

Musculoskeletal Hydatid Cyst around Pelvis: A Case Report and Review of Literature

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Learning Point of the Article:

In the treatment of musculoskeletal hydatid cyst, meticulous multidisciplinary pre-operative planning involving a gastrosurgeon, a plastic surgeon, and an orthopedic surgeon is essential for achieving favorable post-operative functional outcomes.

Abstract

Introduction: Human hydatid disease is a parasitic infection caused by *Echinococcus granulosus*. Bone involvement is only about 0.2–3% of all hydatid cyst cases [1]. Within bone hydatidosis, pelvic sites constitute a minority compared to vertebrae and long bones.

Case Report: A 25-year-old female from a rural background presented to our outpatient department with complaints of recurrent swelling in the left lower abdominal quadrant for the past 4 months, which had been gradually increasing in size. She had been treated elsewhere for similar complaints 3 years back, where she was evaluated and managed with surgical excision of the cystic swelling, and was asymptomatic for a period of 3 years. The patient was diagnosed with Hydatid disease involving the body of ilium and was further evaluated with plain radiograph, CT scan and MRI to identify the extent of the disease. A multidisciplinary team was involved for proper planning and involving the team of gastrosurgeon, orthopaedic surgeon and a plastic surgeon.

Conclusion: Bone hydatidosis is considered a rare condition, and surgical excision remains the cornerstone of treatment, although recurrence is frequent, particularly in anatomically challenging locations. Owing to the infiltrative behavior of the infection, complete surgical eradication is often difficult, and reported recurrence rates are on the higher side. To achieve a good functional outcome postoperatively, a good rehabilitation program and gait training are often required for achieving satisfactory functional outcome.

Keywords: Hydatid disease, bone, recurrence.

Introduction

Human hydatid disease is a zoonotic infection by *Echinococcus granulosus*, acquired through ingestion of egg-contaminated food or water. The liver and lungs are the predominant sites of cyst formation, whereas musculoskeletal involvement is rare. Osseous hydatidosis represents only 0.2–3% of all reported cases [1]. In bone hydatidosis, pelvic sites are less common than vertebral or long-bone involvement. Primary osseous disease

arises from hematogenous spread of scolices bypassing hepatic and pulmonary filters, explaining its rarity. Unlike soft-tissue cysts, bone lesions lack pericyst formation, infiltrate trabeculae, show irregular margins without sclerosis or periosteal reaction, and rarely calcify [2, 3]. Osseous cystic echinococcosis presents considerable therapeutic difficulties owing to its high recurrence rate, particularly in sites such as the ilium and hip, where complete surgical excision is technically challenging.

Author's Photo Gallery



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Figure 1: Pre-operative examination showing a previously healed surgical mark.

Case Report

A 25-year-old female from a rural background presented to our outpatient department with complaints of recurrent swelling in the left lower abdominal quadrant for the past 4 months, which had been gradually increasing in size. There was no history of associated fever, urinary or bowel disturbances, significant weight loss, discharge, or preceding trauma. She reported a similar episode 3 years earlier, for which she underwent evaluation and surgical excision of a cystic mass at another center; however, detailed medical records were unavailable. A healed surgical scar mark of 8×1 cm was present over the left iliac region extending along the iliac crest (Fig. 1), and 1 scar mark of 2×2 cm was present over the left gluteal region. The patient remained asymptomatic for approximately 3 years following the initial procedure.

Clinical examination

Abdominal examination revealed a soft, non-tender, palpable mass measuring approximately 7×7 cm in the left iliac fossa. The mass was firm in consistency, non-mobile, and appeared fixed to the underlying structures.

Plain radiography demonstrated osteolytic lesions involving the left iliac wing with extension into a portion of the sacrum (Fig. 2).

Contrast-enhanced computed tomography revealed an expansile osteolytic lesion in the left iliac



Figure 2: Plain radiography demonstrated osteolytic lesions involving the left iliac wing with extension into a portion of the sacrum.

bone, accompanied by a surrounding multiloculated lesion involving the iliopsoas and gluteus medius muscles, with multiple thin-walled cystic components (Fig. 3), whereas the magnetic resonance imaging (MRI) revealed a well-defined multiloculated cystic lesion with lobulated margins in the left iliac bone, breaching the cortex and extending into the iliopsoas and gluteus medius, with additional smaller lesions in adjacent muscles. Follow-up MRI at 3 months showed progression, with a multiloculated cystic mass involving the iliac bone, cortical disruption, anterior extension to the abdominal wall, and inferior spread to the level of the hip joint. Pre-operative planning was done involving the team of a gastrosurgeon, orthopedic surgeon, and a plastic surgeon. Thorough surgical debridement was planned, along with careful exploration of the neurovascular bundle.

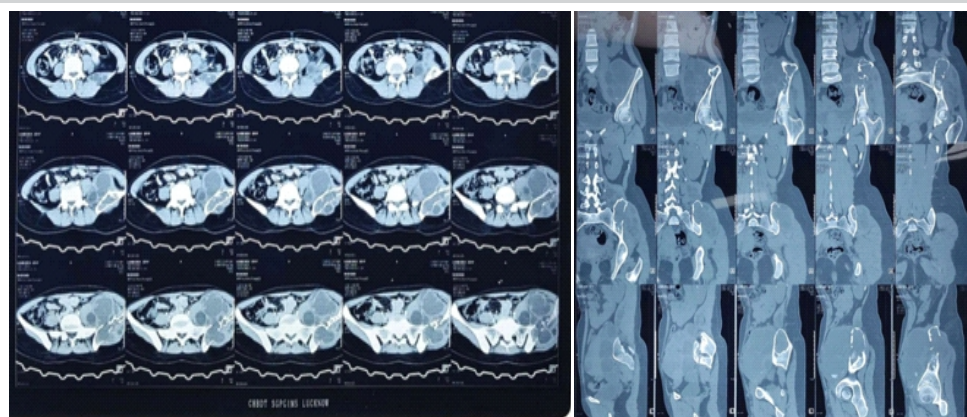


Figure 3: (a) Patient's computed tomography (CT) pelvis showing involvement of lesion in the left iliac bone, surrounding multiloculated lesion involving the iliopsoas and gluteus medius muscles. (b) Patient's CT pelvis coronal section showing involvement of the lesion in the left iliac bone.

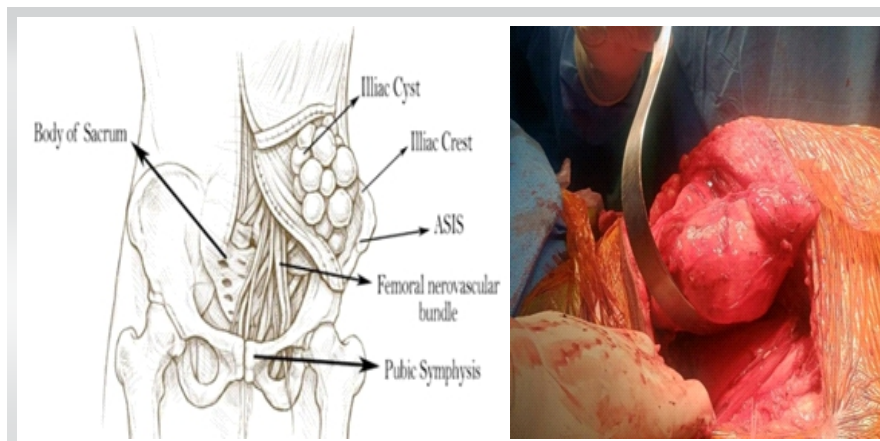


Figure 4: Schematic diagram (artificial intelligence generated) showing extensive involvement of the ilium and intra-operative image showing the cyst protruding from the ilium.

Positioning

The patient was taken inside the operating theater and was positioned in the right lateral decubitus position.

