

Retrovesical hydatid cyst: About 4 cases

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Abstract

Introduction: The hydatid cyst is a real public health problem in Tunisia. The retrovesical localization is rare. It is considered an aberrant or ectopic location defined by the development of the parasite in the subvesical and retrovesical fat.

Methods: From 2004 to 2013, 4 patients with retrovesical hydatid cyst were hospitalized and operated in the Department of Urology at the Charles Nicolle hospital of Tunis in Tunisia. The average patient age was 40.75 years (range: 23–76). Signs of bladder irritation were the most frequent presenting complaint. No cases of hydaturia were noted. The diagnosis was made on the ultrasound and the computed tomographic urography. Hydatid serology was positive for 3 patients. In 3 cases, a hydatid cyst of the liver was associated. A total cysto-pericystectomy was performed for 1 patient, for others it was partial.

Results: The postoperative course was uneventful. No urinary fistula or infection of the residual cavity was observed. One patient had a retroperitoneal cyst recurrence requiring reoperation.

Conclusion: Retrovesical location of hydatid cyst is rare and treatment is primarily surgical.

Introduction

Hydatidosis is a parasitic disease that is endemic in Tunisia. The hydatid cyst or hydatid disease is due to the development in human body of the larval form of the dog tapeworm: *Echinococcus granulosus*.¹

The retrovesical location of hydatid cyst is very rare.^{2,3} It represents 1% to 2% of Tunisian series and less than 1% of the European series.² It is considered as aberrant and ectopic defined by the development of a parasite in subvesical and retrovesical fat.^{4,5} It can occur either by hema-

togenous dissemination or by cracking an intraperitoneal hydatid cyst.^{2,5}

Methods

This is a retrospective study of 4 men hospitalized and operated in the department of urology at the Charles Nicolle Hospital of Tunis in Tunisia. Patients were treated for retrovesical hydatid cyst over 9 years (January 2004–December 2013). The average patient age was 40.75 years (range: 23–76). The geographical origin was specified for all patients, 3 patients came from the rural northwest part of Tunisia.

Signs of bladder irritation and pelvic pain were the most frequent presenting complaint. In 1 patient the discovery was fortuitous. No case of hydaturia was noted. At physical examination, 3 patients had an hypogastric mass and a mass in the pelvic pouch of Douglas on rectal examination (Table 1). Complete blood count has shown a hyper-eosinophilia in 2 patients. Hydatid serology was performed for all patients and was positive in 3 patients (ELISA test).

All patients have benefited from an abdominal ultrasound which demonstrated hydatid cyst retrovesical in all cases. The cyst was multivesicular type III according to the classification of Gharbi (Fig. 1) in 3 patients and monovesicular in 1 case. This same ultrasound revealed a second liver localization in 3 cases.

A plain film of urinary tract was done for all patients and revealed a calcified cyst in 1 case (Fig. 2). A complement by intravenous urography was done for 2 patients, revealing compression of the bladder (Fig. 3).

A computed tomography (CT) scan was performed in all patients preoperatively to clarify the relationship with adjacent organs. The CT scan revealed typical scannographic images of a hydatid cyst, multi-loculated, thick-walled and calcified in some places, displacing the bladder forward, without contrast (Fig. 4). The cyst was type I in 1 case (Fig. 5).

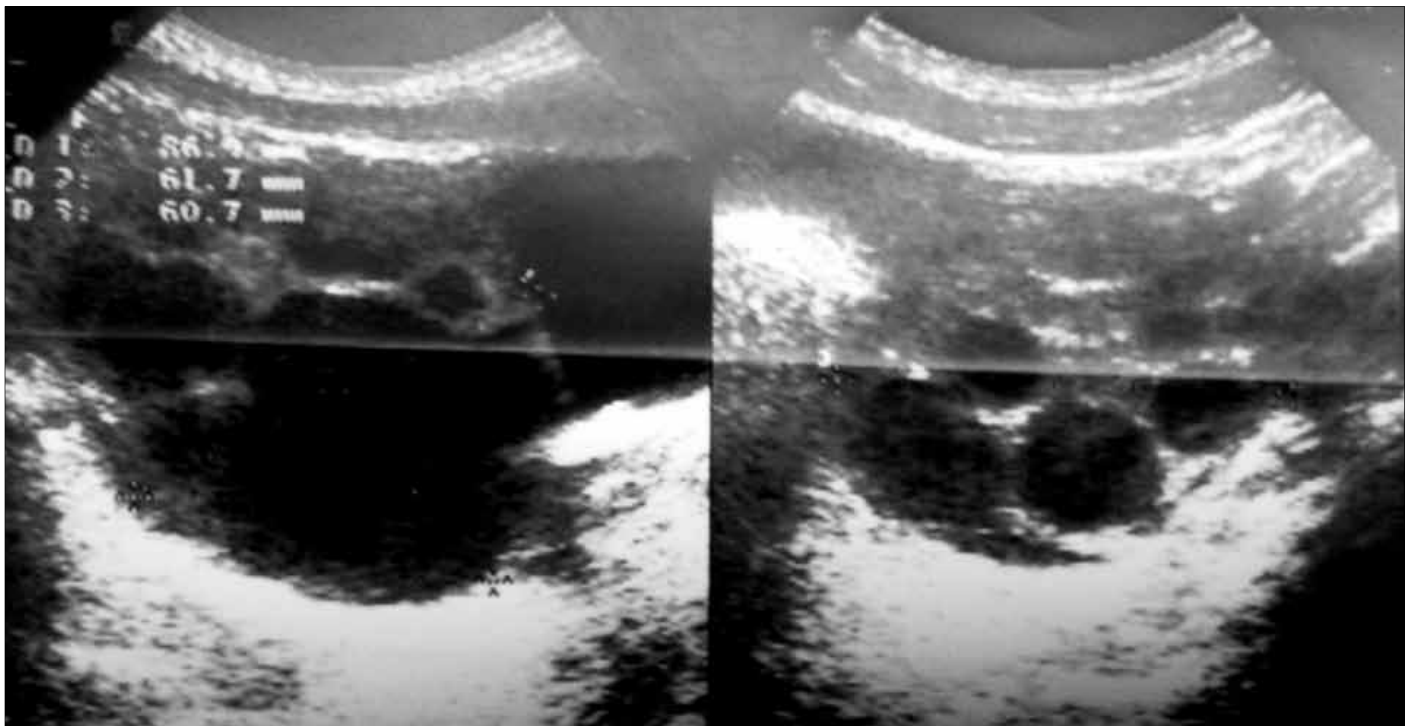


Fig. 1. Ultrasound: Retrovesical cystic mass multi-loculated, type III Classification Gharbi.



Fig. 2. Calcified cyst projecting on the bladder area.



Fig. 3. Intravenous urography image of extrinsic compression of the bladder (the right kidney was destroyed).

Table 1. Summary of clinical cases in our series

	Patient 1	Patient 2	Patient 3	Patient 4
Age/sex	23/Male	29/Male	35/Male	76/Male
Origin	Rural	Rural	Urban	Rural
Circumstances of discovery/ physical examination	Pelvic heaviness, dysuria and Pollakiuria No mass	Dysuria, Pollakiuria with pelvic pain Hypogastric mass Douglas mass on Rectal examination	Fortuitous discovery Hypogastric mass Douglas mass on rectal examination	Dysuria and Pollakiuria Hypogastric mass Douglas mass on Rectal examination
Radiological investigations	Ultrasound, CT: RVHC type III, 8 cm IVU: calcification, bladder compression	Ultrasound, CT: RVHC type III, 15 cm	Ultrasound, CT: RVHC type III, 12 cm	Ultrasound, CT: RVHC type III, 10 cm IVU: calcification, bladder compression
Serology	Positive	Positive	Negative	Positive
Intervention	Partial cysto-pericystectomy (pericystium adhering to the rectum) with drainage of the residual cavity	partial cysto-pericystectomy with drainage of the residual cavity	Total cysto-pericystectomy with pelvic drainage	Partial cysto-pericystectomy with drainage of the residual cavity
Clinical follow	4 months, asymptomatic, no recurrence	Retroperitoneal recurrence at 9 months then asymptomatic	12 months, asymptomatic, no recurrence	3 years, asymptomatic, no recurrence

RVHC: retrovesical hydatid cyst, IVU: intravenous urography; CT: computed tomography.

All patients were operated with a midline subumbilical laparotomy. After protecting the surgical fields imbibed with hypertonic saline, we performed an aspiration of cystic contents; we then injected a scolicide solution (hypertonic saline) into the cyst cavity and held for 10 minutes. After release of the cyst, we performed a partial cystopericystectomy with drainage of the residual cavity in 3 patients. Total cystopericystectomy was performed in a patient. The other 3 patients with hydatid cyst of the liver underwent surgery at a later time.

