S Afr J Surg. 2025;63:247-249. Online first
https://doi.org/10.36303/SAJS.03095

S Afr J Surg
ISSN 038-2361

CASE REPORT

Spinal hydatid cyst with myelopathy: a rare case report

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Summary
A 23-year-old female presented with spinal cord compression and worsening motor weakness due to an extradural cyst in the thoracic spine on MRI thought to be due to a benign, non-infective spinal arachnoid cyst. Surgical excision surprisingly revealed a histological diagnosis of a spinal hydatid cyst. This case highlights that hydatid cyst disease, though a rare spinal pathology, should be considered as a differential diagnosis using serology and history of transmission risk as part of the preoperative workup. This would allow the implementation of intraoperative precautions to minimise risk of recurrence. Despite no preoperative diagnosis in this case, surgical excision and adjunctive pharmacotherapy led to marked short term neurological improvement. Long-term follow-up with clinical assessment, imaging, serological testing, is vital to detect recurrence early and optimise long-term outcomes. If serological testing is positive preoperatively it will assist with follow-up screening for recurrence.
Keywords: hydatid, cyst, myelopathy

Case report

This case focuses on an extradural spinal cyst which was initially presumed to be an arachnoid cyst, a diagnosis that would typically warrant marsupialisation as the management. However, subsequent histological analysis confirmed that the lesion was a hydatid cyst, necessitating complete surgical excision.

A 23-year-old female with no known comorbidities was referred to our institution with a two-week history of progressive lower limb weakness and reduced sensation. She first developed paraesthesia of the right lower limb, followed by weakness, which progressed to involve the left lower limb. She was unable to walk and presented with urinary retention and constipation. There was no history of trauma, constitutional symptoms or previous surgical interventions. The patient had no history of activities that would have increased her risk of hydatid disease, such as farming with sheep.

Physical examination revealed that the patient was fully conscious with no cranial nerve deficits. A neurological examination showed a sensory level for light touch and pinprick at T4. The lower limbs exhibited increased tone bilaterally with motor weakness more pronounced on the right. The patient had a Medical Research Council (MRC) power grade of 0/5 in the right lower limb at all joints, while on the left it was 2/5 at the hip and 1/5 at the knee and ankle. She had brisk patellar and ankle reflexes bilaterally and bilateral upgoing plantars. Respiratory, cardiovascular and abdominal examinations were non-remarkable. Radiological investigations using magnetic resonance imaging (MRI)

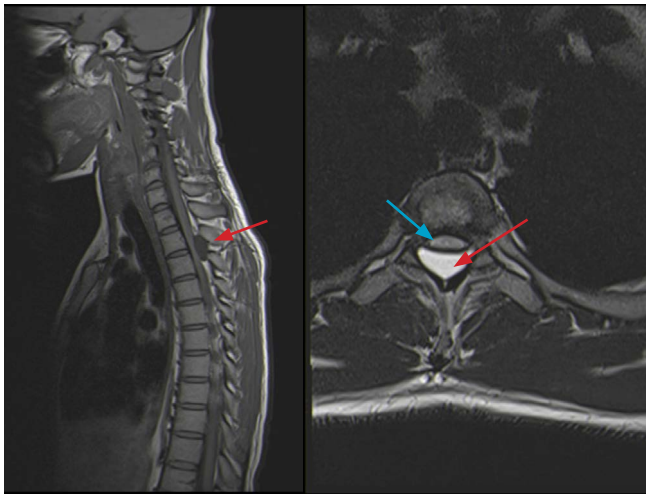

Figure 1: MRI T1 sagittal and T2 axial showing T2/T3 level spinal cyst in thoracic spine; red arrow – hydatid cyst, blue arrow – spinal cord compression

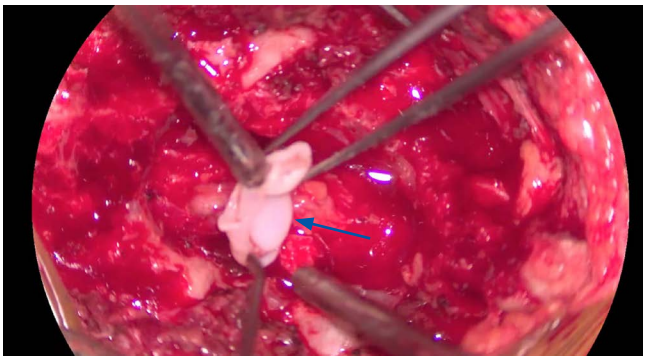

Figure 2: Intraoperative image of spinal hydatid cyst; blue arrow – hydatid cyst

revealed a T2 extradural cystic lesion with compression of the thecal sac and spinal cord (Figure 1).

