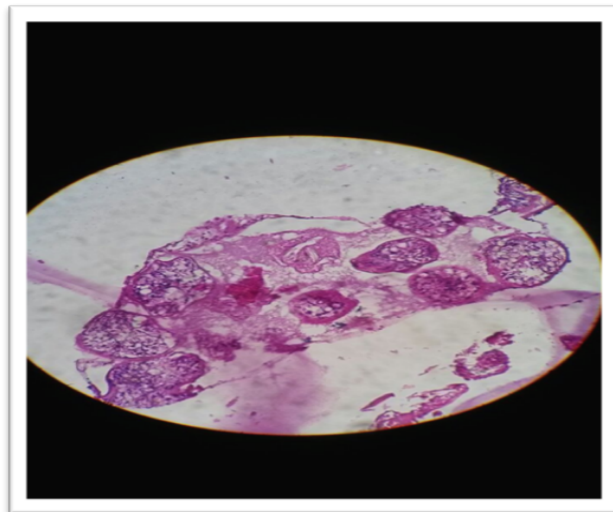


Fig 3. section of an *E. granulosus* cyst, stained with H&E. The cyst wall is composed of an acellular laminated external layer and a thin, germinal (nucleated) inner layer. Note the brood capsule with protoscoleces inside. Image taken at 100× magnification.



Fig. 4. Higher magnification (40×) of the cyst in Figure showing daughter cyst (brood capsule). Note the hooklets inside one of the protoscoleces and the calcareous corpuscles along the germinal layer.

Discussion

Echinococcosis is produced by larval stage of the echinococcus tapeworm, *E. granulosus*. Man is the intermediate host and acquires disease by ingesting water and vegetables contaminated with faeces of dogs. Dogs, fox, wolf and jackals are definitive hosts (Goel *et al.*, 1995). After ingestion, the hexacanth embryos are hatched in duodenum. These embryos pass through intestinal wall to reach the portal venous system and the liver. Hence liver is the most commonly affected organ. Liver acts as the first filter as the embryos get arrested in sinusoidal capillaries. Those larvae that escape liver are next filtered by the lungs. Embryos which pass the pulmonary capillaries then enter the general blood stream and lodge in various organs (Strohmaier *et al.*, 1990). Practically, all the organs spleen, brain, heart, kidney, genitor-urinary tract, muscles- can be invaded (Poulios, 1991).

Embryos forms a hydatid cyst, the young larva being transformed into a hollow bladder from the inner side of the cyst, brood capsules with number of scolices are developed. A single egg contain thousands of scolices. The fully developed scolex is an end product. A hydatid cyst consists of 3 layers-pericyst, exocyst, endocyst containing many daughter cysts, scolices, hooklets. (Buckley RJ 1985). Isolated hydatid cyst is a rare condition and can be challenging in absence of resources (Yaycioglu *et al.*, 2006). Even though majority isolated cysts are primarily isolated, it may involve renal proper after spreading intra and infra capsular area.

Common presenting complaints are mass in flank, hematuria, pain, passage of 'grape shins' like material in urine, hypertension, renal colic. (Saidi, 1976) Routin blood examination can only help patient of hydatid cyst disease by showing eosinophilia. This is only in 40-50% of cases. (Poulios, 1991; Buckley *et al.*, 1985; Aragona *et al.*, 1984) Radiologically, plain films are not specific and tremendously revealing but Ultrasonography, CT scan and MRI are main mainstay in diagnosis of hydatid cyst (Haines *et al.*, 1977). Even though accuracy is operator and radiologist dependant it has tremendous diagnostic utility. Treatment of choice in renal

hydatid cyst is surgical removal. The type of surgical management of renal echinococcosis changes of individual patient and type of removal may be nephrectomy, partial nephrectomy or marsupialization. (Poulios *et al.*, 1991; Buckley *et al.*, 1985). Risk of cyst rupture and dissemination, hypersensitivity reaction during dissection and removal is always there so careful meticulous care during removal is mandatory. Pre and postoperative administration of Albendazole for about one month decrease chances of anaphylaxis and risk of recurrence rate postoperatively. (Mongha *et al.*, 2008). Laparoscopic removal is not widely practice yet due to fear of rupture of cysts, dissemination during dissection and removal.

Conclusion

In general, asymptomatic isolated patients can be accurately diagnosed with radiological, cytological and histopathological tools. Treatment of choice is surgical removal sparing kidney (cyst removal with pericystectomy).

References

- Aragona, F., Di Candio, G., Serretta, V., and Fiorentini, L. (1984). Renal hydatid disease: report of 9 cases and discussion of urologic diagnostic procedures. *Urologic Radiology*, 6, 182-186.
- Buckley, R.J., Smith, S., Herschorn, S., Comisarow, R.H., and Barkin, M. (1985). Echinococcal disease of the kidney presenting as a renal filling defect. *Journal of Urology*, 133, 660-661.
- Goel, M.C., Agarwal, M.R., and Misra, A. (1995). Percutaneous drainage of renal hydatid cyst: early result and follow-up. *British Journal of Urology*, 74, 724-728.
- Haines, J.G., Mayo, M.E., Allan, T.N., and Ansell, J.S. (1977). Echinococcal cyst of the kidney. *Journal of Urology*, 117, 788-789.
- Mongha, R., Narayan, S., and Kundu, A. K. (2008). Primary hydatid cyst of kidney and ureter with gross hydatiduria: A case report and evaluation of radiological features. *Indian journal of urology*, 24(1), 116-117.
- Poulios, C. (1991). Echinococcal disease of the urinary tract: review of the management of 7 cases. *Journal of Urology*, 145, 924-927.
- Saidi, F. (1976). Surgery of hydatid disease. Philadelphia; W.B. Saunders Co.
- Strohmaier, W.L., Bichler, K.H., Wilbert, D.M., and Seitz, H.M. (1990). Alveolar echinococcosis with involvement of the ureter and testis. *Journal of Urology*, 144, 733-734.
- Vuitton, D.A. (1997). The WHO informal working group on Echinococcosis. Coordinating Board of WHO-IWGE. *Parassitologia*, 39, 349-353.
- Warren, D., Johnson, J.R., and Christopher, W. (2002). Parasitic diseases of the genitourinary system. In: Walsh, P.C., Retik, A.B., Vaughan, F.D., Editors. *Campells Urology*. 8th ed. Vol. 2. Philadelphia: Elsevier Saunders. pp 786-788.
- Yaycioglu, O., Ulasan, S., Gul, U., and Guvel, S. (2006). Isolated renal hydatid disease causing ureteropelvic junction obstruction and massive destruction of kidney parenchyma. *Urology*, 67(6), 15-17.