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Disseminated Cystic Echinococcosis: A Case Report

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Abstract | **Case Report**

Secondary cystic echinococcosis caused by *Echinococcus granulosus*, with simultaneous peritoneal, musculoskeletal, and neural foraminal involvement following a prolonged asymptomatic interval, is exceptionally rare. We report the case of a 54-year-old man presenting with abdominal distension and flank fullness, 15 years after open surgery for hepatic hydatid disease, with no subsequent follow-up. Surgical debulking was performed, followed by adjuvant cyclical albendazole therapy. This case highlights the importance of comprehensive cross-sectional imaging, particularly contrast-enhanced CT (CECT) for mapping disease extent, in guiding surgical planning and distinguishing disseminated hydatidosis from peritoneal carcinomatosis.

Keywords: Echinococcosis, Cystic; Computed Tomography; Peritoneal diseases; Spine; Case Report.

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INTRODUCTION

Cystic echinococcosis (CE), caused by the larval stage of Echinococcus granulosus, predominantly affects the liver (~70%) and lungs (~20%) [1]. Secondary peritoneal hydatidosis develops in <2% of cases, typically secondary to spontaneous cyst rupture or iatrogenic spillage during prior surgery[1,2] Musculoskeletal and spinal involvement is even rarer (<1–4%) [3].

Due to the slow growth rate of metacestodes, secondary seeding can remain clinically silent for decades[4]. We present a rare case of extensive peritoneal, retroperitoneal, psoas, and D11–D12 neural foraminal recurrence diagnosed 15 years after primary hepatic hydatid surgery.

CASE PRESENTATION

1-Clinical Presentation:

A 54-year-old male farmer presented with a 6-month history of painless abdominal distension, right flank fullness, and dull lower thoracic back discomfort. He had undergone an uncomplicated open hepatic hydatid cystectomy 15 years earlier and was lost to follow-up.

Physical examination revealed a healed subcostal scar, asymmetric non-tender hepatomegaly, multiple palpable abdominal/flank masses, and a deep fullness in the right iliac fossa. Neurological examination of the lower limbs was entirely normal. Laboratory testing revealed a normal absolute eosinophil count (210/µL) and positive Echinococcus IgG ELISA, confirmed by Western blot.

2-CECT Imaging Findings

Thoraco-abdomino-pelvic CECT demonstrated multi-compartment disease characterized by well-defined fluid attenuation (10–20 HU), multivesicular architectures with daughter cysts, floating membranes, and curvilinear mural calcifications.

➢ ***Thoracic involvement***:

- Contiguous multivesicular cystic lesions occupied the right posterobasal pulmonary region (***Fig.1 (A)***). They exhibited extensive extrapulmonary extension, involving the paravertebral region, with destruction of the posterior arches of the 11th and 12th ribs and adjacent transverse processes, associated with right neural foraminal extension at the D11–D12 levels and infiltration of the paravertebral muscles (***Fig.1(B, C)***).
- Lateral extension was also observed, with widening of the 7th, 8th, and 9th intercostal spaces, thinning of the mid-portion of the 7th and 8th ribs, and infiltration of the subcutaneous tissues of the chest wall.

- Inferiorly, the lesions crossed the diaphragm and extended into the abdominal cavity ***(Fig.2 (A))***.

➢ ***Abdominopelvic involvement:*** Abdominal involvement was diffuse, affecting several organs and anatomical compartments, including the liver, spleen, pancreas, mesentery, and retroperitoneal spaces:

- The liver was displaced anteriorly, and several calcified lesions, including a lesion in segment V and multiple coarse calcifications in segment VIII (***Fig.2 (C)).***
- A calcified lesion was also identified at the upper pole of the spleen, associated with additional splenic cystic lesions (***Fig.2 (B)).***
- A large multivesicular cystic lesion, involved the splenopancreatic region and the splenorenal space (***Fig.2 (B)).***
- The disease extended into the retroperitoneum and right psoas muscle, reaching the level of L4 and displacing the right kidney anteriorly (***Fig.2 (C)***).
- Mesenteric and rectovesical cysts were identified, causing anterior displacement of the urinary bladder (***Fig.3 (A,B)***).



Fig. 1: Axial images from thoracoabdominal CT demonstrating extensive thoracic involvement:
(A) Axial CT image (soft-tissue window) showing right posterior basal thoracic cystic lesions.
(B) Axial CT image (soft-tissue window) demonstrating paravertebral extension of the cystic lesions, reaching the right D11–D12 neural foramen, with associated widening of the intercostal space.
(C) Axial CT image (bone window) showing lysis of the posterior arch of the right 11th rib.