The patient was admitted to the neurosurgical ward, where she was started on prophylactic anticoagulant therapy with Clexane and received pressure care. Operative management comprised of a T2 and T3 Laminectomy with excision of the extradural cyst. The lesion was visualised with a clear dissection border and displacement of the extradural fat. The cyst was decompressed during mobilisation and ruptured, although no hypersensitivity reaction was observed. The cyst was completely excised along with adjacent extradural fibrotic tissue. There were no daughter cysts within the excised cyst. The dura re-expanded and was pulsatile.

Histopathological evaluation revealed a hydatid cyst, and the patient was initiated on high-dose albendazole. Following surgery, the patient's surgical site recovered well, and she made significant neurological improvements, with power improving to 4/5 in her lower limbs. Bladder/bowel training revealed normal sensation and intact continence. Mobilisation was commenced with the aid of physiotherapy and the patient was ambulating independently upon discharge. She was followed up three months after discharge and remained well with full power in all limbs. Her lungs and liver screening will be done as an out-patient, as they were not performed during the initial presentation, however she was prescribed albendazole for a month.

Discussion

Hydatid cyst disease is a rare occurrence in the spine, accounting for only 0.5–1% of all reported cases.[1] It is caused by the parasite *Echinococcus granulosus*, which typically demonstrates a predilection for the liver and lungs due to the rich vascular supply of these organs.[2] However, hydatid cysts can develop in virtually any part of the body. The disease is endemic to regions including the Mediterranean countries, Middle East, South America, New Zealand, Australia, Southeast Asia, and China.[3] In South Africa, reported cases are often associated with individuals residing in farming communities, due to the heightened risk of direct transmission through dog bites or indirect infection via ingestion of contaminated food or water.[1,4]

The patient's final diagnosis was of a spinal hydatid cyst instead of initially presumed arachnoid cyst. This highlighted the varied course of management. Unlike arachnoid cysts, which are typically managed with marsupialisation, hydatid cysts require complete surgical excision without rupture, as intraoperative spillage can result in hypersensitivity reactions and dissemination of daughter cysts within the spinal canal. To minimise this risk, the surgical field should be irrigated with hypertonic saline, which has scolicidal properties.[5,6]

Historically, laminectomy remains the standard surgical approach.[7] There is a high risk of recurrence, reported in up to 18% of cases, and the potential for dissemination, which contributes to poor long-term disease-free survival.[8] Given the endemic presence of hydatid disease in various regions, including parts of South Africa, it is essential that surgeons maintain a high index of suspicion and apply intraoperative precautions where appropriate.[9,10]

This case illustrates the importance of histopathological confirmation in spinal cystic lesions. Without histological analysis, this may lead to missed diagnoses of serious parasitic infections such as spinal cysticercosis or hydatid disease. These conditions, although rare, are medically treatable with adjunctive pharmacologic therapy with agents such as albendazole alongside surgery.[2] Thus, serological testing should be considered, where available, in all suspicious cases, even in asymptomatic patients from endemic areas, to facilitate early diagnosis and comprehensive treatment. There is unfortunately a possibility of a false negative result with serological testing as in this patient who was tested after excision and the serological test was negative. Unfortunately, the rate of false positive results is relatively high, approaching 17.6% in some studies.

The most significant clinical observation in this case was the marked neurological improvement from a complete motor deficit (0/5) to near-complete recovery (4/5) postoperatively. Such a degree of recovery has rarely been reported in spinal hydatid disease and underscores the potential benefit of surgical intervention in patients with compressive symptoms. The patient will be followed up at 3 and 6 months and 1-year intervals with clinical review and surveillance imaging at 6 months and 1 year. Serological testing will also be repeated at 3 and 6 months as it can be positive in up to 60–70% of cases.

Lessons

A more proactive approach to the management of symptomatic spinal cysts is highlighted with the importance of including infectious cystic lesions in the differential diagnosis. Preoperative diagnosis would be facilitated using serology and enquiry regarding risk of transmission. This would allow appropriate surgical precautions to be taken to minimise the risk of recurrence. Treating surgeons should be cautious not to assume all spinal cystic lesions are arachnoid in origin. A broad differential, especially in endemic areas, is essential.

Acknowledgments

The researchers wish to acknowledge the patient for participation and consent in this case study. The researchers also wish to acknowledge the surgical team and clinical staff who contributed positively towards this case study.

Conflict of interest

The authors declare no conflict of interest.

Funding source

No funding was required.

Ethical approval

This case study report was approved by the University of KwaZulu-Natal biomedical research ethics committee reference number: BREC/00008642/2025. Additionally, the patient provided written consent for use of data, imaging and manuscript.

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