Primary Renal Hydatid Cyst

AH Bhandarwar#, MB Tayade##, K Makki*, S Mhaske**

Abstract
Primary involvement of the kidney is rare in case of hydatid disease. We present a case of primary right renal hydatid cyst in a 45-year-old male patient admitted with right lumbar pain radiating to the back. Computed tomography of the patient was done and was suggestive of hydatid cyst involving the lower pole of the right kidney. The cyst was managed by open surgical excision and perioperative course of Albendazole. This case emphasizes on better detection and evaluation of such rare cases to identify better treatment strategies.

Introduction
Involvement of the kidney is a rare clinical scenario seen in case of echinococcus infection, with liver and the lungs being more commonly involved. Involvement of the kidney is seen in about 2 – 3% of the cases,¹ with isolated involvement of the kidney being even rarer. Patient may be asymptomatic or present with symptoms of lumbar region pain, haematuria, and hydatiduria. We present a rare case of primary right renal hydatid cyst with presenting feature of right lumbar pain.

Case Report
A 45-year-old male patient, resident of Akola, Maharashtra, presented with complaint of right lumbar region pain radiating to the back, with no history of dysuria, pyuria or haematuria. Physical examination did not reveal any significant findings. Abdominal ultrasound was suggestive of a cyst in the lower pole of the right kidney. Computed tomography (CT scan) of abdomen was done which showed the presence of a hydatid cyst of the inferior pole of the right kidney. Routine investigations of the patient including blood and urine tests were normal. Open hydatid cyst excision was done under general anaesthesia via a right lumbar incision. The right kidney was identified after reflecting the peritoneum upwards. A cystic lesion was seen at the lower pole of right kidney. The lesion was aspirated and scolicidal agent (Cetrimide) was injected. A small incision was made in the cyst after surrounding it with mops to prevent contamination of rest of the operative field. Daughter cysts and remaining contents were aspirated out. Cyst wall was then closed with interlocking sutures over a drain. Incision was closed in layers. Patient was given a perioperative course of Albendazole with a view to sterilize the cyst preoperatively and to decrease the risk of recurrence of the cyst post operatively.

Discussion
Echinococcosis is world wide zoonoses produced by the larval stage of E. granulosus. The adult worm lives in the proximal small intestine of the definitive host and attaches to the mucosa by means of hooklets. Eggs are released into the intestine of the host and excreted in the faeces. The humans become intermediate hosts by the contact with definitive host (usually a dog) or ingestion of contaminated soil or water or vegetables. The ovum loses its protective coating on undergoing digestion in the duodenum. Once the parasitic embryo passes through the intestinal wall to reach the portal venous system or the lymphatic system, the liver acts as a first line of the defense and is most commonly involved (75%), followed by involvement of the lungs (15%) which act as

#Associate Professor and Unit Head; ##Professor and Unit Head; *Chief Resident; **Post Graduate Resident, Dept. of Surgery, Grant Medical College and Sir JJ Group of Hospitals, Mumbai - 400008.
Involvement of the kidneys is extremely rare (2-3%). Renal hydatid cysts usually remain asymptomatic for many years. It is postulated that the cysts pass through the portal system into the liver and retroperitoneal lymphatics to reach the kidneys. The hydatid cyst of the kidney is considered closed if all three layers of the cyst i.e. pericyst, ectocyst and endocyst are intact. When the cyst is no longer protected by the third layer i.e. pericyst or by the lining of collecting system it is considered to be an exposed cyst. If all the three layers of the cyst have ruptured resulting in free communication with the calyces and pelvis, it is called an open or communicating cyst. Cystic rupture into the collecting system, causing hydatiduria is pathognomonic of renal hydatidosis, though it is usually microscopic and is seen in only 10-20% of renal hydatidosis. Gross hydaturia is uncommon, but diagnostic of the condition. The cysts passed in the urine are daughter cysts; hence they lack the third layer pericyst, which is contributed by the host around the mother cyst. Eosinophilia is noted in about 50% cases. Serological tests in primary renal hydatidosis are usually negative. The mainstay of diagnosis is by advanced radiological
techniques like CT scan and magnetic resonance imaging.\textsuperscript{1, 3}

The stage of cyst growth (i.e., whether the cyst is unilocular, contains daughter cysts, or is partially or completely calcified) determines the findings on radiological imaging studies.\textsuperscript{2, 6} Difference in the cyst content leads to difference in attenuation and signal intensity between the fluid in the central portion of the cyst and in the peripheral cysts. This is a typical finding in Echinococcosis. When daughter cysts are separated by the hydatid matrix, they demonstrate a “wheel spoke” pattern. The matrix represents hydatid sand containing membranes of broken daughter vesicles and scolices. Regressive changes occur in the centre, whereas peripheral proliferation continues indefinitely. The cytotoxic effects of the vesicular fluid may result in an exuberant granulomatous response by the host’s immune system resulting in fibrosis and necrosis. Complete calcification of the wall of a hydatid cyst can be considered an indication of quiescence or perhaps death of the parasite.

