

Case Reports

Incidental Intrarenal-pelvic Hydatid Cyst discovered during Percutaneous Nephrolithotomy (PCNL)

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Echinococcosis is an infestation caused in humans by the larval form of *tenia echinococcus* (*E. granulosus*). Humans are accidental intermediary hosts. The incidence of hydatid disease is 0.4/100,000, and renal infestation occurs in 2% to 3% of all cases.^{1,2} Most cases are symptomatic. We present a case of incidentally discovered hydatid disease encountered during percutaneous nephrolithotomy (PCNL) managed without sacrificing the kidney.

Case Report

A 32-years old housewife presented with left lumbar pain and hematuria for 6 months. On examination she had moderate tenderness in left lumbar region. Laboratory investigations revealed hemoglobin: 12.5 gm/dl (11.1-14.5 gm/dl), white cell count: 11.1 x 10E9 per liter (4-10 x 10E9 per liter), neutrophils: 74.9% (40-75 %), lymphocytes: 19.8% (20 - 45 %), platelets: 409 x 10E9 per liter (150 - 400

x 10E9 per liter), random blood sugar: 87 mg/dl (80-160 mg/ dl), sodium: 143 mmol/ L (136 - 148 mmol/L), potassium 3.9 mmol/L (3.6 - 5 mmol/ L), creatinine: 0.7 mg/dl (0.65 - 1.1 mg/dl), calcium: 9.6 mg/dl (8.6 - 10.5 mg/dl), phosphorous: 2.8 mg/dl (2.7 - 4.8 mg/dl), uric acid 3.6 mg/dl (2.4 - 7.2 mg/dl), urinalysis showed red blood cells: 2 and leukocytes: 18 per high power field. Urine culture showed growth of *Proteus mirabilis*. Intravenous urogram and ultrasound kidneys showed a 3cm radio opaque calculus in the left renal pelvis with multiple small daughter calculi with evidence of partial obstruction leading to moderate hydronephrosis (Figure 1). After treating the urinary tract infection, she underwent a PCNL for her renal stones. At surgery multiple flimsy membranous structures embedded in gelatinous material along with small mushy stones and debris was found that raised suspicion of renal hydatid disease (Figure 2). Histopathology revealed extensively calcified cystic tissue, lamellations and focal

necrosis of surrounding tissue. Echinococcal antibody titers were <1:16 (normal <1:32). She was put on albendazole treatment regimen and ultrasound abdomen repeated after 10 months showed no recurrence of cyst.

Discussion

Hydatid disease is endemic in cattle and sheep raising regions of the world. Although hydatid disease is endemic in areas of well known geographical distribution, increased travel and migration have led to spontaneous occurrence in unexpected regions. In our population an intense period of contact with cattle occurs during the Holy month of Zilhaj, during which the ritual of sacrificing cattle (goats, sheep, cows and camels) is performed, which could be a risk factor for contracting the disease.¹ Moreover, breaking of the chain between primary and secondary hosts for *E. granulosus* is not very effective, poor surroundings of slaughterhouses and use of natural fertilizers may be an influencing factor.³

The Echinococcal larvae penetrate the intestine to enter the blood stream and lymphatics, and travel to the liver, lungs and other organs. Direct invasion of the organs from an adjacent source may also occur.¹ The larvae may reach the kidneys through the bloodstream, lymph glands or by direct invasion. The kidney is usually involved as part of disseminated disease and isolated renal echinococcus is uncommon.

The usual presentation of renal hydatid disease is flank pain and mass. Hydatiduria, the passage of grape skin-like debris in the urine is reported in up to 29% of cases and serology is positive in half.^{2,4}

Eosinophilia is detected in 20% to 50% of patients with renal hydatid disease. The poor efficacy of Eosinophilia is due to a high incidence of false-positive results with other parasitic infestations. Negative serology does not exclude hydatid disease and positive serology does not confirm the diagnosis.²

On plain x-ray 0.9% of calcified renal masses have renal hydatidosis. IVP reveals mostly distortion of the calices or caliceal ectasia as a result of a renal mass involving the collecting system. Ultrasonography usually demonstrates the typical appearance of an echinococcal cyst that may be unilocular or multilocular. The determination of daughter cysts, which is characteristic of hydatid disease, is also possible on ultrasonography. Of radiologic investigations, CT

has some advantages. CT can more easily detect calcifications and daughter cysts, and it is more sensitive and accurate than ultrasonography. Also, CT provides more detailed information about communication with the urinary tract and extrarenal disease. Magnetic resonance imaging has no advantages over CT.²

Histopathologically, there is an outer non-nucleated layer having laminations made up of many layers of gelatin. Outside this opaque layer is inflammatory reaction that over a period of time makes a dense fibrous capsule. The daughter cysts develop from the inner germinal layer. These cysts eventually become leaky, resulting in sterile inflammation of the cyst or bacterial super infection. This causes shrinkage, fibrosis and eventual calcification of the cyst and destruction of the parasite structure, with only the pathognomic, hooklet bearing degenerated scolices remaining intact amid the paste like yellow, cholesterol rich debris.⁴

Surgical removal of intra-pelvic renal hydatid cyst without sacrificing kidney has been reported in the past.⁵

In our case the cyst was discovered incidentally on percutaneous surgery and was entirely intra-pelvic with no evidence of extra renal hydatid disease and patient did not experience anaphylactic reaction or dissemination postoperatively.

Hydatid disease may present in unusual ways and lead to diagnostic difficulty and management problems. A high index of suspicion for hydatid disease should be maintained while evaluating complex cystic renal masses. Preoperative diagnosis is highly desirable and albendazole may be useful to prevent anaphylactic reactions and disease recurrence. During percutaneous surgery intra-pelvic renal hydatid cyst can be encountered and may be managed percutaneously in combination with medications.

References

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