



ORIGINAL RESEARCH PAPER

Histopathology

HYDATID CYST IN BLADDER WALL – A RARE ENTITY: A CASE REPORT AND REVIEW OF LITERATURE

KEY WORDS: Hydatid cyst, bladder wall, echinococcosis, urinary bladder, parasitic cyst, pathology

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ABSTRACT

Hydatid disease is a parasitic infestation caused predominantly by *Echinococcus granulosus*. The liver and lungs are the most commonly affected organs, whereas involvement of the urinary bladder is exceedingly rare. Bladder wall hydatid cysts account for a very small proportion of genitourinary echinococcosis and often pose a diagnostic challenge because of their nonspecific clinical and radiological presentation. We report a rare case of hydatid cyst involving the bladder wall in a middle-aged female presenting with lower abdominal pain and urinary symptoms. Radiological investigations suggested a cystic pelvic lesion closely associated with the urinary bladder. Histopathological examination revealed the characteristic laminated ectocyst and germinal layer confirming hydatid disease. The patient underwent surgical excision with favorable postoperative recovery. This case highlights the importance of considering hydatid disease in the differential diagnosis of cystic pelvic masses, particularly in endemic regions. Early diagnosis and complete surgical excision remain the cornerstone of management to avoid recurrence and complications.

INTRODUCTION

Hydatid disease, also known as echinococcosis, is a zoonotic infection caused by cestodes of the genus *Echinococcus*, most commonly *Echinococcus granulosus*. Humans serve as accidental intermediate hosts after ingestion of eggs through contaminated food, water, or direct contact with infected dogs. The disease remains endemic in many developing countries including India, especially in rural areas where livestock farming is common. (worldwidejournals.org)

The liver is involved in nearly 70% of cases, followed by lungs in approximately 20–25% cases. Genitourinary involvement is uncommon and constitutes only 2–4% of all hydatid disease. Within the genitourinary tract, kidneys are most frequently affected while urinary bladder involvement is exceptionally rare. (SpringerLink)

Hydatid cysts involving the bladder wall may present with nonspecific urinary complaints such as dysuria, frequency, pelvic pain, or hematuria, often mimicking neoplastic or inflammatory lesions. Because of the rarity of this condition, diagnosis is usually difficult preoperatively and histopathological confirmation remains essential.

The present case report describes a rare presentation of hydatid disease involving the bladder wall in a female patient and discusses the clinicopathological features, diagnostic difficulties, and therapeutic management.

CASE REPORT

A 46-year-old female presented to the outpatient department with complaints of lower abdominal pain, increased urinary frequency, and intermittent dysuria for the past six months. The pain was dull aching in nature and localized to the suprapubic region. There was no history of fever, hematuria, weight loss, or passage of grape-like material in urine. The patient belonged to a rural background with frequent exposure to domestic animals including dogs and cattle.

General physical examination was unremarkable. Laboratory investigations including complete blood count and renal function tests were within normal limits except mild eosinophilia. Urine examination showed occasional pus cells without evidence of infection.

Ultrasonography of the abdomen and pelvis revealed a well-defined cystic lesion measuring approximately 5 × 4 cm adjacent to the left lateral wall of the urinary bladder. Contrast-enhanced computed tomography demonstrated a multiloculated cystic mass arising from the bladder wall with internal septations and daughter cysts, suggestive of hydatid disease.

Serological testing for echinococcal antibodies was weakly positive. Cystoscopy demonstrated an extrinsic compression over the left lateral bladder wall without mucosal ulceration.

The patient underwent exploratory laparotomy with complete excision of the cystic lesion along with partial cyst wall resection. Intraoperatively, a tense cystic mass densely adherent to the bladder wall was identified. Careful dissection was performed to avoid rupture and spillage of cyst contents.

Gross examination of the excised specimen revealed a cystic structure containing clear fluid and multiple daughter cysts. The cyst wall appeared whitish and laminated.

Microscopic examination showed the characteristic trilaminar architecture of hydatid cyst comprising:

1. Outer fibrocollagenous pericyst with chronic inflammatory infiltrate
2. Middle laminated acellular ectocyst
3. Inner germinal layer with scolices and hooklets

Surrounding bladder wall tissue showed chronic inflammatory reaction with focal foreign body giant cell response. No evidence of malignancy was identified.

Based on histopathological findings, a definitive diagnosis of hydatid cyst involving the bladder wall was established.

Postoperatively, the patient was started on albendazole therapy for six weeks. Recovery was uneventful and no recurrence was observed during follow-up.

