

# Primary Peritoneal Hydatidosis Mimicking Pseudomyxoma Peritonei: A Case Report

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**Abstract-** Primary peritoneal hydatidosis is a rare form of cystic echinococcosis characterized by peritoneal involvement without prior hepatic or pulmonary disease. This condition may present with non-specific symptoms such as abdominal pain or distention and is frequently misdiagnosed due to its radiologic similarity to other intra-abdominal cystic pathologies. In this report, we describe a 37-year-old man with no relevant past medical history who presented with diffuse intra-abdominal cystic lesions initially suggestive of pseudomyxoma peritonei. Imaging, particularly computed tomography, revealed numerous non-enhancing cystic lesions throughout the peritoneal cavity, raising the suspicion of disseminated cystic disease. Surgical exploration and histopathological examination confirmed the diagnosis of primary peritoneal hydatidosis. This case underscores the importance of considering hydatid disease in the differential diagnosis, particularly in endemic regions.

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**Keywords:** Echinococcus granulosus; Hydatidosis; Hydatid cyst

## Introduction

Hydatid cyst disease, caused by *Echinococcus granulosus*, continues to be a significant public health concern in endemic regions around the world, particularly in Iran (1). Echinococcosis usually affects the liver and lungs, but it can also occur in any organ or tissue (2,3). Primary peritoneal hydatidosis is a very uncommon form of the infection, occurring without the occupancy of any other structure. In contrast, secondary peritoneal spread caused by the rupture of liver cysts or postoperative spillage is more frequently observed (4). The presentation of hydatid cyst disease is highly variable. In some cases, cysts remain clinically silent and are detected incidentally during imaging studies performed for unrelated reasons. In others, patients may develop symptoms such as abdominal discomfort, nausea, vomiting, or signs of mechanical obstruction, which are often influenced by the anatomical site, dimensions, and potential complications associated with the cyst (5).

Diagnosis typically relies on a combination of clinical suspicion, imaging studies, and serological tests. Imaging

studies form an integral part of the workup necessary for confirming and differentiating other diseases from primary peritoneal hydatid disease (6). Ultrasonography has the potential to demonstrate hallmark characteristics such as daughter cysts, floating membranes, and anechoic cysts. However, cyst accumulation can stump these findings in disseminated forms. Computed tomography (CT) remains the preferred technique as it offers detailed visualization of well-defined, hypoattenuated cystic lesions with internal septations or daughter cysts (7). Magnetic resonance imaging can also be performed that adds value by demonstrating hyper intense cyst contents and hypo intense pericystic rims that surround cysts on T2-weighted images (4).

Therapeutic approaches encompass pharmacological management with benzimidazoles (e.g., albendazole or mebendazole) aimed at decreasing cyst viability and volume, in conjunction with surgical procedures indicated for sizable, symptomatic, or complicated cysts, including those presenting with mass effect, rupture, or superimposed bacterial infection (8). Surgical options range from cystectomy or pericystectomy to more

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conservative methods like cyst puncture-aspiration-injection-reaspiration (PAIR) in selected cases (6,9).

This case report aims to highlight the rare occurrence of primary peritoneal hydatidosis, emphasize the role of imaging in its diagnosis, and increase clinical awareness of this entity in patients presenting with atypical peritoneal cystic lesions in endemic areas.

### Case Report

A 37-year-old male hospital staff member, with no prior medical, surgical, or medication history, presented with acute onset diffuse abdominal pain of 15 days' duration. There were no associated gastrointestinal or constitutional symptoms. His physical examination was unremarkable, with no abdominal tenderness, mass, or signs of peritonitis.

An abdominal ultrasound revealed multiple anechoic cystic lesions scattered throughout the abdominal cavity. Abdominopelvic contrast enhanced CT shows multiple cystic lesions without obvious enhancing part involving peritoneum around liver and spleen, small bowel mesentery and pelvic cavity (Figure 1). No solid organ lesions or ascites were detected. There was no evidence of hepatic, splenic or pulmonary involvement. The imaging findings raised strong suspicion for pseudomyxoma peritonei, likely originating from an

occult mucinous appendiceal neoplasm.