Results

The postoperative course was favourable for all patients. No urinary fistula or suppuration of the residual cavity was

noted. The drain was removed on average on postoperative day 5. The average length of postoperative hospital stay was 9 days. The mean follow-up time was 16 months (range: from 4 months to 3 years). Monitoring was clinical and by ultrasound. One patient had a retroperitoneal recurrence of the cyst at 9 months and a further operation was performed.

Discussion

Hydatidosis is a common parasitic disease in North Africa, especially in Tunisia where it is endemic.³ The surgical incidence is 15/100000 inhabitants.^{2,5} The most affected organs by this parasite are the liver and lungs. Hydatid location at the urogenital tract, dominated by the kidney comes in third place, and 2% to 5% from other locations. Retrovesical

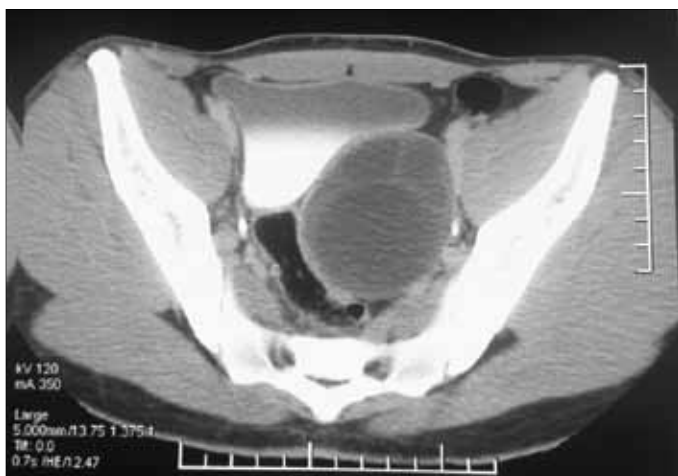


Fig. 4. Computed tomographic appearance of a retrovesical hydatid cyst Type III with bladder compression.



Fig. 5. Computed tomographic appearance of a retrovesical hydatid cyst Type I of Gharbi.

localization is rare, accounting for only 0.1% to 0.5%,^{2,3,5} and 1 to 2% of Tunisian series.^{2,6}

A double etiopathogenic mechanism is possible, with the primitive blood-graft of oncosphere or hexacanth and a graft in the pelvic pouch of Douglas of protoscolices coming from the cracking of abdominal hydatid cysts.^{2,5} Moreover, in our case there were three concurrent liver locations. Another possible location is the lymphatic pathway that joins the venous system of Retzius and the anastomoses of Schmiedel.^{2,5}

Hydatidosis affects mainly young adults, with no gender preference.^{2,5} In our series, all patients were male. This male predomination should not however lead us to epidemiological extrapolations given the small sample size. Three patients were all from the northwest part of Tunisia. This hyperendemic region for hydatidosis has several factors favouring the parasitic cycle: temperate climate allowing the longevity of embryophores and patient location at a large sheep farm, the main hosts of the parasite in Tunisia.⁷

The clinical manifestations occur at a late stage of development of the cyst explained by a slow and insidious development of this affection.^{2,5} The discovery of the cyst was fortuitous in 1/4 patients. Clinical signs are dominated by palpation of retropubic mass and compressive manifestations, such as the signs of bladder irritation or transit disorders.^{2,5} Three of our patients had a hypogastric mass on palpation and of pelvic pouch of Douglas at rectal examination. The appearance of a hydaturia is pathognomonic, but rare; it signals a cracking cyst in the bladder.^{2,5} None of our patients had a hydaturia. Sometimes the cyst is discovered during a complication: suppuration of the cyst, an anaphylactic shock after his break or a renal insufficiency by ureteral compression.²

The diagnosis of hydatid cyst is mainly based on the ultrasound to specify the location of the cyst, its vascular relations, and the existence of another locations.^{2,5} There are 5 types of hydatid cyst.⁸ Type 1 is the monovesicular simple cyst. Types 2, 3, and 5 do not pose a diagnostic problem, but Type 4, called pseudotumoral, poses a problem of differential diagnosis.

In view of its rarity, a hydatid cyst may not be the first differential diagnosis in a patient presenting with an isolated pelvic cyst. On imaging, a retrovesical hydatid cyst may mimic the following conditions: cyst of the seminal vesicle, posterior bladder diverticulum, rectal duplication cyst, hydronephrosis in a pelvic kidney, and large ectopic ureterocoele.

All 4 patients in our series were male. In female patients, however, a retrovesical hydatid cyst may mimic any one of the gynecological conditions, such as ovarian neoplasm or a hydrosalpinx.

