Renal Hydatid cyst and Renal Cell Carcinoma in the same kidney- A rare case report

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Abstract:
Renal hydatid is an uncommon parasitic infestation of the urinary system, kidney being the most affected. Renal hydatid co-existing with a renal cell carcinoma in the single renal unit is even rarer. This is a rare case report of a conventional clear cell renal carcinoma and renal hydatid in the same renal unit in a 54 year old male. Pre operative CT scan showed a highly vascular mass lesion in the lower pole of the right kidney with exophytic hypodense component superior to the mass suspicious of renal cell carcinoma. He underwent open radical nephrectomy and histopathology was a surprise with conventional clear cell RCC and renal hydatid in the same kidney.

Keyword: Renal hydatid, renal cell carcinoma (RCC)

Introduction:
Cystic echinococcus, caused by Echinococcus granulosus, is a cyclozoontic parasitic infestation in which man is an incidental intermediate as well as an end host. Hydatid disease is common in the sheep and cattle rearing regions of the Mediterranean, parts of Africa, Latin America with sporadic cases reported from the Indian subcontinent. It commonly affects the liver and lungs, renal hydatid disease in human is an uncommon disease, comprising only 2 to 5% of all human hydatid (1,2).

Case:
A 54 year old man, diabetic and hypertensive, from northeastern India presented to us with recurrent fever and right flank pain for three months. He had no hematuria, passage of fleshy material in urine, or weight loss. Systemic examination revealed a firm mass in the right lumbar region. Pre operative CT scan revealed a 4x4cm enhancing solid mass lesion in the lower pole of the right kidney and a 9.5x9.8cm exophytic cystic lesion superior to the mass lesion. There was no infiltration of the adjacent structures and no significant lymph node enlargement. The imaging was suggestive of renal cell
carcinoma; chest radiography was normal. Blood reports were: serum creatinine 1.2mg/dl, serum calcium 9.6mg/dl, hematocrit 36%, platelets- 102000/ccmm and Erythrocyte Sedimentation Rate (ESR) of 15mm at 60 minutes.

He underwent a right open radical nephrectomy and had an uneventful recovery. Surgical specimen revealed a solid lesion with closely packed polygonal cells with clear cytoplasm, consistent with conventional clear cell renal cell carcinoma (Furhman nuclear grade 2). The cystic component showed lamellated eosinophilic membrane of hydatid cyst containing degenerated scolices and hooklets. He was started on Albendazole therapy.
He had no recurrent disease on follow up at one and half years later.

**Discussion:**

Echinococcus granulosus affect man in larval or hydatid stage. The adult Echinococcus tapeworm lives in the proximal small intestine of the definitive host, usually dogs, attached by hooklets to the mucosa. The eggs are released into the intestine and excreted in faeces. Human become an intermediate host after ingestion of vegetables or water contaminated with echinococcus eggs. The eggs hatches and penetrate the intestinal wall and lodges in tissue to become hydatid cysts (3). The liver is the most commonly affected organ. The kidney is rarely affected even in endemic areas. Renal hydatid cysts are usually asymptomatic for many years and are symptomatic with rupture or grown into a large mass.

**Figure-4 Echinococcus granulosus life cycle**

On ultrasound findings of hydatid cyst include “floating membrane” and “snowstorm” appearances off loating protoscoleces but small hydatid cyst are often reported as complex cyst. The presence of a linear layer of fluid between the membranes with no posterior echoes, referred ot as “spiral sign” maybe helpful differentiating it from a cyst of renal neoplasm (4). CT scan or MRI remains the mainstay of diagnostic imaging which show Cartwheel appearance of the daughter cyst and non enhancement of the solid component. However, small hydatids and hydatid with calcifications still mimics malignant renal lesion even on CT scan. Renal hydatid may be mistaken for a cystic component of a renal cell carcinoma. Renal hydatid co-existing with malignancy is extremely rare (5). There were two case reports of renal hydatid and malignancy in the same kidney, sarcoma (6) and adenocarcinoma (7), in both cases the hydatid was incidentally detected. To our knowledge this is the first case report of renal hydatid and renal cell carcinoma (RCC) in the same kidney. Renal hydatid cyst often mimics complex cyst of malignant origin and pose challenging diagnostic and operative decision making (8). Hydatid is not a predisposing factor for malignancy and the presence of hydatid cyst and malignant lesion in a single kidney is more often an incidental finding.

The management of renal hydatid is surgical excision, preferably nephron sparing procedures. Nephron sparing procedures can be done by open excision (pericystectomy), open partial nephrectomy (9), laparoscopic transperitoneal partial nephrectomy (10) or retroperitoneal partial nephrectomy (11) or laparoscopic trocar aspiration (12) or PAIR (Percutaneous Aspiration, Injection and Re-aspiration) therapy. The scolicidal solutions that can be use intra operatively in hydatid surgery to avoid dissemination are 1.5% Cetrimide- 0.15% chlorhexidine (Savlon®), Povidone iodine 10%, Ethyl alcohol 95% and Saline 20%. Intra operatively these solutions are soaked in sponge to isolate the cyst and act both as a mechanical and scolicidal barrier (13). Surgical therapy is followed by oral Albendazole 400mg twice a day,
(15mg/kg/day, maximum upto 800mg/day) or in combination with praziquantel for 3-4 months (14). The complications in management of renal hydatid include dissemination, anaphylaxis, hydatiduria and urinary tract obstruction, rupture (15,16) or rarely pulmonary embolism (17).

Conclusion:
Renal hydatid with malignancy in the same renal unit is a rare condition and is an incidental finding in a malignant lesion. Nephron sparing procedure is the preferred treatment for renal hydatid even in the presence of suspected malignancy.

References:

