

Pelvic mass with a parasitic origin: An uncommon presentation of *echinococcus granulosus*

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Abstract

Hydatid disease, caused by *Echinococcus granulosus*, predominantly affects the liver and lungs, with pelvic involvement being rare (0.3–4.27%). We present an 86-year-old female with untreated hepatic hydatid cysts who developed acute urinary retention. Imaging revealed a large hepatic cyst, a 21 cm pelvic cyst compressing pelvic organs and ureters, and a right hemithoracic cyst. Laboratory findings showed acute kidney injury and *Escherichia coli* urinary tract infection. She was managed with Foley catheterization, antibiotics, and albendazole. Two weeks later, CT demonstrated marked reduction in pelvic cyst size with resolution of hydronephrosis and normalization of renal function. This case underscores the need to consider hydatid disease in the differential diagnosis of pelvic masses in endemic areas, as atypical presentations may delay recognition.

Keywords: Hydatid disease; Pelvic cyst; *Echinococcus granulosus*; Urinary retention; Albendazole.

Introduction

Hydatid disease, also known as echinococcosis, is a parasitic zoonosis caused by the larval stage of *Echinococcus granulosus*. Humans are considered accidental intermediate hosts in its life cycle [1]. This disease is endemic in various regions globally, including the Middle East, Mediterranean countries, South America, and parts of Africa and Asia [1]. While the liver (60–70%) and lungs (10–25%) are the most frequently affected organs, pelvic hydatid cysts are exceptionally rare, accounting for approximately 0.3% to 4.27% of all reported hydatid localizations [2].

Pelvic involvement can occur through hematogenous dissemination or secondary seeding following the rupture of hepatic cysts [3]. The clinical presentation of pelvic hydatid cysts is often nonspecific, ranging from pelvic pain and urinary symptoms to compression of adjacent organs [3]. Imaging modalities such as ultrasound, Computed Tomography (CT), and Magnetic Resonance Imaging (MRI) are crucial for diagnosis, although pelvic hydatid cysts can mimic gynecological or gastrointestinal masses [4]. Serological tests, while supportive, may yield false negatives in extrahepatic cases [3].

Surgical excision remains the primary treatment modality, with total cystectomy being the preferred approach when feasible [5]. However, intraoperative rupture presents a significant risk of anaphylaxis and dissemination, thereby necessitating meticulous preoperative planning and careful intraoperative management [5]. This paper presents the case of an 83-year-old female diagnosed with multiple hydatid cysts, including an unusual pelvic localization, and discusses the clinical management and therapeutic considerations associated with such a rare presentation.

Case presentation

An 86-year-old female patient, with a medical history significant for hypertension and atrial fibrillation, presented to the emergency department with a two-day history of acute urinary retention. The patient, a non-smoker, reported no associated fever, chills, or other systemic symptoms. A review of her medical records indicated that approximately one year prior to this presentation, she had experienced persistent abdominal pain. A Computed Tomography (CT) scan of the abdomen and pelvis performed at that time had revealed a notable right hepatic cystic mass, alongside four additional millimetric cysts. These

initial radiological findings were highly suggestive of a hepatic hydatid cyst. Regrettably, the patient did not pursue any treatment following this diagnosis and was subsequently lost to follow-up (Figure 1).

Upon her current presentation, a repeat CT scan was urgently performed to investigate the acute urinary retention. This scan revealed a large, well-encapsulated cystic lesion measuring 12×11 cm situated over the bare area of the liver, exerting moderate mass effect on adjacent structures. More critically, a substantial 19×13 cm lobulated, heterogeneous suprapubic cystic mass was identified. This mass contained spontaneously dense foci, a characteristic consistent with a complicated hemorrhagic cystic lesion, and was observed to be significantly compressing the uterus and bladder, directly contributing to the patient's urinary retention. An incidental finding was a large cystic lesion within the right hemithorax. These CT findings (Figure 2) were further corroborated by a Magnetic Resonance Imaging (MRI) scan of the abdomen and pelvis, which detailed a large hemorrhagic cystic pelvic mass, measuring up to 21 cm in its cranio-caudal dimension. The MRI confirmed significant compression of the pelvic organs and ureters, leading to bilateral moderate hydronephrosis (Figure 3).

