Endoscopic Treatment of a Primary Prostatic Hydatid Cyst

A Mini-Invasive Therapeutic Approach

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INTRODUCTION

Hydatid disease (HD) is a major health problem in developing countries. The disease is endemic in areas where the raising of sheep and cattle is common. Tunisia is a country of endemic hydatic pathology in stockbreeding areas with an incidence of 11.3/ 100000.(1)

All the organs in the human body may be affected by HD. Excluding the liver and the lungs, all of the other organs are considered as uncommon locations. Urinary tract involvement is not common, accounting for only 2% to 4% of cases.(2) The localization in the prostate is extremely rare.(3)

Open surgical management has been the treatment of choice in most cases.(4) In this report, we present, to the best of our knowledge, a new endoscopic approach to treat a prostatic hydatid cyst.

CASE REPORT

A 46-year-old man, with no medical history, was referred to our center with lower urinary tract symptoms. He came from the west region of Tunisia (endemic zone of HD). He had been complaining of difficult micturition, weak stream, frequency, sensation of incomplete emptying, and terminal dribbling of urine for 3 months. He reported pelvic pain and anejaculation. He also reported passage of soft grape-like material in the urine. Digital rectal examination revealed an enlarged prostate with a firm, non tender cystic mass above the prostate.

Complete blood count, routine blood chemistry, and urinalysis were within the normal limits.

Chest x-ray was normal. Pelvic ultrasonography showed a large pelvic cyst displacing the bladder upward. Transrectal ultrasonography showed a 70 × 60 mm cystic mass without any solid components in the pelvis, presumed to be a prostatic cyst, with otherwise normal findings of upper abdominal structures.

Computed tomography scan of the abdomen and the pelvis revealed a large cyst (80 × 70 × 60 mm) situated below the bladder in the prostate area. It displaced the bladder upward and anteriorly and the rectum posteriorly (Figure 1). After administration of intravenous contrast medium, a hyperdense rim around the mass was revealed (Figure1). This cystic tumor was

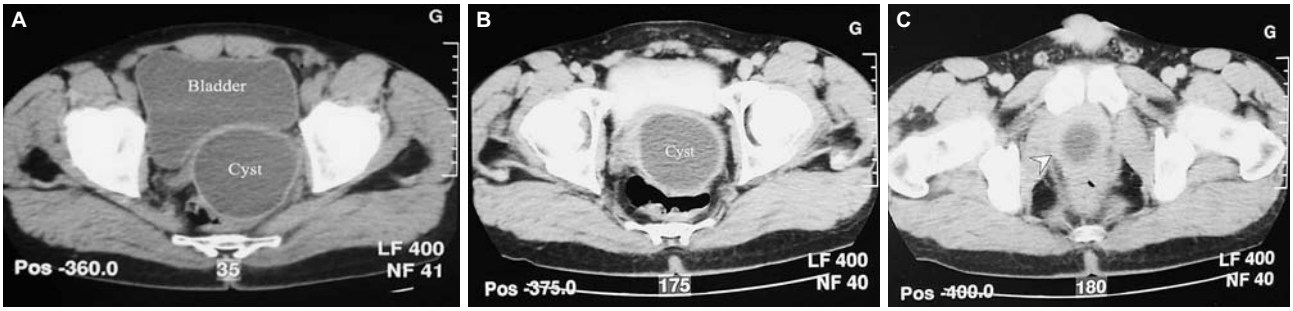

Figure 1 A. Computed tomography scan reveals a pelvic cystic mass displacing the bladder anteriorly. **B & C.** Computed tomography scan shows a hyperdense rim around the mass after administration of intravenous contrast medium.

homogeneous with a thick wall Bosniak type II and without any septations.

Casoni's intradermal test and enzyme-linked immunosorbent assay were negative.

Two differential diagnoses were made: utricle cysts or hydatid cysts (HC) of the prostate.

TECHNIQUE

Endoscopic treatment was planned in the lithotomy position under spinal anesthesia. The patient underwent cystoscopy that showed obstruction of the prostatic urethra because of a bulged posterior urethra wall.

The posterior wall of the prostatic urethra was incised with cold knife (Figure 2). Care was taken to spare the bladder neck and verumontanum to prevent retrograde ejaculation and incontinence.

Thereafter, 10% hydrogen peroxide was injected into the cyst cavity as a scolecidal agent, followed by aspiration of the cyst fluid. The cyst wall was opened (Figure 3), accompanied by immediate suction of the residual fluid and daughter cyst, to avoid local spillage. Then, the germinal layer of the cyst was completely removed to avoid recurrence. The cyst was washed again with hydrogen peroxide for 5 minutes.

All procedures were done under endoscopic direct vision and transrectal ultrasonography guidance. A trans-ureter tube drain was left in the prostatic cavity and a 16F Foley catheter in the bladder.

RESULTS

The postoperative course was uneventful, with minimal pain that was relieved with a non-steroidal anti-inflammatory drug. The urethral

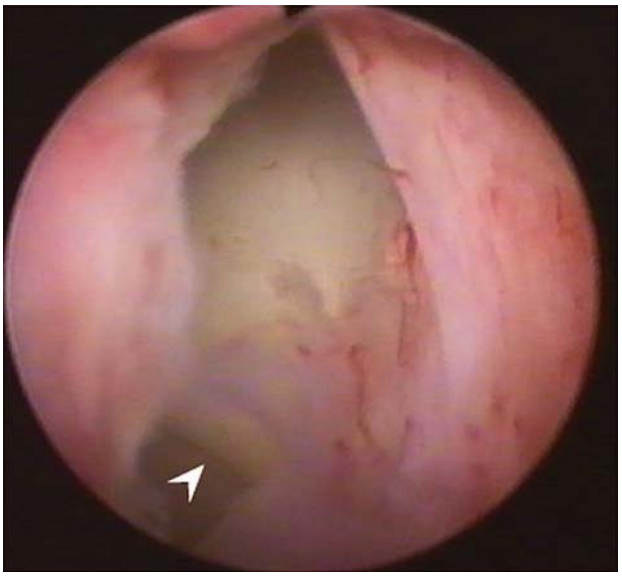

Figure 2. Endoscopic view: Incision of the posterior wall of the prostatic urethra.

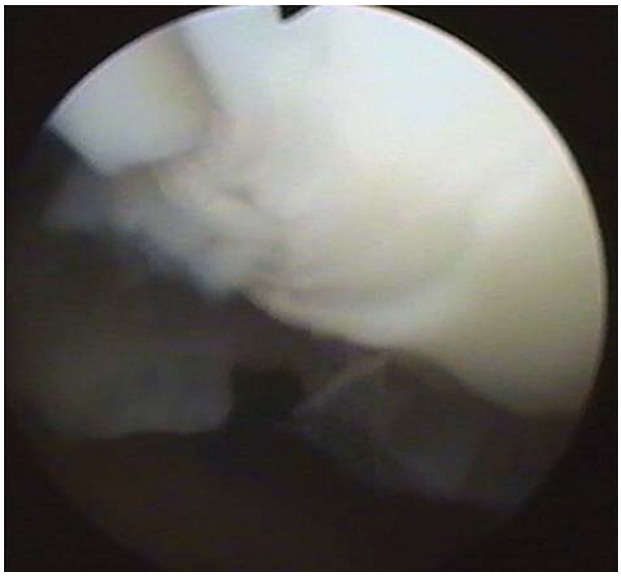

Figure 3. Endoscopic view: Endoscopic aspect of the cystic wall.

drain and the Foley catheter were removed after 4 days, and the patient voided well with no residual urine. The patient was discharged on the third postoperative day. Symptom-free recovery was completed in 3 weeks.

Histopathologic examination of the cyst wall showed HC with an inner nucleated germinal layer which contained scoleces of the parasite.

At sixteen-month follow-up, the patient was symptom-free, with unobstructed urinary flow, no residual urine, and normal ejaculation. Ultrasonography did not reveal any recurrence or local complication.

DISCUSSION

Hydatidosis (HD) is a human disease with a cosmopolitan distribution caused by the larval form of Taenia echinococcus, which lives in the gut of the dog, wild canines, and other carnivorous animals that represent the definitive host, and involves both domestic and wild animals. Humans become the accidental intermediate hosts by ingesting Taenia eggs.

Ecchinococcus is endemic in many countries where sheep, dogs, and human live in close contact. The sheep–dog cycle is dominant in North Africa, Middle East, India, and the sheep-rearing areas of South America and Australia.[4]

Hydatidosis can be present in all parts of the human body, but the most affected organs are the liver (65%) and the lungs (25%). Involvement of the urogenital tract is rare (2% to 4%). Involvement of the pelvic organs such as the prostate and the seminal vesicles is very rare and has been reported in only sporadic cases.[3,5-8] Even in endemic countries, involvement of the prostate is extremely rare. In a series of 265 extra-pulmonary HC collected over 18 years in our hospital, Bellil and colleagues found that HC involved mainly the kidney (24.1%), the central nervous system (22.6%), and the liver (19.6%). The prostate gland was infected in only two cases (0.75%).[7]

The hydatid embryo may reach the retroperitoneum either by passing through the liver into the portal system and hence, into the retroperitoneal lymph or directly from the gastrointestinal tract into the lymphatic system.[9]

Hydatidosis may affect any ages, but usually affects patients between the third and fifth decades of life who live in endemic areas.[7] There are no specific symptoms and signs, and HC at any location may remain silent for many years. In prostatic infestation, the usual presentations are lower urinary tract symptoms and urinary retention.[6] Voiding symptoms were attributable to infravesical obstruction through compression of the prostatic urethra. They may present with perineal pain during ejaculation or defecation, recurrent epididymitis, and hematospermia. We report a case of lower urinary tract symptoms caused by a prostatic HC, which is an uncommon presentation.

