

CASE REPORT

Intramuscular hydatid cyst of paraspinal muscle: A diagnostic challenge

Anisha Shrestha¹  | Anish Kumar Shrestha¹  | Alok Deo² | Gopal Raman Sharma²¹Neurosurgery, Dirghayu Guru Hospital Pvt. Ltd., Kathmandu, Nepal²Neurological Surgery, Dirghayu Guru Hospital Pvt. Ltd., Kathmandu, Nepal**Correspondence**Alok Deo, Neurological Surgery, Dirghayu Guru Hospital Pvt. Ltd., Kathmandu, Nepal.
Email: dralokdeo@gmail.com**Abstract**

Hydatid cyst is a zoonosis caused by ingestion of eggs of *Echinococcus*-a tapeworm. Following ingestion of the eggs, oncosphere larvae are released which penetrate the intestinal wall to invade various organs of the body including liver, lungs, and skeletal muscles via blood vessels. Due to their contractile nature and high lactic acid content, skeletal muscles are typically not a suitable site for attachment of hydatid cyst. In our case report presented below, we report a rare case of an isolated hydatid cyst of paraspinal muscle presenting as a slow-growing asymptomatic mass in the back, posing a clinical diagnostic dilemma.

KEYWORDS

echinococcosis, hydatid cyst, intramuscular, lamellated membrane, paraspinal muscle

1 | INTRODUCTION

Echinococcosis (Hydatid cyst) is a zoonosis caused by the ingestion of eggs of a tapeworm belonging to the genus *Echinococcus* (family Taeniidae). Of the many species of *Echinococcus*, two species carry medical as well as public health importance-*Echinococcus granulosus*, causing cystic echinococcosis, and *Echinococcus multilocularis*, causing alveolar echinococcosis.¹ Following infection of the definitive hosts (dogs and other canines), eggs of *Echinococcus* are released in feces. These eggs are ingested by intermediate hosts (sheep, humans, etc.), where an oncosphere larva is released from the egg within their intestine. This larva then penetrates through the lamina propria and travels via the blood vessels to various organs of the body of the host including skeletal muscles.²

2 | CASE PRESENTATION

A 45-year-old female presented to our hospital with complaints of a slowly enlarging mass in her back for 6 years. She added that the mass had recently started to become painful and caused a burning sensation with weakness in her left arm. She had no complaints of chest or abdominal pain; no history of abnormal body movements or loss of consciousness, and no history of such masses in other areas of her body. On examination, she was well-oriented to time, place, and person. Her power was 5/5 on bilateral upper and lower extremities. There was a 15 × 8 cm circular, firm, immobile mass on her left upper back, behind the neck, and beside the scapula. Her routine laboratory tests including hemoglobin, renal function test and liver function test were normal except for her total leucocyte count which was 15,700 with 10% Eosinophils. With a

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consideration of a possible parasitic infection, serology for hydatid cyst and an MRI scan was ordered. The serology report turned out to be negative for *Echinococcus* IgG antibody; however, the MRI report should a unilocular cyst which was hyperintense on T2-weighted imaging (Figure 1) with a hypointense pericyst (Figure 2) suggestive of a diagnosis of hydatid cyst. Further questioning revealed no history of contact with sheep or dogs. Furthermore, her liver sonographic scan and her chest x-ray showed normal scans excluding possible disseminated disease.

With a provisional diagnosis of an intramuscular hydatid cyst, an en-bloc surgical excision of the cyst was planned. Per-operative findings revealed a milky white cyst wall with clear fluid attached medially and anterior to the root of the spine of the scapula within the muscular plane. The cyst was sent for histopathologic analysis which confirmed the diagnosis of hydatid cyst. Postoperatively, albendazole was continued. She is on regular follow-up and reports improvement in her symptoms after the procedure.

3 | DISCUSSION

The most common site of hydatid cysts is the liver (as blood from the intestine travels through the portal circulation, 75%), followed by the lungs (10%).³ However, other sites including the brain, bone, thyroid, muscle, etc. can

get infected.^{4–6} Intramuscular hydatid cyst accounts for less than 3% of cases. The contractile nature of the muscles and the high lactic acid content make muscles not a suitable site for implantation of hydatid cysts.³ Among various muscle groups too, paraspinal muscles are much more rarely affected.^{7,8}

Hydatid cyst of muscle usually presents as a painless, slow-growing, asymptomatic mass with a normal overlying skin, similar to our case presented above. A high index of suspicion is therefore necessary as its differential diagnosis can range from chronic hematoma and lipoma to malignant soft tissue tumors such as myxoid liposarcoma.^{7–9} The diagnosis of hydatid cysts is initially sought with serology and imaging findings.^{10–12} Indirect ELISA for antibody detection is used for a serological diagnosis in our institute. Even though this test has a sensitivity and specificity of 94.2% and 81.6% respectively, its false negative rate can range from 3% to 40%, especially in hyper-endemic areas.¹⁰ This could be the reason for our negative serology test as Nepal falls in an endemic zone for hydatid cysts.