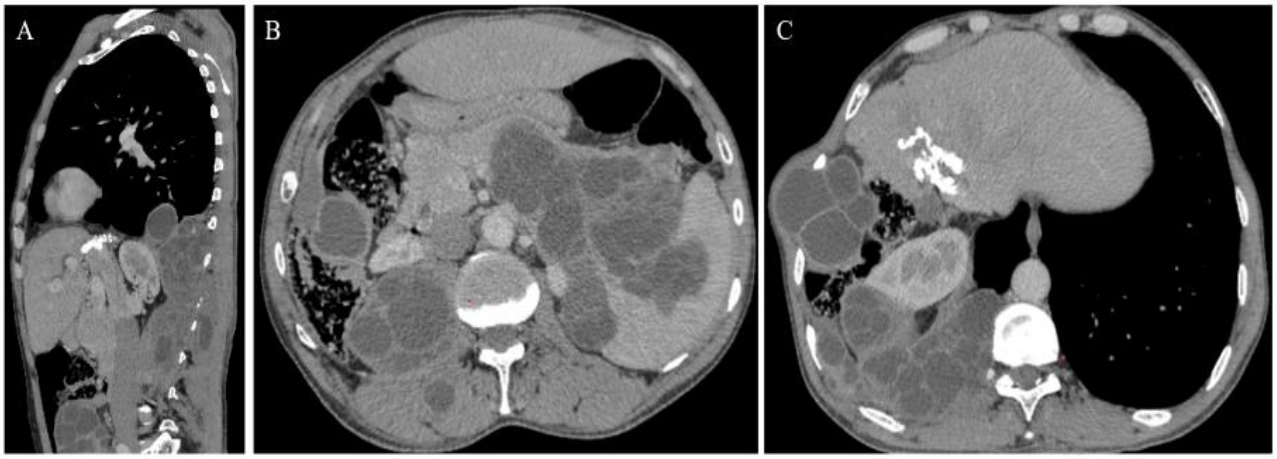


Fig.2: Multiplanar CT images demonstrating extensive abdominopelvic involvement of hydatid disease:
(A) Sagittal CT image (soft-tissue window) showing inferior transdiaphragmatic extension of hydatid disease into the abdominal cavity.
(B) Axial CT image (soft-tissue window) demonstrating multiple multivesicular cystic lesions involving the splenopancreatic region and extension into the right psoas major and erector spinae muscles.
(C) Axial CT image (soft-tissue window) showing a calcified cystic lesion involving the hepatic dome, associated with an extension to the right retroperitoneum, with anterior displacement of the right kidney

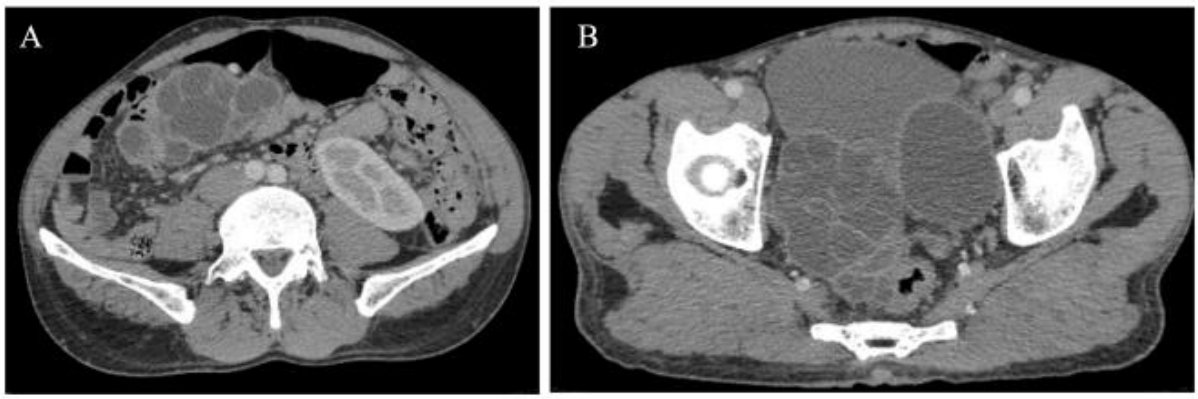


Fig. 3: Axial pelvic CT images (soft-tissue window) demonstrating multiple cystic lesions:
(A) Axial CT image showing a multivesicular mesenteric hydatid cyst.
(B) Axial CT image showing a large rectovesical hydatid cyst exerting mass effect on the urinary bladder, with anterior displacement.

MANAGEMENT AND OUTCOME

Management consisted of laparotomy with evacuation of the dominant intraperitoneal, pelvic, and right psoas cysts following hypertonic saline sterilization. The asymptomatic D11–D12 costovertebral lesion, without spinal canal involvement, was managed conservatively with albendazole to preserve spinal stability.

DISCUSSION

This case highlights two critical features of secondary cystic echinococcosis:

1. Prolonged Latency: Intraperitoneal spillage during primary surgery can take decades to manifest due to variable compartment compliance and slow parasitic kinetics [3,4].
2. Multi-Compartment Cross-Sectional Mapping: While ultrasound is suitable for initial screening, CECT is indispensable for comprehensive anatomical staging across the diaphragm, retroperitoneum, deep pelvis, and costovertebral junctions[1,5].

Differential Diagnosis

The key radiological features distinguishing disseminated CE from mimics include:

- ***Peritoneal Carcinomatosis:*** Shows irregular, nodular "**omental cake**" with avid solid enhancement, unlike the unenhanced, fluid-attenuation cysts of CE [1,4,6]
- ***Pseudomyxoma Peritonei***: Characterized by gelatinous ascites that scallops visceral margins, lacking distinct daughter vesicles and fibrous pericysts[7].
- ***Mesenteric Lymphangioma***: Thin-walled, non-calcified, compressible multilocular fluid collections without internal membranes[8].
- ***Tuberculous Peritonitis / Pott's Cold Abscess***: Typically features high-attenuation ascites (>20 HU), smooth peritoneal enhancement, and necrotic lymphadenopathy. Osseous tuberculosis predominantly destroys the intervertebral disc and contiguous endplates, whereas hydatid disease typically spares the disc space while remodeling bone [3,5].When neural foraminal widening or spinal erosion is identified on CT, complementary multiplanar spinal MRI is mandatory to definitively exclude epidural space invasion, thecal sac effacement, or early myelopathy [3].

CONCLUSION

Disseminated cystic echinococcosis may manifest years after initial surgery, with extensive involvement of multiple anatomical compartments. This case highlights the pivotal role of contrast-enhanced CT in accurately delineating disease extent, characterizing cystic lesions, and assessing their relationships with adjacent structures. Complementary spinal MRI is essential when neural foraminal involvement is suspected to evaluate potential spinal canal extension. Recognizing these atypical patterns of dissemination is crucial for accurate diagnosis, differential diagnosis, and optimal therapeutic planning

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