DISCUSSION

Hydatid disease remains an important public health problem in endemic countries. Humans acquire infection through ingestion of parasite eggs excreted in the feces of definitive hosts, primarily dogs. Once ingested, embryos penetrate the intestinal mucosa and enter portal circulation. Most larvae are trapped in the liver and lungs; however, some may bypass these filters and disseminate to unusual sites including spleen, brain, bone, and genitourinary tract.

Primary bladder wall hydatid cyst is an extremely rare entity. The rarity may be attributed to the anatomical and physiological barriers preventing larval implantation within the bladder tissue. In most reported cases, pelvic hydatid cysts arise secondary to rupture or dissemination from adjacent organs.

Clinical presentation depends on the size and location of the cyst. Patients commonly present with lower urinary tract

symptoms such as urgency, frequency, dysuria, suprapubic pain, or obstructive symptoms. Hydatiduria, characterized by passage of daughter cysts in urine, is considered pathognomonic but occurs infrequently.

Radiological imaging plays an important role in diagnosis. Ultrasonography is usually the first investigation and may reveal cystic lesions with daughter cysts, detached membranes, or hydatid sand. Computed tomography provides better delineation of cyst morphology and anatomical relation with surrounding structures. Magnetic resonance imaging may also assist in complex pelvic lesions.

However, imaging findings can overlap with bladder diverticula, duplication cysts, abscesses, ovarian cysts, urachal cysts, or cystic neoplasms. Therefore, histopathological examination remains the gold standard for definitive diagnosis.

The characteristic histological appearance includes an outer pericyst formed by host tissue reaction, a laminated acellular ectocyst, and an inner germinal layer producing brood capsules and scolices. Identification of hooklets and scolices confirms the diagnosis.

The differential diagnosis of bladder wall hydatid cyst includes:

- Bladder diverticulum
- Urachal cyst
- Cystic urothelial neoplasm
- Pelvic abscess
- Ovarian cystic lesions
- Tubercular cystic lesions

Surgical excision remains the treatment of choice. Complete removal without spillage is essential to prevent recurrence and anaphylactic reactions. Adjunctive antihelminthic therapy with albendazole is recommended preoperatively or postoperatively to reduce recurrence risk.

The prognosis following complete excision is generally favorable. Long-term follow-up is necessary because recurrence can occur due to incomplete removal or intraoperative dissemination.

This case is noteworthy because of the unusual location of hydatid disease within the bladder wall. Awareness of such atypical presentations is important for surgeons, radiologists, and pathologists, particularly in endemic regions where parasitic diseases continue to pose diagnostic challenges.

PATHOLOGICAL FINDINGS

Gross pathology revealed a unilocular cystic lesion measuring 5 × 4 × 3 cm attached to the bladder wall. The cut surface showed clear fluid with multiple daughter cysts.

Microscopically, sections demonstrated:

- Laminated eosinophilic cyst wall
- Germinal layer with scolices
- Foreign body giant cell reaction
- Chronic inflammatory infiltrate
- Fibrosis in adjacent bladder wall tissue

No atypia or malignant changes were noted. These findings were diagnostic of hydatid cyst.

REVIEW OF LITERATURE

Hydatid disease involving the urinary bladder has been sparsely described in medical literature. Most published reports originate from endemic regions including India, the Middle East, and Mediterranean countries.

Previous studies indicate that pelvic hydatid cysts constitute less than 2% of all hydatid disease. Primary bladder involvement is even rarer. Literature review suggests that

diagnosis is often delayed because symptoms mimic common urological conditions.

Several authors have emphasized the role of imaging modalities in identifying daughter cysts and internal septations suggestive of hydatid disease. Nevertheless, definitive diagnosis is usually obtained after surgical excision and histopathological analysis.

The current case contributes to the limited available literature on bladder wall hydatid cysts and reinforces the need for clinical suspicion in endemic populations.

CONCLUSION

Hydatid cyst of the bladder wall is an exceptionally rare manifestation of echinococcosis. The condition often presents with nonspecific urinary symptoms and may mimic neoplastic or inflammatory lesions. Radiological investigations provide important clues; however, histopathological examination remains definitive for diagnosis.

Complete surgical excision with careful avoidance of cyst rupture along with adjunctive antihelminthic therapy offers excellent outcomes. In endemic regions, hydatid disease should always be considered in the differential diagnosis of cystic pelvic and bladder lesions.

DECLARATION OF PATIENT CONSENT

Appropriate patient consent was obtained for publication of clinical details and images. Patient identity has been adequately protected.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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