When the diagnosis is not clear, a scanner can be used to confirm the pseudo fluid nature of the mass and show

mural calcifications.² Moreover, the scanner can help us locate other abdominal locations. It can show a cystic mass, although limited, containing daughter vesicles or membrane debonded and which remains unchanged after injection of the contrast agent.² The presence of daughter cysts on CT is pathognomonic. It also allows us to study the reports of the cyst with adjacent organs, to appreciate the repercussion on the upper urinary tract, and to diagnose atypical forms.² An intravenous urography may be useful in cases of dilated renal cavities on ultrasound and allows us to assess the impact of this mass on the upper urinary tract.²

The magnetic resonance imaging is not a technique of choice in hydatid disease. It is justified only when other imaging does not establish a diagnosis.^{2,9} The cyst appears as a circumscribed mass, hyposignal intensity on T1 sequence, hypersignal intensity on T2 and that changes little or not at all after contrast injection. The identification of daughter cysts with septa hyposignal intensity on T1 and T2 sequences is pathognomonic of hydatid cystic.²

Biologically, hydatid serology is moderately sensitive in extrahepatic locations in 30% to 70% of the time,⁵ but can help the diagnosis if there are doubts or if the ultrasound images are not typical. Indeed this simple and inexpensive test is useful in the positive diagnosis and in the postoperative follow-up. All patients had a hydatid serology, which was positive in 3 patients. The hyper eosinophilia suggests hydatid disease in 33% to 53% of cases.⁵ Two of our patients had hyper eosinophilia.

The treatment of hydatid cyst is surgical. The goal of surgery is total cyst excision without spillage and contamination of the field. Location within the narrow confines of the pelvis along with dense adhesions to surrounding structures may render dissection a formidable task.

For some authors, the approach must be extraperitoneal,^{10,11} to minimize the risk of hydatid dissemination, secondary suppurations, and postoperative occlusion.^{10,12} However, a middle laparotomy is recommended whenever the diagnosis remains hesitant or when there is doubt about the existence of an associated intraperitoneal localization. This approach allows us to simultaneously treat the intra- and extraperitoneal cysts.¹⁰ It consists of an injection of a scolicide solution (hypertonic saline or hydrogen peroxide) for 10 minutes and draining the cyst.^{5,10} The technique of choice is total cystopericystectomy.⁵ The cystopericystectomy can be partial and includes resecting most of the pericystium and sparing the plates in contact with hazardous areas, such as the ureters, vessels, or gastrointestinal tract.^{5,10} Three of our patients had a partial cystopericystectomy and only 1 patient had a total cystopericystectomy.

Drainage of the residual cavity did not protect against superinfection in the case of hydatid cyst retrovesical because the cavity was non-declive and difficult to drain.^{5,10} If the cyst is infected, it is advisable to install an irrigation-

drainage system to prevent secondary collections and suppurations of the residual cavity and detect for urinary fistula.¹⁰

Traditional surgery is associated with a wide range of complications motivating the development of minimally invasive managements with minimal morbidity. Kumar and colleagues described 2 cases of retrovesical hydatid cysts which were managed laparoscopically with laparoscopic cyst aspiration, instillation and suction.¹³

The Palanivelu hydatid system (PHS) is a recently described device to remove the internal contents and the endocyst without excising the entire cyst. It allows minimally invasive management with low chances of spillage of fluid or injury to adjacent organs.¹⁴ The PHS has primarily been described in the management of hepatobiliary hydatid cysts where complete excision was extremely difficult.¹⁴ The first reported case of laparoscopically treating a pelvic hydatid cyst with the PHS was reported by Subramaniam and colleagues.¹⁵ The use of this technique in the pelvis, particularly for lesions with dense adhesions to surrounding structures, allows a safe minimally invasive option to the existing surgical techniques.¹⁵

Postoperative monitoring is needed, but also the abdominal-pelvic ultrasound and immunology for many years for early detection of any recurrence.^{2,5,10}

Conclusion

The retrovesical location of the hydatid cyst is rare. The diagnosis is often delayed and clinical symptomatology is dominated by signs of bladder irritation. Ultrasound and hydatid serology allow the diagnosis in most cases. The scanner allows precise preoperative topographical evaluation. Surgical treatment consists of a total cystopericystectomy in the best case. Retrovesical hydatid disease can be managed currently laparoscopically with the PHS, a minimally invasive approach with minimal morbidity. We must also emphasize the significance of primary prevention of this disease to reduce its incidence, morbidity and cost.

Competing interests: The authors declare no competing financial or personal interests.

This paper has been peer-reviewed.

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