Contrast CT evaluation of an isolated renal hydatid cyst

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DESCRIPTION
Hydatid disease is a zoonotic disease caused by *Echinococcus granulosus* or *Echinococcus multilocularis*.1 Rudolph, in 1808 first used the term ‘hydatid’ to describe echinococciosis, which in ‘Greek’ means watery vesicle. Definitive hosts of the disease are dogs, foxes or other canids.2 Humans are accidental hosts of the disease in whom it can affect almost every system.3 The hydatid cysts of kidney is extremely rare and the third most common organ involved in hydatidosis after the liver and the lungs. The incidence of renal involvement is about 2%–4% in all hydatidosis cases.4,6 The patient usually presents with non-specific symptoms like haematuria, vague flank or lower abdominal pain, or it may rupture, leading to hydatiduria. Renal hydatid cysts are classified into five types: (1) Type I cysts are unilocular, without internal architecture, (2) Type II cysts contain focal or diffuse detachment of the inner germinal layer, (3) Type III cysts are multiseptated daughter cysts, (4) Type IV which contain dense folded membranes, internal echoes and has the heterogeneous appearance and (5) Type V has pericystic ring-like calcification, signifies dead parasite.7 It can mimic other renal pathologies due to its morphological resemblance; however, the combinations of characteristic imaging findings and serological tests (like hypereosinophilia) usually make the diagnosis. Ultrasonography (US) and CT are commonly used imaging modalities; however, most of the time, a CT scan is needed to exclude close differentials like a simple cortical cyst, abscess, cystic nephroma. The cyst wall in type I hydatid cyst and the daughter cysts of type II are better delineated with contrast-enhanced CT (CECT) than sonography. Contrast CT imaging also helps differentiate abscess, as an abscess will show a thick enhancing wall, internal necrosis, thickening of Gerota’s fascia and perirenal fat stranding. The CT scans also help differentiate between type IV hydatid cysts and tumours, as the CT can easily demonstrate multiple daughter cysts and delineate ring-like calcification along the cyst wall, which signifies a hydatid cyst while avoid heterogeneous enhancement in the lesion favours a neoplastic lesion. The CT scan can also assess the other viscera at one go. Surgery is the mainstay treatment for symptomatic renal hydatid cyst through open access or the retroperitoneal approach; however, the retroperitoneal approach is preferred to avoid contamination or spread.8 A 45-year-old woman came to our surgery department with a complaint of pain in her right flank region. On physical examination, she had mild fullness in her right lumbar region; however, rigidity/tenderness was present. The routine blood investigations were normal. For further assessment, she underwent a US scan of the abdomen, which demonstrated a complex heterogeneous multicystic lesion in the mid-lower pole of

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**Figure 1** CT scan of the abdomen (A) non-contrast axial plane image illustrate a well defined cystic lesion with thin internal septations involving the middle and lower pole of the right kidney (black arrow) with peripherally placed ring-like calcification (white arrow). (B) Postcontrast axial plane images illustrate multiloculated cystic lesions with internal daughter cysts (black arrow). Postcontrast computed abdominal tomography scan (C) sagittal plane (D) coronal plane images demonstrate large cyst with a non-enhancing wall (black arrow) and internal septations involving middle and lower pole of the right kidney.

**Figure 2** Histopathology image under ×10 resolution shows laminated cyst wall comprises of endocyst, ectocyst and pericyst of the hydatid cyst (black arrow).
the right kidney. After that, a CECT scan of the abdomen was performed, which revealed a thick-walled cystic lesion with multiple daughter cysts. It had ring-like calcifications along the walls of the daughter cysts, and it did not enhance on postcontrast phases (see figure 1A–D). A final diagnosis of renal hydatid cyst was made after histopathological examination post surgery (see figure 2). The patient was given Albendazole(10–15 mg/kg/day) as a prophylactic drug for 4 weeks before and 1 week after the surgery. In our patient, postoperative period was uneventful.

Patient’s perspective

It was initially very uneasy due to recurrent pain abdomen on right side. After some time I was feeling some fullness on my right side. I came to the hospital and doctors helped me alot in making diagnosis and treating me, initially I was on some medicines, then surgery was done. Now, I am in better state.

Learning points

- A renal hydatid cyst is an infrequent entity.
- Isolated renal hydatid cyst can easily be misdiagnosed. Therefore, a thorough radiological investigation is essential, and contrast-enhanced CT is the modality of choice for that.

Contributors

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Case reports provide a valuable learning resource for the scientific community and can indicate areas of interest for future research. They should not be used in isolation to guide treatment choices or public health policy.

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