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VIDEO CASE REPORT

Primary musculoskeletal hydatid disease – a case report

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Summary
This case report describes a 33-year-old male with HIV on antiretroviral therapy who presented to a district-level hospital with a progressively enlarging back mass. Contrast-enhanced CT revealed a large multiseptated cystic mass in the posterior thoracoabdominal wall. Hydatid serology was positive. Management included antiparasitic treatment and surgical excision. This report underscores the need to consider hydatid disease in the differential diagnosis of cystic masses, especially in endemic areas, highlighting the importance of early detection and treatment. This contributes to a growing body of literature on atypical extrahepatic and extrapulmonary hydatid disease presentations.
Keyword: echinococcosis, hydatid disease, musculoskeletal hydatid disease, case report, video case report
Video available at: https://ojs.sabinet.co.za/index.php/sajs/article/view/962

Case report

A 33-year-old male patient presented to the district-level hospital with a progressively enlarging back mass that had been present for 10 years. The patient had a known history of human immunodeficiency virus (HIV) and was virally suppressed on first-line antiretroviral therapy. He had no history of prior opportunistic infections, including tuberculosis. Physical examination revealed a large, non-tender, cystic mass involving the right side of the patient's back with no skin changes nor evidence of active sepsis. To further evaluate the extent of the mass, a thoracic and abdominal contrast-enhanced computed tomography scan (CECT) was performed.

Imaging findings and investigations

The CECT revealed a large multiseptated cystic mass involving the posterolateral thoracoabdominal paraspinal muscles on the right side of the body. The mass showed characteristic features of hydatid disease, including thin septations, a "honeycomb" pattern with daughter cysts, and a partially calcified wall (Figures 1 and 2). The adjacent structures, including the spine and surrounding soft tissues, appeared to be displaced but not invaded by the mass. There was no pulmonary or hepatic involvement. These findings were consistent with a diagnosis of hydatid disease Type CE2 according to the World Health Organization Classification.[1]

Given the clinical presentation and radiological findings, hydatid serology was performed, yielding a positive result. Subsequent biochemical analyses revealed no additional abnormalities.

Operative management

Following diagnosis, the patient was taken to the operating room for surgical excision, deroofing of the cyst and washout with a scolicidal agent (Eusol). The primary objectives of surgical intervention are effective cyst removal, prevention of spillage, and protection of surrounding tissue. To mitigate the risk of seeding during surgery, the pericystic area and operating field were carefully isolated with swabs soaked with the scolicidal agent. Although a total pericystectomy was initially attempted, it was not feasible due to the extent of the disease, leading to an open cystectomy (Figure 3). The cystic mass was located between the muscle layers without invasion of surrounding structures. Given the extent of the mass, a fluted surgical drain was left in situ to facilitate external drainage and prevent fluid accumulation, minimising the risk of postoperative complications.

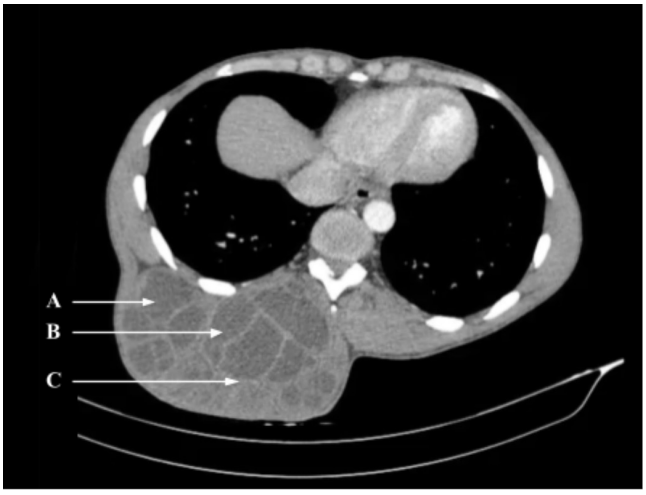

Figure 1: Axial CECT scans showing multiple slices through the thoracic and abdominal regions of the patient, revealing a large multiseptated cystic mass on the right side of the back. The images demonstrate the characteristic features of hydatid disease, including numerous daughter cysts (A), thin septations (B) and a partially calcified wall (C).