Hydaturia is a pathognomonic sign. It involves passage of grape-like material in the urine, which results from a connection between the cyst and urinary system. This could occur secondary to spontaneous rupture of the cyst into the renal collecting system or after iatrogenic resection of part of the cyst wall through the urethra in case of prostatic involvement.[3,6]

Diagnosis of HC is based on a combination of imaging techniques and immune diagnostic tests such as the Casoni (intradermal), Weinberg (complement fixation), indirect hemagglutination, and enzyme-linked immunosorbent assay. However, these serologic tests are not specific for HD, and may be negative as it was in our case.[4] The radiological appearances of HD on ultrasonography, computed tomography scan, or magnetic resonance imaging are very characteristic and these are the modalities of choice in investigating a patient with suspected pelvic HD.[2,5] Cysts may be unilocular or multilocular, thin or thick–walled, and with homogenous contents or a fluid–fluid interface. Then, as they gradually mature, new cysts form, giving the appearance of a multilocular cyst.[4,5]. Computed tomography scan or magnetic resonance imaging is very useful not only for the diagnosis in rare locations like the pelvis, but also for accurate localization of the cyst as well as its wall and internal structures.[5] In our case, we relied on the characteristic radiologic appearance

of the cyst in conjunction with the high clinical suspicion.

Cysts of the prostate gland can be classified into 6 categories, including 1) isolated medial cysts; 2) cysts of the ejaculatory duct; 3) simple or multiple cysts of the parenchyma; 4) complicated infectious or hemorrhagic cysts; 5) cystic tumors; and 6) cysts secondary to a parasitic disease. The differential diagnosis includes prostatic cysts, ejaculatory duct diverticulum, wolffian or müllerian duct remnant cysts, cyst of the vas deferens, the bladder diverticulum, dilated seminal vesicles secondary to infection or obstruction, and less frequently, cystadenoma of the prostate.[10]

Although HC represents a benign disease, treatment has to be considered mandatory in symptomatic and viable cysts because of the risk of severe complications.[4] Open surgery remains the most commonly employed approach for the management of HD. Removal of the intact cyst offers the fewest complications and the best prognosis.[4]

Recently, percutaneous management of renal HD as in hepatic location was described. The technique entails percutaneous puncture of the cyst, aspiration of cyst fluid, introduction of a scolecidal agent, and reaspiration and has provided a useful alternative to surgery.[11] Moreover, radiofrequency thermal ablation, in an ex-vivo pilot experimental study in animal models, appears to be very effective in killing HC of explanted liver and lung. But, in vivo studies are required to confirm and validate this new therapeutic approach.[12]

In open surgery, the cyst could be removed intact, but during endoscopy, the cyst should be opened. Therefore, the cyst cavity should be filled with scolecidal agents in cases where intra-operative opening of the cyst is anticipated. One of the following agents can be used: 10% formalin, 30% sodium chloride, 1% iodine, 0.5% silver nitrate, or hydrogen peroxide.[4] Formalin10% is no longer used in the treatment of HC of the liver because it was incriminated in the genesis of postoperative sclerosing cholangitis.[13] We use either 30% saline solution or hydrogen peroxide.

Systemic antihelmenthic therapy such as albendazole was indicated by some authors to provide sufficient antihelminthic cover in the body to prevent recurrence of the cyst. In a recent prospective study by Arif and colleagues on 64 patients having hepatic HC with follow-up of 5 to 6 years, it was concluded that pre-operative albendazole is a safe and an effective adjuvant therapy in the treatment of hydatid liver disease. In patients who did not receive any albendazole therapy, recurrence rate was 18.75% whereas recurrence was 4.16% in patients who received albendazole therapy.[14]

Laparoscopic treatment of HC was previously reported.[3,15] To the best of our knowledge, we present the first report of endoscopic excision of a prostatic HC. The key steps were injection of a scolecidal agent, aspiration of the cyst contents before opening it, suction of any residual fluid inside the cavity as soon as the cyst is opened, and removal of all the germinal layer of the cyst wall. This approach provids the advantage of complete removal of the cyst wall in a minimally invasive fashion.

CONFLICT OF INTEREST

None declared.

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