In an appropriate clinical scenario, detection of a cystic lesion with internal septations and sand, wall calcifications, or the rosette sign is usually suggestive of renal hydatidosis.

Surgery is the treatment of choice in cases of renal hydatid cyst.\textsuperscript{8, 9, 10} Kidney sparing hydatid cyst removal (cystectomy with pericystectomy), is possible in most cases (75%). Nephrectomy (25%) is considered only if the kidney is destroyed by the cyst.\textsuperscript{8} Both open and laparoscopic techniques have been described. There is fear of cyst rupture and dissemination during laparoscopy. Utmost care should be taken to prevent spillage and resultant disseminated hydatidosis during the surgery. During kidney-sparing surgery scolicidal solutions such as hypertonic saline should be used before opening the cavities to kill the daughter cysts and therefore prevent further spread or anaphylactic reaction.

Pre and postoperative course of Albendazole is recommended to sterilize the cyst, decrease the chance of anaphylaxis and decrease the tension in the cyst wall thus reducing the risk of spillage during surgery and recurrence, post operatively.\textsuperscript{7}

Conclusion

Most cases of renal hydatosis are dealt with open surgery i.e. cystectomy with pericystectomy. In this case, a kidney sparing cystectomy was done with approximation of the edges of the pericyst over a drain. More study is needed on such rare cases of primary renal hydatidosis to define a standard treatment modality after comparing the various available options. Also minimally invasive approach needs to be studied in comparison with the open approach.

References

CAN THE POLYPILL SAVE THE WORLD FROM HEART DISEASE?

Combining several different drugs in one pill could reduce heart disease by 80%. The Indian Polycap Study (TIPS), reported in The Lancet today.

TIPS is a large phase II randomized trial that assessed the effects of nine different pills containing either, single agents or combinations of two, three, four or five (the polypill) drugs.

The group of patients studied is one that has been increasing rapidly in numbers in the past decade with the increase in obesity across the world-middle aged (45-80 years) men and women without previous cardiac disease, but with at least one cardiovascular risk factor: high blood pressure, obesity (measured by the hip to waist ratio), high cholesterol, diabetes, or smoking).

The results from TIPS show that each of the components of the polypill did what was intended: the statin reduced cholesterol, the three antihypertensives reduced blood pressure – and the more of them, the greater the reduction – and aspirin reduced the clotting ability of the blood. They found one unexpected issue with the Polycap: the degree of cholesterol lowering was slightly less with the Polycap than in patients who got simvastatin alone. This effect seems to be related to the rate of conversion of simvastatin in the Polycap. Also, in view of the safety and tolerability in large trials of simvastatin 40 mg, the next generation polypill might shift to that higher dose (or to a moderate dose of a more potent statin which should become available generically in a few years).

Some regimens seemed to be a little better tolerated, and those with triple antihypertensives had a slightly higher rate of hypotension (as would be expected). On the other hand, some components of the polypill might help counteract side-effects of others (e.g. potassium concentrations for the angiotensin-converting enzyme inhibitor and the diuretic). So a smoker without a history of high blood pressure or high cholesterol was nonetheless treated for both, and was able to tolerate the treatment. This approach illustrates the feasibility of the principle that one can treat patients with multiple classes of drugs for cardiovascular risk factors, even if the patients do not have some of these risk factors.

What are the challenges? First, we need a large phase III trial with longer follow-up to assess the true feasibility of this strategy. How can the use of a polypill be implemented in a broad population? What is the full safety profile (there were 3-8% of patients who had increases in creatinine and potassium and in liver function tests; what adjustments need to be made to those patients?) How does the doctor decide which component caused the side-effect?

That approach might help when treating a patient with only single risk factors (e.g., a smoker without high blood pressure). Should such a patient be put on three antihypertensives, and thus have the risk of angio-oedema, glucose intolerance, or bradycardia?