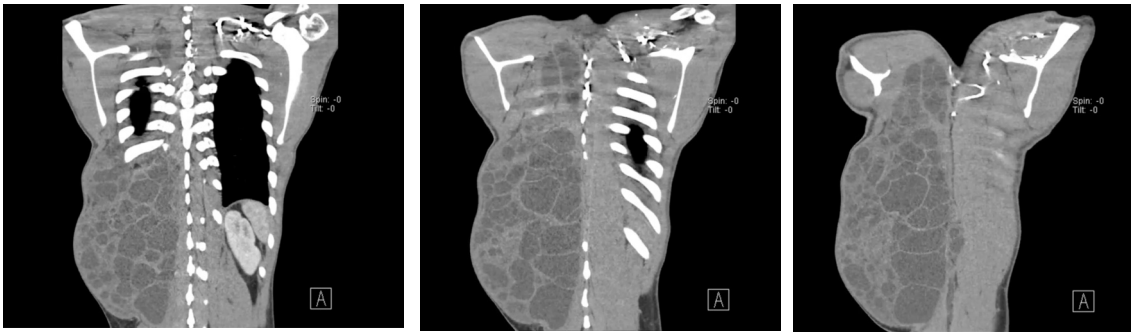

Figure 2: Coronal CECT scans showing multiple slices through the thoracic and abdominal regions of the patient, revealing a large multiseptated cystic mass involving the right posterior thoracoabdominal wall.

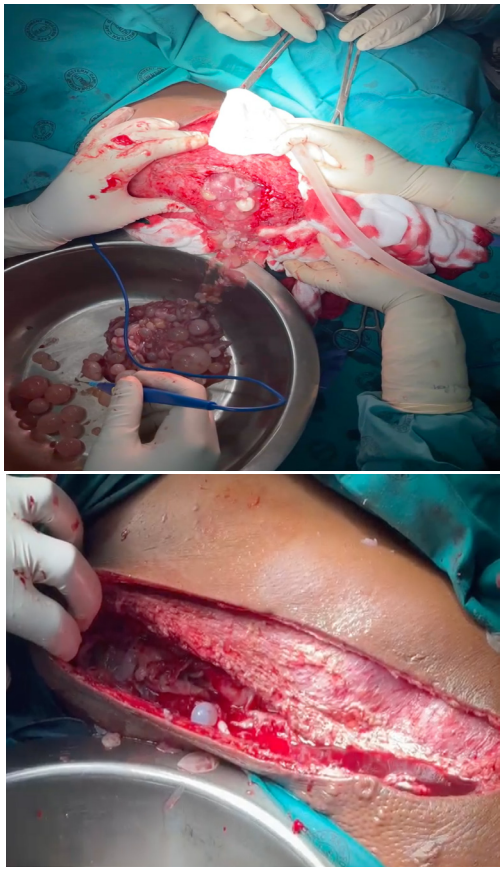

Figure 3: Intraoperative photograph showing the drainage of cyst contents. The procedure involved surgical excision and deroofing the cyst with subsequent washout of the contents with a scolicidal agent (Eusol). The cyst was located between the muscle layers of the patient's back.

Postoperative course

The patient experienced an uneventful postoperative recovery. Drain output was closely monitored, with a cumulative total output of less than 100 mL, allowing for its removal 48 hours after surgical excision. The patient was discharged in a stable condition with a clean dressing, to continue antiparasitic treatment as an outpatient. At the 10-day follow-up, surgical clips were removed. The wound was clean, with no features of sepsis and with evidence of healing. The histological results confirmed hydatid disease, with microscopy revealing sections of fragments of laminated cyst wall and protoscolices with background muscle and adipose tissue without features of dysplasia or malignancy. One month after discharge, the wound had fully healed with no signs of recurrence. The patient completed 12 weeks of antiparasitic treatment in total, with two-week treatment breaks at week four and eight of treatment.

Discussion

Hydatid disease, or echinococcosis, is a parasitic zoonosis caused by the larval stages of *Echinococcus* species, most commonly *Echinococcus granulosus*.[2] Adult tapeworms inhabit the intestines of definitive hosts, such as canines, where they release eggs into the environment through faeces. Intermediate hosts, including humans and livestock, ingest these eggs from contaminated soil, water, or food.[3] In humans, the larval form develops into a cystic mass, which can grow slowly over several years.[4] The liver and lungs are the most commonly affected organs, with hepatic and pulmonary cystic echinococcosis accounting for 90% of cases, but cases have been described involving other organs, such as the spleen, brain, and musculoskeletal system.[2,4,5] While the disease predominantly affects the liver and lungs, musculoskeletal involvement is particularly rare, where the prevalence of soft tissue and intramuscular cysts remains low, between 0.7% and 0.9%.[6] The clinical manifestation in the musculoskeletal system can be misleading, often mimicking other pathologies such as tumours or abscesses, which complicates the diagnosis.[7] In our case, the patient presented with a large multiseptated cystic mass involving the predominance of the right side of his posterior thoracoabdominal wall, and had no evidence of liver or lung involvement.