Initial radiological evaluation is usually done via a sonographic scan. An magnetic resonance imaging (MRI) is more sensitive and specific for the diagnosis of hydatid cyst. Multi-vesicular lesions are the most commonly reported presentation. However, a unilocular cyst which is hyperintense in T2-weighted imaging, surrounded by a hypointense pericyst is also a relatively specific imaging finding, as demonstrated in our case report.^{11,12}

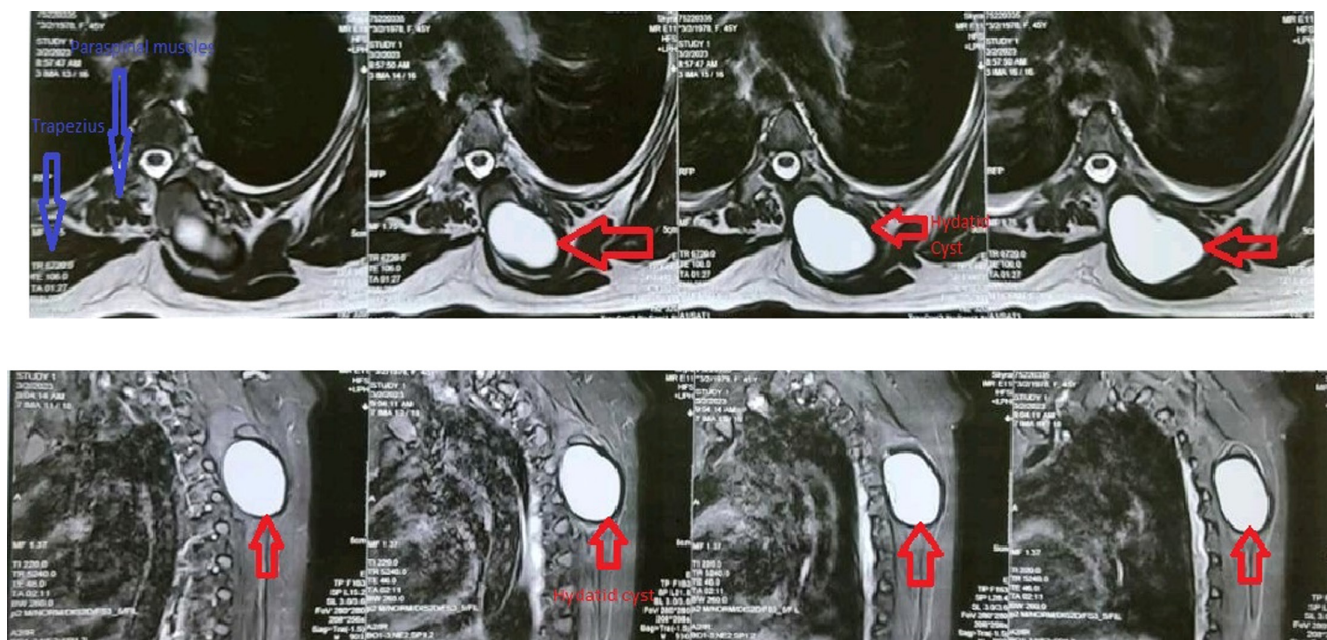


FIGURE 1 T2 weighted MRI, transverse section showing trapezius and paraspinal muscles of the right side (blue labeled), and hyperintense unilocular hydatid cyst in the area of left paraspinal muscles (red labeled). Longitudinal section showing hyperintense unilocular hydatid cyst surrounded by a hypointense rim.



FIGURE 2 Histology showing outer acellular part of lamellated membrane of hydatid cyst.

Following a provisional diagnosis, the treatment of hydatid cysts consists of various surgical and medical approaches. Total pericystectomy, subtotal pericystectomy, and PAIR with chemotherapy are some of the treatment options.¹¹ In our case, we opted for total pericystectomy with a postoperative histological confirmation of the diagnosis. The cyst fluid is usually clear and is a transudate of serum-containing proteins. This fluid is antigenic and if released in a body cavity, for example, the abdomen, can lead to a serious anaphylactic reaction.¹³ Postoperative histology, which would show a laminated membrane with a germinal layer, brood capsules, and protoscolices confirms the diagnosis.¹⁴ Recurrence may occur after surgical excision and depends upon the site. Recurrence after surgical excision in muscle involvement is rare.⁶

4 | CONCLUSION

In an endemic area, a hydatid cyst of skeletal muscle may present as a slow-growing mass in the back. Serologic tests often have a high false negative rate in such areas, hence the diagnosis is typically made using imaging techniques. Even though a sonographic scan is usually used for initial radiologic evaluation, an MRI scan is more sensitive and specific for the diagnosis of hydatid cyst.

AUTHOR CONTRIBUTIONS

Anisha Shrestha: Conceptualization; formal analysis; writing – original draft; writing – review and editing.

Anish Kumar Shrestha: Conceptualization; formal analysis; writing – original draft; writing – review and editing.
Alok Deo: Formal analysis; supervision; writing – review and editing.
Gopal Raman Sharma: Conceptualization; supervision; writing – review and editing.

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DATA AVAILABILITY STATEMENT

The data used to support the findings of this study are included within the article.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

ORCID

Anisha Shrestha  <https://orcid.org/0000-0002-4066-0631>

Anish Kumar Shrestha  <https://orcid.org/0000-0001-8081-7544>

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