Laboratory investigations at the time of admission yielded several significant findings. The patient exhibited normocytic anemia, with a hemoglobin level of 9.6 g/dL and a Mean Corpuscular Volume (MCV) of 87 fL. Acute kidney injury was evident, with a creatinine level of 2.2 mg/dL. Inflammatory markers were markedly elevated, indicated by a C-Reactive Protein (CRP) level of 203 mg/L. Urinalysis was positive for leukocyte esterase and showed 18-20 white blood cells per high-power field, although protein was negative. Subsequent urine culture confirmed the presence of *Escherichia coli*, prompting the initiation of intravenous antibiotic therapy. The acute urinary retention was successfully relieved following the insertion of a Foley catheter, and the patient commenced treatment with oral albendazole at a dosage of 200 mg, two tablets twice daily.

Two weeks following the initiation of treatment, a follow-up CT scan of the abdomen and pelvis was performed. This imaging demonstrated a marked reduction in the size of the previously noted heterogeneous pelvic mass, which now measured 14 cm × 8 cm × 15 cm (reduced from its initial dimensions of 19×13×19 cm). (Figure 4) Concurrently, there was a complete resolution of the bilateral hydronephrosis, attributed to the diminished compressive effect of the pelvic mass. The patient's urinary retention

fully resolved, and she regained the ability to void freely. Her creatinine level progressively decreased, returning to a near-normal baseline of 0.9 mg/dL prior to her discharge.

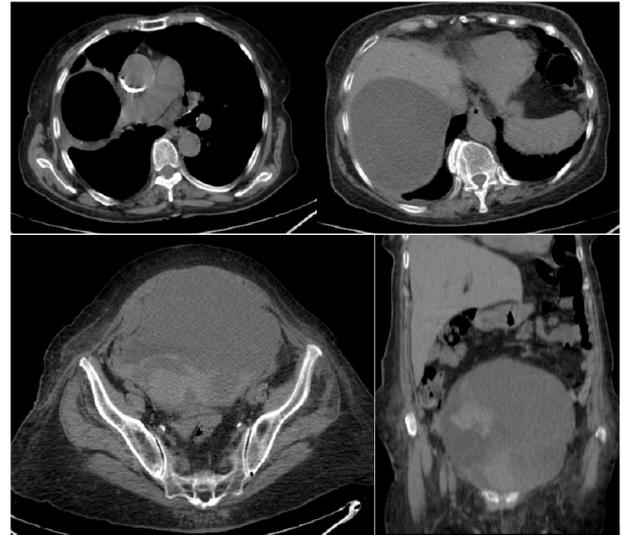


Figure 2: A CT scan of the abdomen and pelvis revealed a large, well-encapsulated cystic lesion measuring 12×11 cm situated over the bare area of the liver, a substantial 19×13 cm lobulated, heterogeneous suprapubic cystic mass and a large cystic lesion within the right hemithorax.

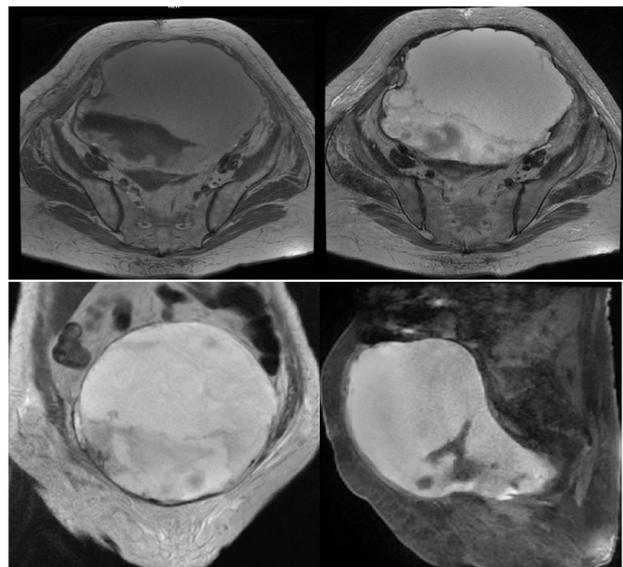


Figure 3: A Magnetic Resonance Imaging (MRI) scan of the abdomen and pelvis detailed a large hemorrhagic cystic pelvic mass.