The pathophysiology of hydatid disease may explain the low incidence of musculoskeletal involvement. Larvae are ingested and absorbed by the duodenum. They are transported to the liver within the portovenous circulatory system.[6] They then embed themselves into the hepatic sinusoids where they mature into cysts. Rarely, they bypass the hepatic sinusoids and can enter the systemic circulatory system and affect extrahepatic and extrapulmonary sites. The musculoskeletal system, intramuscular deposition in particular, is a rare peripheral site due to lactate within muscle creating a hostile environment for further development of the cyst.[6]

Cystic echinococcosis in human and animal hosts typically occurs in temperate climate countries with close human-animal contact and is considered endemic in certain parts of the Mediterranean, Middle East and Asia.[2,3] In sub-Saharan Africa, the epidemiology of cystic echinococcosis remains poorly characterised, with the majority of literature surrounding cystic echinococcosis presented in the form of case reports. The predominance of cases reported in Southern Africa primarily involve atypical presentations,

such as cardiac and spinal hydatid disease, and thus do not provide commentary on the true epidemiological landscape.[8] No comprehensive epidemiological studies have been conducted in this region. Retrospective analysis of data from the National Health Laboratory Services revealed an overall positivity rate of 17% for hydatid disease across serological, microscopic, and histopathological tests.[8] Regional variations were noted, with the Eastern Cape exhibiting the highest positivity rate at 30.4%. This data highlights a potentially significant but under-recognised burden of hydatid disease, emphasising the urgent need for more detailed epidemiological investigations in the region. Given an increasingly mobile population and care quality related health-seeking behaviours, clinicians should enquire as to patients' travel history and migratory practices.

The diagnosis of hydatid disease is based on clinical suspicion, imaging findings, and serological tests. Imaging modalities such as CECT and magnetic resonance imaging (MRI) can help in characterising the cystic mass and assessing its relationship with adjacent structures. Imaging studies may reveal characteristic features of hydatid cysts, including multivesicular lesions and the presence of daughter cysts.[9] Serological tests, including hydatid serology, can aid in confirming the diagnosis.[9,10] In our case, the positive hydatid serology and characteristic imaging findings on a thoracic and abdominal CECT supported the diagnosis of hydatid disease involving the soft tissue of the back.

Treatment options for hydatid disease include medical therapy and surgical intervention.[2,4,5,10] The preferred treatment for hydatid cysts, especially in rare and critical locations, is surgical excision, often followed by the use of scolicidal agents to sterilise the cyst.[5,9] Antiparasitic drugs like albendazole are often used in conjunction with surgery to prevent recurrence.[2-5] In some cases, medical therapy is the primary treatment if surgery is not feasible. In our case, considering the large size and extensive involvement of the back, a multimodal treatment approach involving medical and surgical treatment was initiated. On follow-up, the patient was systemically well, with examination revealing a healed surgical site without recurrence of disease. Repeated imaging is only indicated when recurrence is suspected.

Given its rarity and the potential for significant morbidity, this case report highlights the importance of considering hydatid disease as a differential diagnosis in patients presenting with cystic masses, especially in endemic areas with close human-animal contact.[5,8,11] Early diagnosis and appropriate management are crucial to prevent complications and improve patient outcomes.

Further studies are crucial to explore optimal management strategies for hydatid disease, particularly in rare and challenging locations such as soft tissue and musculoskeletal involvement. This is especially important in sub-Saharan Africa, where the disease burden is likely underestimated due to limited access to healthcare, context-specific health-seeking behaviours, and constrained diagnostic capabilities. Comprehensive research in this region would not only help refine treatment approaches in low- to middle-income countries, but also improve our understanding of the epidemiology and clinical presentation of hydatid disease.

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Conflict of interest

The authors declare no conflict of interest.

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Ethical approval

Patient consent to medical and demographic data collection was obtained. Data collection falls under the Surgical Burden of Syndemic Suffering - Mitchells Plain Hospital Medical Database (S-BOSS | MPH) RedCap registry approved by University of Cape Town Health Sciences Surgical Division and Human Research Ethics Committee (HREC - R030/2023).

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