Surgical steps

Endopelvic exploration was performed via an anterior approach, with an incision from the pubic symphysis to the anterior superior iliac spine, extended along the iliac crest. The femoral neurovascular bundle was preserved, and the anterior abdominal wall muscles were reflected from the pubic ramus and inguinal ligament. Multiple cysts were observed protruding from the left iliac blade into the extraperitoneal space. Hip exposure was achieved through a Tshaped incision, beginning at the posterior inferior iliac spine, extending along the iliac crest to join the anterior incision, and continuing distally lateral to the

femoral vessels before curving around the thigh. Dissection proceeds more deeper meticulously and under loupe magnification to preserve the neurovascular bundles of the Gluteus maximus muscle and the fibers of the gluteus maximus and gluteus medius were separated, multiple cysts were encountered within the gluteus medius and minimus muscle. After meticulous dissection and confirmation of the cyst boundaries, careful excision of the cyst was performed along with a Type I left hemipelvectomy using a bone saw Fig 4.

During the procedure, the cyst was removed in toto, no anaphylactic reaction was observed intraoperatively. Thorough irrigation was

carried out using 3% hypertonic saline followed by 10% povidone-iodine solution for 20–30 minutes. The cyst was also found to involve the body of the ilium and was removed using a curette, followed by additional irrigation with 10% povidone-iodine solution. All involved muscles were excised, including a major portion of the gluteus medius, gluteus minimus, and quadratus lumborum, while the gluteus maximus was preserved.

Wound closure was performed in layers with two drains left in situ. Endoprosthetic reconstruction was avoided to reduce infection risk, and postoperative albendazole was maintained for six months..

Post-operative period

The post-operative period was uneventful; however, the patient had developed numbness over the anterolateral aspect of the left thigh extending up to the left ankle, which was attributed to neurapraxia. Drains and sutures were removed on post-operative day 14, with the surgical wound noted to be healthy and dry; also, numbness had reduced, and was localized over the anterolateral aspect of left thigh. A post-operative radiograph and CT scan were done, which showed no evidence of any remnant lesion (Fig. 5 and 6).

Complications

The complications we encountered in the post-operative period were numbness over the anterolateral aspect of the left thigh and abductor muscle weakness, which manifested as an abductor lurch gait.

Rehabilitation

Gentle hip abduction and adduction exercises were initiated 2



Figure 5: Post-operative X-ray of the pelvis with both hips showing type I hemipelvectomy.



Figure 6: ?Post-operative 3D computed tomography pelvis.

weeks after surgery. At 4 weeks postoperatively, the patient was able to ambulate with support, exhibiting an abductor lurch attributable to post-operative abductor muscle weakness. She was started on hip abduction exercises. At 6 weeks postoperatively, the numbness was limited to the anterolateral aspect of the proximal third of the left thigh, and range of movement had improved; she was able to do ground-level activities. Comprehensive gait training and rehabilitation were initiated, leading to a satisfactory functional recovery. At 3 months following surgery, the patient was able to sit cross-legged and squat comfortably (Fig. 7), and could ambulate independently without external support, though a mild residual lurch persisted.

Discussion

Osseous hydatid disease is a rare parasitic infection caused by the larval stage of *Echinococcus* tapeworm, with skeletal involvement reported in only 0.2–3% of hydatid cyst cases [1]. Osseous hydatidosis predominantly affects the vertebrae, with pelvic sites less frequent than vertebral and long-bone involvement. *E. granulosus* completes its cycle in dogs and other carnivores (definitive hosts), with sheep and herbivores as intermediates; humans are accidental hosts. Transmission

occurs via the fecal–oral route, with larvae entering the portal circulation and primarily involving the liver. Hematogenous spread accounts for dissemination: ~90% of cysts occur in the liver and lungs, 2–3% in kidneys, spleen, and muscles, and <1% in heart, brain, or bone. Among skeletal cases, vertebrae are most common (~50%), followed by pelvis (16–28%) [3].

The disease often remains asymptomatic until advanced, when bone pain or deformity may develop. Physical findings are typically minimal. Given its non-specific presentation, a high index of suspicion is warranted in at-risk populations such as shepherders and butchers.