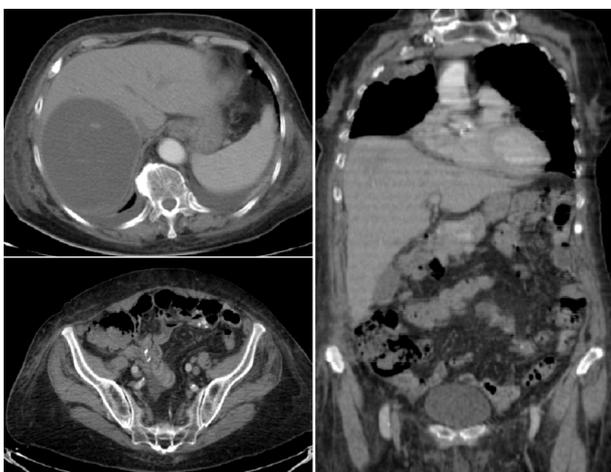


Figure 1: A Computed Tomography (CT) scan of the abdomen and pelvis revealed a notable right hepatic cystic mass, without presence of pelvic mass.



Figure 4: A CT scan of the abdomen and pelvis demonstrated a marked reduction in the size of the previously noted heterogeneous pelvic mass, which now measured 14 cm × 8 cm × 15 cm.

Discussion

Hydatid cysts, a type of zoonotic infection, are endemic to regions such as the Mediterranean, the Middle and Far East, and South America. Dogs are the primary definitive hosts, becoming infected by consuming tissues from infected sheep, goats, or other livestock. Each cyst contains multiple protoscolices, which can develop into adult tapeworms when ingested by the definitive host. Animals typically acquire the infection by eating contaminated food. In humans, who act as accidental intermediate hosts, infection occurs through the ingestion of contaminated food or water, exposure to infected soil, or direct contact with infected dogs. Once inside the body, the larval stage enters the bloodstream and spreads to various organs, especially those with a rich blood supply [6,7].

Cysts caused by *Echinococcus granulosus* can form in almost any organ. The clinical presentation varies depending on factors such as the organ involved, the specific location within that organ, the developmental stage of the cyst, and whether the cyst contents remain viable. In many cases, cysts remain asymptomatic and are discovered incidentally during imaging or autopsy. However, symptoms can arise when cysts enlarge, leading to compression of nearby structures, infection, or rupture into adjacent body cavities [8]. Following initial infection, the parasite may spread to other organs through the venous or lymphatic systems, with the liver being the most commonly affected site. Timely and appropriate treatment can reduce the risk of further dissemination [9,10].

The strength of this case study lies in the patient's initial presentation with a subcutaneous growing mass in the right flank, which was present concurrently with liver and lung cysts. Subsequently, she developed a pelvic cyst, diagnosed when she presented with urinary retention due to the mass effect. Other potential differential diagnoses include abscesses, persistent hematomas, synovial cysts, and malignancies. Given our patient's known history of hydatid disease, a hydatid cyst was considered among the possible causes of the abdominal wall mass. Complete surgical removal of a hydatid cyst is considered an effective treatment strategy, requiring a multidisciplinary approach, provided all cystic structures are excised completely to reduce the risk of recurrence [11,12]. It is crucial to remove the cyst carefully and avoid spilling its contents, as this can lead to anaphylaxis or dissemination [12].

A limitation of this study is that the cysts were not surgically excised. When total excision is not feasible, surgery alone is not curative, and recurrence is likely; in such cases, adjunct chemotherapy with antiparasitic agents like mebendazole (50 mg/kg/day) or albendazole (10 mg/kg/day) for 4–6 months is recommended [12]. In our case, the cysts were not removed surgically, and the patient was started on albendazole. Subsequent imaging revealed a marked decrease in the size of all hydatid cysts.

Conclusion

Multiple hydatid cysts with pelvic involvement represent a rare and complex clinical entity. Early recognition in endemic areas is crucial, as atypical symptoms and anatomical challenges can delay diagnosis. Imaging techniques like CT and MRI are essential, supported by serology despite its limitations. Surgery remains the cornerstone of treatment, with albendazole providing effective adjunctive therapy. Heightened awareness of these unusual presentations is key to improving patient outcomes.

Author declarations

Consent for publication: Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review upon request by the Editor-in-Chief of this journal.

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