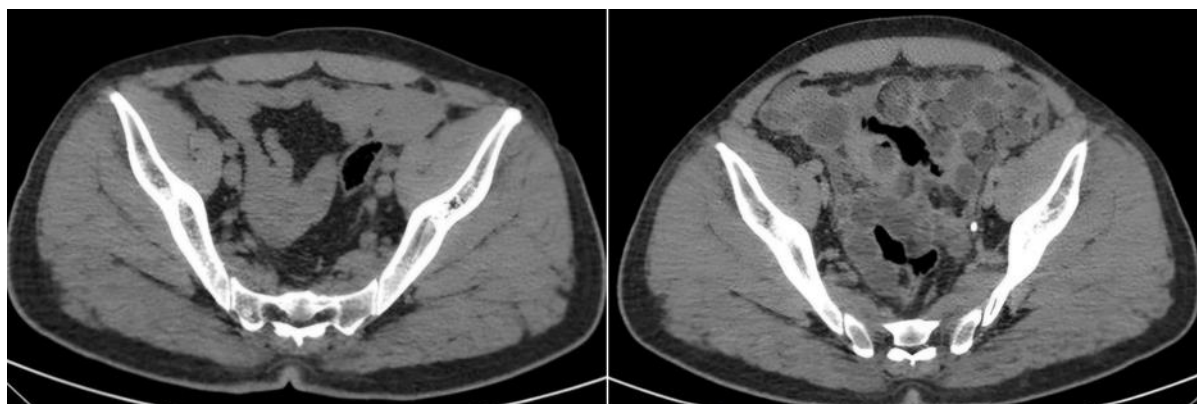
Upon repeat ultrasonography, the extensive distribution of cysts with a lack of solid or vascularized areas rendered image-guided percutaneous biopsy unfeasible. The patient underwent exploratory laparotomy within two days of referral. Intraoperatively, the peritoneal cavity was studded with numerous cystic lesions, densely adherent to the colon, appendix, and pelvic structures. A partial colectomy and appendectomy were performed alongside meticulous resection of peritoneal cysts. Approximately 95% of the cystic lesions were surgically excised.

Unexpectedly, pathological evaluation revealed the presence of laminated acellular membranes, scolices, and germinal layers consistent with *Echinococcus granulosus* cysts. No evidence of mucinous neoplasm or carcinoma was found. The final diagnosis was primary peritoneal hydatidosis. The patient had an uneventful postoperative recovery. Post-surgical management included initiation of albendazole therapy at a dose of 15 mg/kg/day, in divided doses.

Follow-up contrast-enhanced abdominal CT scan obtained approximately six months after surgical intervention and albendazole therapy, showed a marked reduction in the number and volume of peritoneal cystic lesions (approximately 90% decrease). These radiologic findings correlate with significant clinical improvement, including resolution of anorexia and weight loss.



Figure 1. Initial contrast-enhanced abdominal CT scan showing multiple diffuse peritoneal cystic lesions



**Figure 2.** Follow-up abdominal CT scan demonstrating marked reduction in peritoneal cystic lesions

## Discussion

Primary peritoneal hydatidosis represents a rare and atypical form of echinococcosis, accounting for only a small fraction of hydatid disease cases (10). Unlike secondary peritoneal involvement, which usually results from the rupture or leakage of hepatic or pulmonary cysts, the primary form occurs in the absence of prior organ involvement (4). Its pathogenesis is believed to involve either hematogenous spread from the gastrointestinal tract or lymphatic dissemination, enabling *Echinococcus granulosus* larvae to reach and implant in the peritoneal cavity directly. This process circumvents the usual hepatic filtration system, leading to the development of cysts within the peritoneum as a primary site (11).

Clinically, patients often present with nonspecific symptoms such as abdominal pain, distension, or a palpable mass, which may lead to delayed diagnosis (12-14). Radiologically, CT is the modality of choice and commonly demonstrates multiple, well-defined cystic lesions distributed throughout the peritoneum. However, in the absence of hepatic or pulmonary cysts, imaging findings may closely resemble other peritoneal diseases, including pseudomyxoma peritonei, peritoneal carcinomatosis, or tuberculous peritonitis, thereby limiting diagnostic specificity (11,15,16).

Although imaging techniques, such as ultrasonography, CT, and MRI, are pivotal in the evaluation of hydatid disease, atypical cases like primary peritoneal hydatidosis may not be definitively diagnosed by imaging alone. In such cases, surgical exploration and histopathological examination remain crucial for

confirmation. In our patient, the extensive peritoneal distribution of cystic lesions without visceral involvement warranted surgical management, with histopathology ultimately establishing the diagnosis. Similar diagnostic approaches have been documented in other rare instances of primary extrahepatic *Echinococcus* infection (13,15,17).

In summary, primary peritoneal hydatidosis is an exceptionally rare presentation of echinococcosis that may occur in the absence of hepatic or pulmonary involvement, often leading to diagnostic uncertainty. Its clinical manifestations are typically nonspecific, and radiologic findings can closely mimic other peritoneal pathologies, thereby limiting the specificity of imaging alone. In atypical cases, definitive diagnosis frequently relies on surgical exploration and histopathological confirmation. Awareness of this rare entity, particularly in endemic regions, and the integration of radiologic, surgical, and pathologic findings are essential for timely diagnosis and appropriate management.

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