Differential diagnoses include infectious conditions, particularly tuberculosis, and neoplasms, with additional considerations depending on lesion location [4].

Hydatid cysts may cause symptoms due to mass effect, obstruction, or allergic reactions. Management typically combines surgical excision with anthelmintic therapy to reduce recurrence [2]. Musculoskeletal hydatidosis can mimic infections or tumoral lesions, making diagnosis challenging.

Although MRI and CT are the most accurate imaging modalities, ultrasound and plain radiography remain widely used in endemic, resource-limited settings [3, 5]. Plain radiographs in skeletal hydatidosis often show non-specific expansile radiolucent lesions with cortical thinning, mimicking spinal tuberculosis or primary bone tumors. Pelvic involvement, particularly of the iliac bone, may display a characteristic “waffle-like” osteolytic pattern. CT typically reveals well-defined ovoid cystic lesions, sometimes with “double-layered arcuate” calcifications, and is useful for evaluating cortical erosion and pathological fractures [1, 6, 7]. Surgery remains the primary treatment, supplemented by



Figure 7: (a and b) Post-operative 3 months, patient able to squat and sit with crossed leg comfortably.

Table 1: Outcomes of different studies related to pelvic and hip hydatid disease

Author year	Lesions	Initial diagnosis	Management	Outcome
Belzunegui <i>et al.</i> (1997) [13]	Hemipelvis and proximal femur	-	Girdlestone arthroplasty followed by 10-year chemotherapy	Recurrence, managed by chemotherapy
Siwach <i>et al.</i> (2009) [14]	Pelvis and femur (pathological fracture)	-	Hindquarter amputation followed by chemotherapy	Death due to sepsis
Nath <i>et al.</i> (2009) [15]	Iliac bone, acetabulum, ischial tuberosity and pubic rami	ABC, recurrence was also labeled as ABC	Wide excision	-
Neelapal <i>et al.</i> (2010) [16]	Hip joint and ilium	Propionibacterial infection	2 years of chemotherapy followed by cemented THR	Recurrence, managed by customized hemipelvic replacement
Bhatnagar <i>et al.</i> (2017) [3]	Acetabulum, pubic rami and femoral head	-	Surgical excision followed by chemotherapy	No recurrence and good functional outcome

ABC: Aneurysmal bone cyst, THR: Total hip replacement

albendazole ($\pm$ praziquantel), though radical bone resection is technically challenging and prosthetic implantation carries high infectious risk [8].

Verghese *et al.* described a scapular case of hydatid bone disease, emphasizing that primary osseous involvement is rare and frequently misdiagnosed on initial clinical and radiological evaluation due to non-specific features. Recognition of this entity is essential in the differential diagnosis of bony lesions [9]. Osseous hydatid cysts are rare but potentially serious lesions that exhibit behavior similar to locally aggressive malignancies. While immunofluorescent assays can aid in diagnosis, definitive confirmation relies on histopathological examination. Surgical excision remains the cornerstone of treatment, although recurrence is frequent, particularly in anatomically challenging locations [10].

Reported complications include pathological fractures, secondary infection, fistula formation, and frequent recurrence

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

References

- Papanikolaou A. Osseous hydatid disease. *Trans R Soc Trop Med Hyg* 2008;102:233-8.
- Rammeh S, Romdhane E. Pathological Diagnosis of Appendicular Musculoskeletal Infections. In: Peh WC, Ladeb MF, editors. *Imaging of Appendicular Musculoskeletal Infections Medical Radiology*. Cham, Switzerland: Springer Nature; 2025. p. 33-74. Available from: https://link.springer.com/10.1007/978-3-031-93638-8_3 [Last accessed on 2026 Jan 24].
- Bhatnagar N, Kishan H, Sura S, Lingaiah P, Jaikumar K. Pelvic hydatid disease: A case report and review of literature. *J Orthop Case Rep* 2017;7:25-8.
- Inayat F, Azam S, Baig AS, Nawaz G, Ullah W. Presentation patterns, diagnostic modalities, management strategies, and clinical outcomes in patients with hydatid disease of the pelvic bone: A comparative review of 31 cases. *Cureus* 2019;11:e4178.
- Ammar A, Riahi H, Chaabouni M, Venturelli N, Renault V, Dray B, *et al.* The multifaceted musculoskeletal hydatid disease. *Skeletal Radiol* 2024;53:2181-94.
- Govindasamy A, Bhattarai PR, John J. Lytic parasitic: A case of bone destructing echinococcosis. *Ther Adv Infect Dis*

