Inflammation and infection

Isolated renal hydatid cyst: A rare case report

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ABSTRACT
Hydatid disease in developing countries like Nepal is not uncommon but isolated renal involvement without liver and lung hydatid is rarely described in literature. It may create diagnostic dilemma at times. We describe a 22-year-old female with isolated renal hydatid disease managed with nephron sparing surgery (NSS).

Introduction
Hydatid disease is a zoonotic disease which can affect every organ in human body. Though endemic in parts of Eastern Europe, South America, Middle East, Australia, it is occasionally seen in patients from South Asian countries like Nepal, India. Hydatid cyst of kidney is third most common site after Liver and Lungs. Renal hydatid management includes medical treatment with albendazole, pericystectomy, Nephron Sparing Surgery (NSS) and Simple Nephrectomy.

Case history
22-year-old female presented to general surgery OPD with mild epigastric discomfort for 2 months. However, there was no history of severe pain, radiation of pain, nausea, vomiting, burning micturition, flank pain or fever. Similarly, there was no history of hematuria and significant surgical and medical history. Her general physical examination was normal. Abdominal examination showed right flank mass extending till right iliac crest approximately 15*6 cm, non-tender and cystic. Digital rectal examination and other systemic examination were essentially normal.

Ultrasonography of abdomen and pelvis showed large right retroperitoneal cyst with daughter cysts abutting right kidney. Complete blood count, Renal function test, Liver function test were normal. Contract Enhanced Computed Tomography (CECT) abdomen and pelvis showed large cystic structure with multiple daughter cysts arising from lateral surface of upper and middle pole of right kidney (Fig. 1). No similar lesion in contralateral kidney, liver and lungs.

Considering large sized cyst and risk of rupture, planned for operative intervention. Patient was prescribed Albendazole for 1 week preoperatively. Based on imaging finding, right open partial nephrectomy was planned with the aim of organ preservation as far as possible. On exploration, large cystic structure was found to arise from right kidney (Fig. 2). Renal artery and vein were taken under control and cyst excision was planned. Cyst was opened and content evacuated (Fig.s. 2) and 20% hypertonic saline was instilled as a scolicidal agent as there was chance of uncontrolled spillage of content. Cyst was excised with rim of normal parenchyma. During cyst excision pelvi-calyceal system was opened and it was repaired over a DJ stent. Renorrhaphy was done placing the bolster made of surgicell and absorbable gel and margin was approximated with vicryl 3-0 suture. Retroperitoneal drain was placed. Patient had unremarkable recovery postoperatively. Patient was prescribed Albendazole for four weeks and DJ also removed at same time. Histopathology confirmed hydatid cyst disease (Fig. 3). Postoperative follow up imaging at 6 months and 1 year showed no recurrence.

Discussion
Hydatid disease is caused by Echinococcus granulosus, a flat worm. Dog or other carnivores are definitive host and sheep, goat etc. are intermediate host. Human are accidental dead end host, usually get the disease after ingestion of eggs contaminated in food, vegetables, water or handling of pet like dog. After ingestion, eggs hatch into larva in intestine of human and penetrate venules and capillaries to reach liver and lungs. Only 3% of larva escape liver and lung and disseminate to whole body. Renal involvement is documented in 2–3% of total hydatid disease which is very less compared to liver and lung involvement. Isolated renal hydatid disease is even rarer. Renal hydatid cysts are most...
commonly asymptomatic. Unique but less common complaint noted is rupture of hydatid cyst into pelvi-calyceal system resulting in renal colic and hydatiduria.

Diagnosis is made by characteristic imaging findings but imaging alone can’t differentiate hydatid disease from renal abscess, infected cyst or necrotic tumor. Serologic and hemagglutination test have low reliability but positive test result is indicative of active disease. Imaging findings may differ at different stages of disease. Ultrasonography of kidneys may detect hypoechoic multicystic/multiloculated cyst with daughter cyst and hyperechoic hydatid sand. When patient is asked to

Fig. 1. Computed Tomography (CT) Scan of Abdomen and Pelvis shows large cyst arising from Right Kidney with daughter cysts.

Fig. 2. Intraoperative photograph with large cyst arising from right kidney (Panel A) and content of sac (Panel B).
change posture, under real time imaging, “falling snowflake pattern” may be observed due to movement of hydatid sand. Computed Tomography (CT) scan has sensitivity and accuracy of 98% to diagnose hydatid disease. It shows hypodense unilocular or multilocular cysts with well-defined walls. Occasionally wall is calcified and shows contrast enhancement.

Management options for renal hydatid cysts include medical treatment with albendazole, Percutaneous Aspiration, Irrigation, and re-aspiration (PAIR), marsupialization of cyst, partial or simple nephrectomy. Surgery removes the pathology and is treatment of choice. As far as possible, Nephron Sparing Surgery (NSS) is recommended. If kidney is non-functional, nephrectomy is an alternative treatment modality. Surgical approach is open or minimal invasive as expertise of treating surgeon. Scolicidal agents commonly used are 20% sodium chloride, 10% betadine, 1% iodine, 2% formalin to prevent implantation and recurrence. Pre-operative and post-operative one-month treatment with albendazole is recommended to sterilize cyst, prevent anaphylaxis, decrease tension in cyst and recurrences. Post-surgery, patients need to be followed for recurrences.

Conclusion

Isolated renal hydatid cyst is rare clinical entity and can be managed with nephron sparing surgery.

Consent statement

Consent from patient taken for publication without the disclosure of identity.

Declaration of competing interest

None.

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