[11]. Hydatid bone disease mimics tumors; the parasite spreads along paths of least resistance, producing progressive erosion with fracture risk, and recurs in up to 48% due to incomplete eradication, as shown in Table 1 [12].

Conclusion

Osseous hydatid disease is a rare manifestation of echinococcal infection that presents major diagnostic and therapeutic challenges. Surgical excision remains the cornerstone of management,

yet complete eradication is often hindered by proximity to vital neurovascular structures and the need to preserve function. Consequently, residual disease and high recurrence rates are common. Radical resection may also result in post-operative muscle weakness requiring intensive rehabilitation. Intraoperative cyst rupture and local dissemination further compound recurrence risk despite scolical measures and adjuvant anti-helminthic therapy. These factors underscore the necessity of thorough debridement, extended medical therapy, and vigilant long-term follow-up.

Clinical Message

Optimal functional outcomes in musculoskeletal hydatid cyst disease depend on meticulous surgical planning and a multidisciplinary approach; while radical resection remains key to preventing recurrence, it is also the most common complication.

2021;8:20499361211047664.

7. Boussaid S, Daldoul C, Hassayoun M, Rekik S, Jammali S, Sahli H, et al. Primitive pelvic bone hydatidosis: What an amazing extension. Clin Case Rep 2021;9:e05054.

8. Laasri K, Naggar A, Bahlouli N, Chait F, Ahallat I, Boufettal M, et al. Osseous hydatid disease: A mimic of other skeletal pathologies. Radiol Case Rep 2023;18:3145-51.

9. Verghese SC, George ST, Duraisamy P, Karthikeyan TM, Kumar SA, Arasu S. A rare case report of primary hydatid disease of the scapula - an unforeseen diagnosis! J Orthop Case Rep 2022;12:98-101.

10. Loudiye H, Aktaou S, Hassikou H, El-Bardouni A, Manouar ME, Fizazi M, et al. Hydatid disease of bone. Review of 11 cases. Joint Bone Spine 2003;70:352-5.

11. Kalinova K, Proichev V, Stefanova P, Tokmakova K, Poriazova E. Hydatid bone disease: A case report and review of the literature. J Orthop Surg (Hong Kong) 2005;13:323-5.

12. Atalay İB, Ulucaköy C, Seyhoğlu MC, Yükrük FA,

Mısırlıoğlu M, Güngör BŞ. A rare lesion that mimics a bone tumor: Osseous hydatidosis. Jt Dis Relat Surg 2022;33:435-9.

13. Belzunegui J, Maiz O, Lopez L, Plazaola I, Gonzalez C, Figueroa M. Hydatid disease of bone with adjacent joint involvement. A radiological follow-up of 12 years. Rheumatology 1997;36:133-5.

14. Siwach R, Singh R, Kadian VK, Singh Z, Jain M, Madan H, et al. Extensive hydatidosis of the femur and pelvis with pathological fracture: A case report. Int J Infect Dis 2009;13:e480-2.

15. Nath P, Bhattacharya S, Dutta V, Joshi GR, Patel M. Primary iliac bone hydatid disease: An unusual presentation. Med J Armed Forces India 2009;65:180-1.

16. Neelapala VS, Chandrasekar CR, Grimer RJ. Revision hip replacement for recurrent Hydatid disease of the pelvis: A case report and review of the literature. J Orthop Surg 2010;5:17.

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